United States Patent [19]

Snyder et al.

[11] **3,791,312**

[45] **Feb. 12, 1974**

[54] **FREIGHT CAR END CONSTRUCTION**

[75] Inventors: **Richard C. Snyder,** Michigan City; **Donald C. Bodinger,** Portage, both of Ind.

[73] Assignee: **Pullman Incorporated,** Chicago, Ill.

[22] Filed: **Jan. 3, 1972**

[21] Appl. No.: **214,992**

[52] **U.S. Cl.** **105/423,** 105/409

[51] **Int. Cl.** **B61d 17/18**

[58] **Field of Search** ... 105/406, 410, 355, 374, 405, 105/409, 423

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Primary Examiner—Gerald M. Forlenza
Assistant Examiner—Richard A. Bertsch
Attorney, Agent, or Firm—Richard J. Myers

[57] **ABSTRACT**

In a railroad freight car, an end lining on which corrugated sheet is mounted, the end lining comprising a plurality of upright transversely elongated tubular members filled with pulverant materials such as sand or the like, and wherein the adjustable closure member on each lateral side of the end lining being laterally adjustable for attachment to the corner posts of the car, such closure member also being filled with said pulverant material.

7 Claims, 5 Drawing Figures

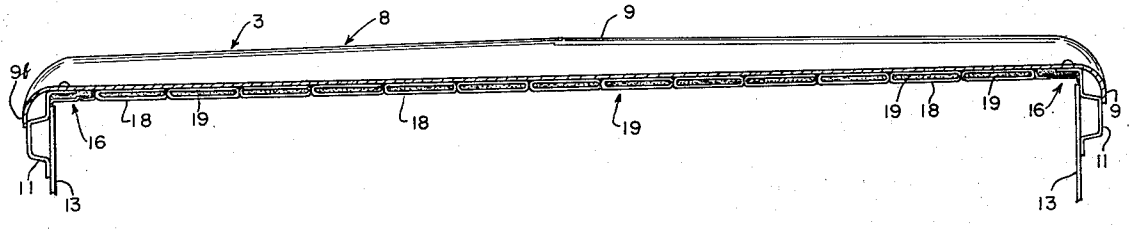
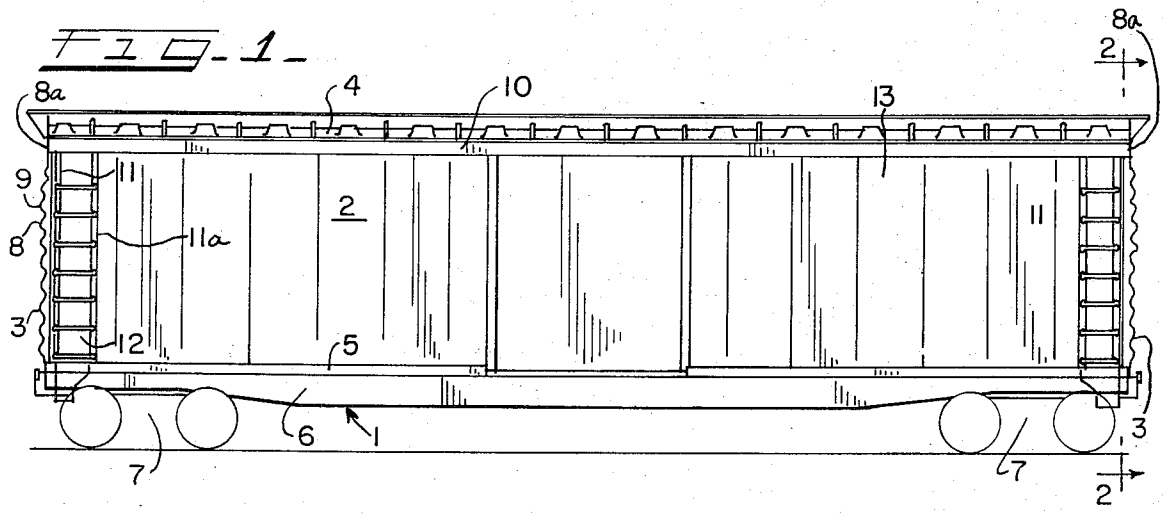


