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CORNER STRUCTURE

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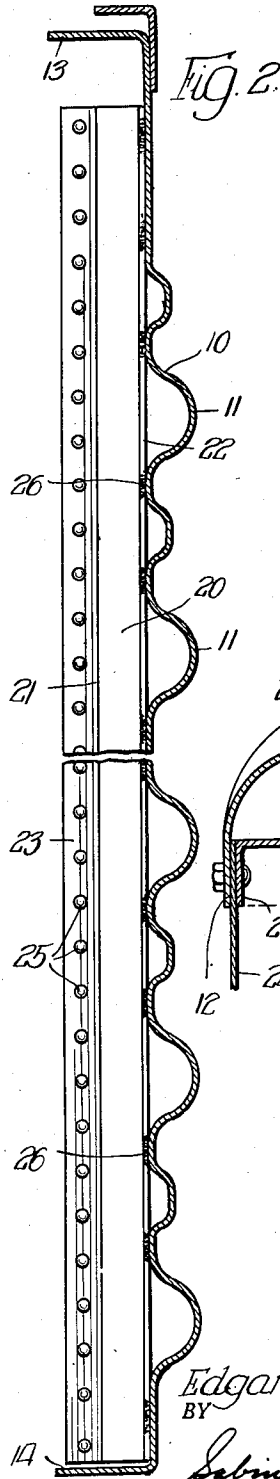
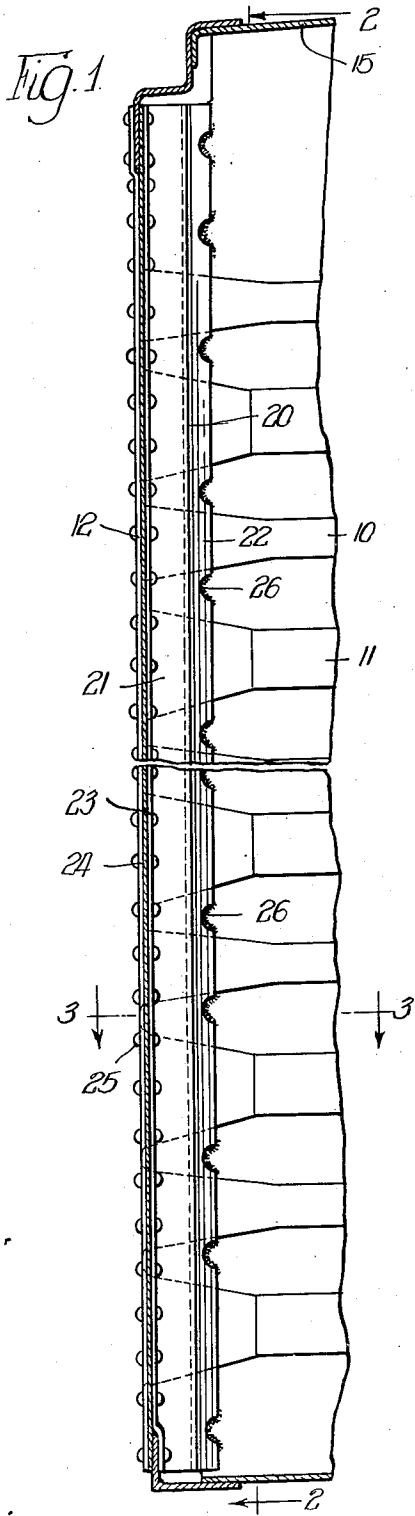
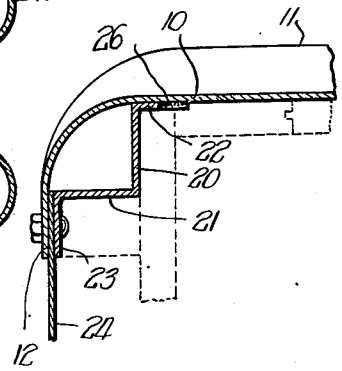


Fig. 2.

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Fig. 3.



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CORNER STRUCTURE

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3 Claims. (Cl. 105-410)

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This invention relates to improvements in rail-
way freight car construction and particularly to
the structure of corner post for freight cars and
the manner of assembling said corner posts to the
car.

It is well known that the end walls, for exam-
ple, of such cars are required to resist the terrific
loads imposed thereagainst by shifting lading,
such as pipe, steel plates, lumber, etc., due to serv-
ice movements of the car.

The customary end wall as now used in the
great majority of freight cars comprises a metal-
lic plate, having side flanges, formed on a rela-
tively long radius and spaced parallel corruga-
tions extending from side to side of the plate. The
car side wall sheathing laps the flange, and a
corner post comprising angularly disposed arms
each having a flange is provided, the flange of
one arm being attached to the flange of the end
wall, and the flange of the other arm attached to
the apices of the corrugations, so that said arms
and the included portion of the end wall form a
box structural section which is attached at its
bottom to the car side and end sills, and at its
top to the car side and end plates. When weld-
ing is the means of attaching the ends to the cor-
ner post it is obvious that the flange of the arm
of the corner post can only be welded at spaced in-
tervals where said flange rests against the apices
of the corrugations in the end wall, and as a con-
sequence the weld metal is applied in substan-
tially a straight line. Therefore, when the end
wall is subjected by shifting lading to a bulging
load the tendency is to force the end wall out-
wardly resulting in the weld metal acting as a
hinge, which, experience shows, tears apart un-
der extreme conditions.