FIG. 1


8a
2
4
10
13
8a
9
11
11a
2
11
8
3
12
5
6
1
3
7
7
2

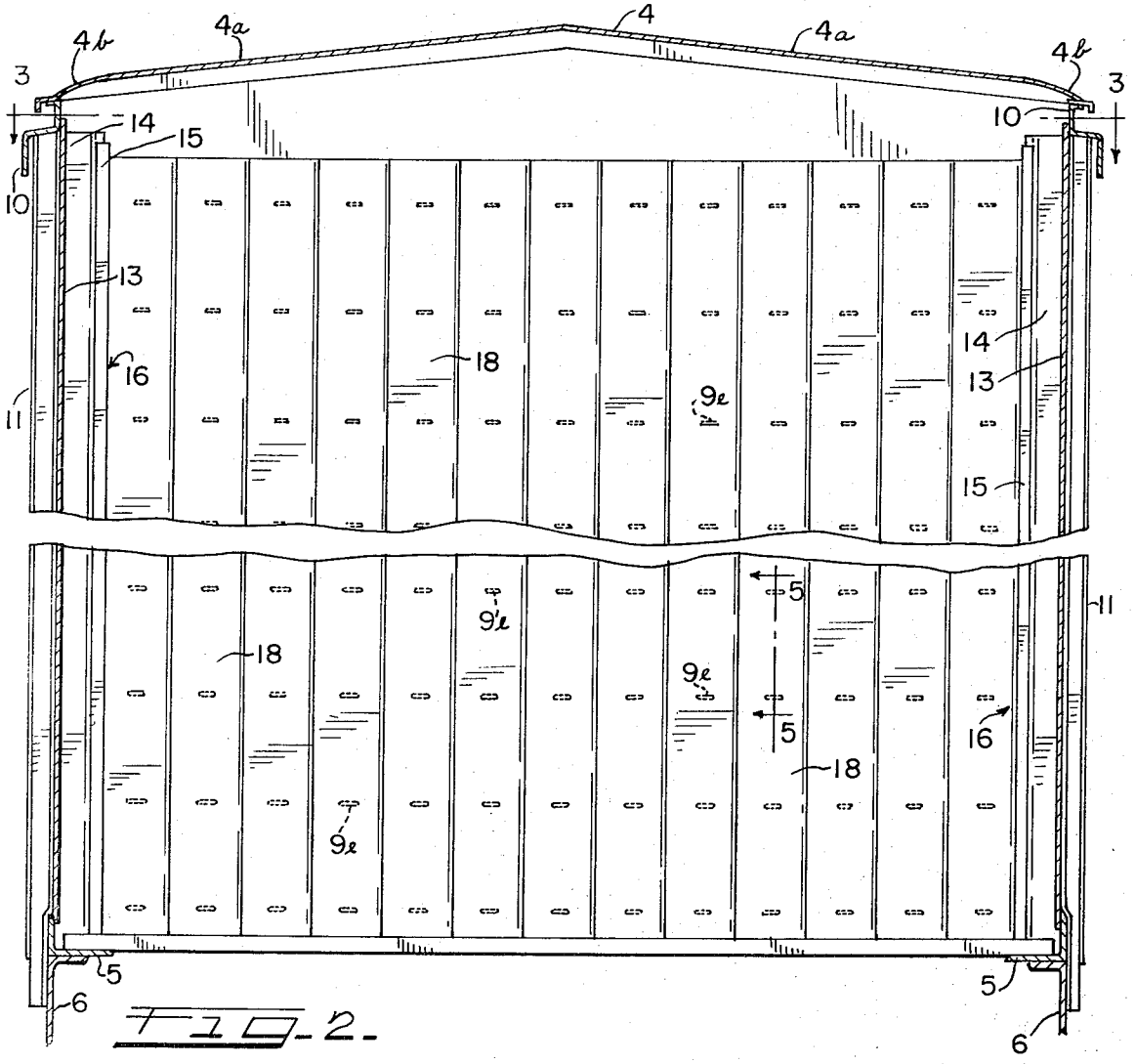

4
4a
4a
4b
4b
3
3
14
15
10
10
13
16
18
9e
14
13
11
15
5
11
9e
18
9e
9e
5
16
18
5
5
6
6

FIG. 2

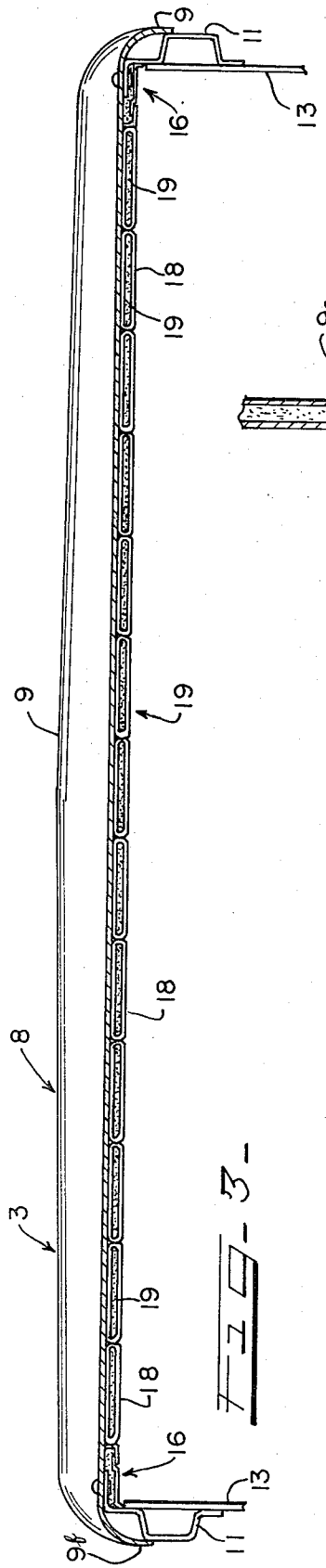


FIG. 3

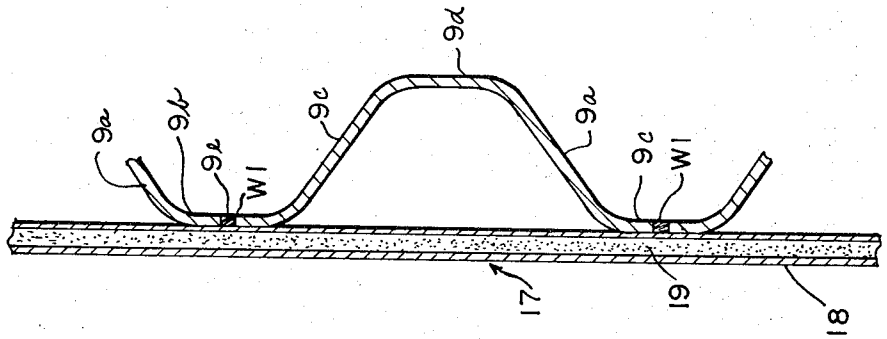


FIG. 5

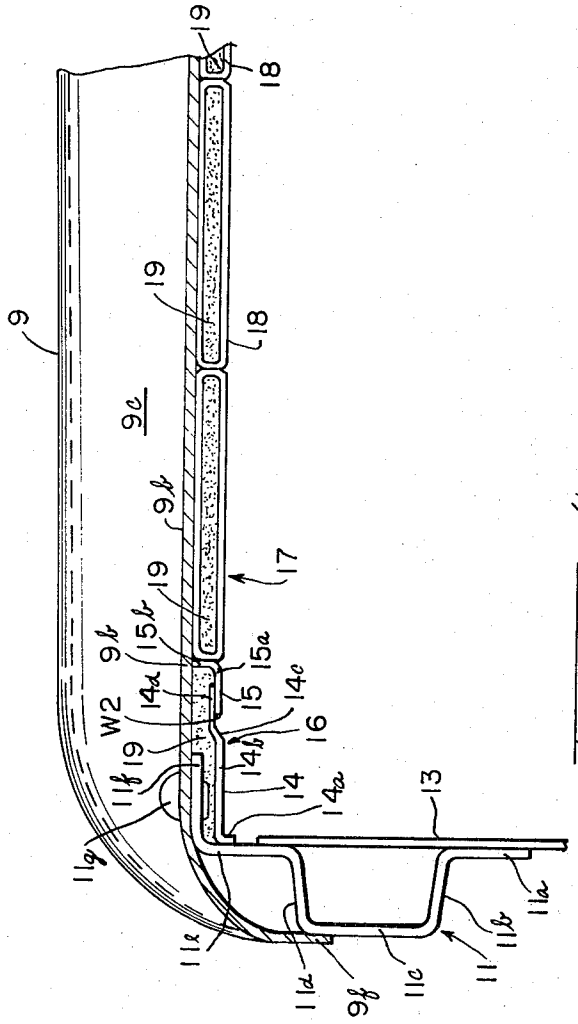


FIG. 4

FREIGHT CAR END CONSTRUCTION

BACKGROUND OF THE INVENTION

1. Field of the Invention

The field of art to which this invention pertains is the end wall construction of railroad freight cars and particularly to the type of end wall construction that is built to withsatnd impact from moving lading within the freight car.

2. Description of the Prior Art

It has heretofore been known to provide for reinforcement of the end wall of the car. However, in most cases it was a combination of solid strengthening elements which were costly and heavy and although they did hold up to impact loading from the lading they did not absorb the energy of the impact so that the car would remain strong at the ends and not become fatigued. It is with this thought in mind that the invention seeks and does solve the problem of energy absorption of impact of lading on the end wall by the unique construction described below.

SUMMARY OF THE INVENTION

This invention provides for an end wall construction which will absorb the energy of lading impact and, in particular, there is provided a combination of outer corrugated sheeting mounted on upright tubular sections which is filled with pulverant material or sand that gives on impact so that not only is the noise vibration of impact reduced but the energy of impact is absorbed into the particles which give or spread out and, therefore, cushion and reduce the otherwise deleterious effect the load would have on the end wall construction. Further, the lateral end portions of the end wall are provided with an adjustable closure member connecting with the corner post, the closure member also being filled with this energy absorbing pulverant material.

These and other objects will become more readily apparent with reference to the following description, appended claims and attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an elevational view of a railroad freight car;

FIG. 2 is a section taken along line 2—2 of FIG. 1;

FIG. 3 is a sectional view taken along line 3—3 of FIG. 2;

FIG. 4 is a partially enlarged view of one lateral end of that shown in FIG. 3; and

FIG. 5 is a sectional view taken along line 5—5 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the drawings and in particular with reference to FIGS. 1 and 2, there is shown a railroad freight car 1 having sides 2 and ends 3 and a roof 4. A side sill reinforcement, numerals 5 and 6, respectively, depend from each side of the car and the car is supported on trucks 7. Each end 3 of the car 1 is provided with an end bulkhead 8 which is comprised of corrugated sheeting 9 and end lining 17 (see FIGS. 2–5). The upper part of the car is provided with side plates 10 which depend from the roof 4. At each corner of the car is located a corner post 11. Hand grabs 12 are carried on each corner post 11 and a vertical upright member 11a adjacent each corner post. The sides are provided with side sheeting 13.