It is, therefore, an important object of this in-
vention to design the flange of the arm of the
corner post which is attached to the apices of the
corrugations in such a way that the weld metal
will be carried closer to the root of the angle be-
tween said arm and its flange, whereby when any
load tends to tear the two apart a part of the weld
metal will be in tension and a part in compres-
sion, materially increasing its effectiveness in
securing the end wall to the corner post.

Other objects and advantages of the invention
will appear in the following description thereof.

Referring now to the accompanying drawing
wherein like reference characters indicate like
parts:

Fig. 1 is an elevation of one side margin of a
railway car end wall showing the improved cor-
ner structure welded thereto.

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Fig. 2 is a vertical section on line 2-2, Fig. 1.

Fig. 3 is a transverse section on line 3-3, Fig. 1.

In the drawings, 10 represents the end wall of
an ordinary freight car, but one vertical margin
of which is shown, it being understood that the
opposite vertical margin is identical therewith.
This end wall is provided with a plurality of par-
allel corrugations 11 which extend from side to
side of the end wall. At the vertical side margins
the end terminates in a flange 12 formed on a
curve, forming a round corner, and the ends of
the corrugations extend around said corner, pro-
gressively decreasing in depth and ultimately
merging into said flange. The end wall is pro-
vided with top 13 and bottom 14 flanges for at-
tachment to the roof 15 and end sill, not shown,
of the car.

A corner post is provided in this instance com-
prising angularly disposed arms 20 and 21 each of
which is provided with a flange 22 and 23, re-
spectively, extending normal to their respective
arms so that when applied to a car flange 23 will
be parallel with flange 12 and receive therebe-
tween a vertical margin 24 of side sheathing; all
being held together by a vertical row of rivets, in-
dicated at 25. The other flange 22 of the corner
post will rest flatwise against the apices of the
corrugations 11 and the usual procedure in weld-
ing this flange to the end, is to run a straight
bead of weld metal along the edge of the flange
and across the apex of each corrugation. Conse-
quently, when a bulging load is applied against
the end, as is the case when a shifting lading is
forced thereagainst due to buffing shocks or the
like, the weld metal acts as a hinge, and in-
stances have occurred where the end has been
pulled away without any perceptible distortion of
the flange. To correct this situation a portion of
that part of the flange 22 which rests against the
apices of the corrugations is cut away in semi-
circular form, preferably, as at 26, and the weld
metal applied around the edges of the cut away
portions and a portion on each side thereof to se-
cure said flange to the apices of said corrugations
and material adjacent thereto contacted by said
edges. In this manner there is provided not only
a longer bead of the weld metal, but said weld
metal is carried closer to the root of the flange
and when subjected to bulging loads of the end,
places a portion of the weld metal in compression,
thereby increasing its effectiveness. By welding
other than in a straight line the hinge center is
eliminated, resulting in effective stress distribu-
tion and greater strength of the weld.

Obviously instead of cutting away the flange in

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the form of a semi-circle, it could be of V-shape or even a slot with similar results.

The accompanying drawings illustrate the preferred form of the invention, though it is to be understood that the invention is not limited to the exact details of construction shown and described, as it is obvious that various modifications thereof, within the scope of the claims, will occur to persons skilled in the art.

I claim:

1. In a railway car having an end wall comprising a body part provided with a side flange extending substantially normal to the general plane of said wall and a plurality of spaced parallel horizontal corrugations extending to and merging into said side flange, a corner stiffener comprising angularly disposed arms, means to secure the flange of said wall sheet to one of said arms, a flange along the other of said arms positioned flatwise against the apices of said corrugations and spanning the spaces therebetween, a portion of the parts of the stiffener flange which rest against said apices being cut away, and weldments securing the edges of said cut away portions to the apices of said corrugations and the material adjacent thereto contacted by said edges, whereby when said end wall is subjected to bulging loads a portion of said weld metal will be in compression, thereby increasing the effectiveness of said weldments.

2. In a railway car having an end wall comprising a body part provided with a side flange extending substantially normal to the general plane of said wall and a plurality of spaced parallel horizontal corrugations extending to and merging into said side flange, a corner stiffener comprising a single piece of metal longitudinally bent so as to form a flange along both sides thereof, one of said stiffener flanges resting flatwise against the apices of said corrugations and spanning the spaces therebetween, the other of said stiffener flanges secured to said end wall flange, said stiffener flange which rests against

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said apices provided with spaced cut away portions coincident with the apices of said corrugations, and weldments securing the edges of said cut away portions to the apices of said corrugations and the material adjacent thereto contacted by said edges, thereby providing more effective stress distribution and greater strength of said weldments.

3. An end wall for a railway car comprising a body part provided with a flange formed on a curve of relatively large radius to form an arch between the body part and flange said body part being formed with a plurality of substantially horizontal corrugations which terminate and merge into said flange, a vertical stiffener for said arch extending between said body part and flange, means to secure one margin of said stiffener to said flange, a flange along the other margin of said stiffener positioned flatwise against the corrugated body part of said end wall and spanning the spaces between said corrugations, the edge of said stiffener flange having spaced cut away portions coincident with the apices of said corrugations, and weldments securing the edges of said cut away portions to the apices of said corrugations and the material adjacent thereto contacted by said edges, whereby when said end wall is subjected to bulging loads a portion of said weld metal will be in compression, thereby increasing the effectiveness of said weldments.

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