With reference now to FIGS. 3–5, there is shown an upright closure member or reinforcement tie means 16 in each corner of the car and this closure member connects with the corner post and corrugated sheeting 9 and end lining 17 thereat. The closure member 16 comprises an end upright reinforcement corner tie plate or corner part 14 which has a lateral end part 14*a* connecting with the outer end side sheet attachment portion 11*e* of the corner post 11 and has an elongated end portion 14*b* and then a bent section 14*c* which connects with the transversely extending other lateral end portion 14*d* which fits in and alongside of transverse elongated part 15*a* of end angle plate or connecting part 15, which also has longitudinal portion 15*b* connecting with upright wall 9*b* of the corrugated sheeting 9. The corner post 11 includes the inner end side sheet attachment portion 11*a* attached to the side sheet 13, the inner lateral portion 11*b*, the lateral outer longitudinal portion 11*c*, the outer lateral portion 11*d*, and the outer end side sheet attachment portion 11*e* which forms the hat-shaped section side post, plus, the side post has the end lining attachment portion 11*f*. The sheeting 13 extends to and also connects with the outer end side sheet attachment portion 11*e*. The end lining attachment portion 11*f* is attached to the vertical portion 9*b* of the corrugated sheeting by bolt means 11g. The corrugated sheeting is actually an undulated sheeting comprising alternating valleys and hills and has first diagonal portion 9*a*, first inner or trough vertical portion 9*b*, second diagonal portion 9*c* and second outer vertical portion or crest portion 9*d*. (See FIG. 5). The trough vertical portion 9*b* is provided with an aperture 9*e* in which is inserted welding W1 for attachment of the corrugated lining 9 to the end lining 17. As best seen in FIG. 4, the lining 9 is provided at its outer sides with flange portion 9*f* which attaches to portion 11*c* of the hat-shaped post 11. The end lining is a plurality of hollow tubular end lining sections 18, each section being filled with pulverant material 19 such as sand or like material. In assembly the part 15*a* of the end angle plate 15 guides the end 14*d* of the end upright reinforcement corner tie plate 14 and when the distance between the side walls or side sheets is determined, a weld W2 is laid down between the portions 15*a* and 14*d*, as shown in FIG. 4, and then the resulting enclosure between parts 11f, 11*e*, 9*b*, 14*b*, 14*c*, 14*d*, 15*a* and 15*b* is filled with sand 19.

Thus, what is provided is a novel interlocking of corner post, side sheeting, corner closure member and tubular end lining sections coupled to the end corrugated lining where the corner posts 11 are located generally at the sides of the car, the pulverant material or sand in the closure member and in the tubular end sections of the inner end lining making a solid section for protection of lading and acting as an anti-dent construction and resulting in an energy absorbing continuum structure. The tubes 18 and the closure 16 are filled with sand but not completely their vertical extents so as to allow the sand to be compressed, flow and give, in absorbing the energy of lading impact due to shifting of the lading longitudinally of the car and against the end walls.

The foregoing description and drawings merely explain and illustrate the invention and the invention is not limited thereto, except insofar as the appended claims are so limited, as those skilled in the art who have the disclosure before them will be able to make

modifications and variations therein without departing from the scope of the invention.

What is claimed is:

1. In a railroad freight car,
an end lining on which corrugated sheet is mounted,
the end lining comprising a plurality of upright transversely elongated tubular members filled with pulverant materials, and
an adjustable closure member on each lateral side of the end lining, said closure member being laterally adjustable for attachment to the corner posts of the car,
such closure member also being filled with said pulverant material.

2. In a railroad freight car construction,
an end wall,
a side wall,
a corner post attaching with said side wall and with said end wall,
said end wall including an outer corrugated end sheeting and an inner end lining,
said inner end lining comprising a plurality of transversely elongated hollow tubular sections extending in lateral end-to-end relation with one another and against the corrugated sheeting,
said lining being filled with pulverant material such as sand or the like acting as an energy absorber of the energy of lading impact.

3. The invention according to claim 2, and

a closure member on each lateral side of the inner end lining,
said closure member having a connecting part connecting with the most laterally outward tubular section and having a corner part adjustably connecting with the connecting part and with said corner post to provide for a hollow space therein, and means fixing the connecting part to the corner part,
the hollow space being filled with pulverant material.

4. The invention according to claim 3, and
means fixing being a weld for attaching said connecting part to said corner part for filling said hollow space with pulverant material.

5. The invention according to claim 3, and
said connecting part being L-shaped and connecting also with said outer corrugated end sheeting.

6. The invention according to claim 3, and
said corner part being generally laterally elongated and having an offset portion connecting with said connecting part thereby providing a flush back wall with the connecting part and the tubular sections.

7. The invention according to claim 3, and
said corner post being hat section in shape and having an end lateral leg portion partially defining the hollow space formed with the connecting and corner parts of the closure member and the corrugated end sheeting.

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