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RAILWAY CAR WALL

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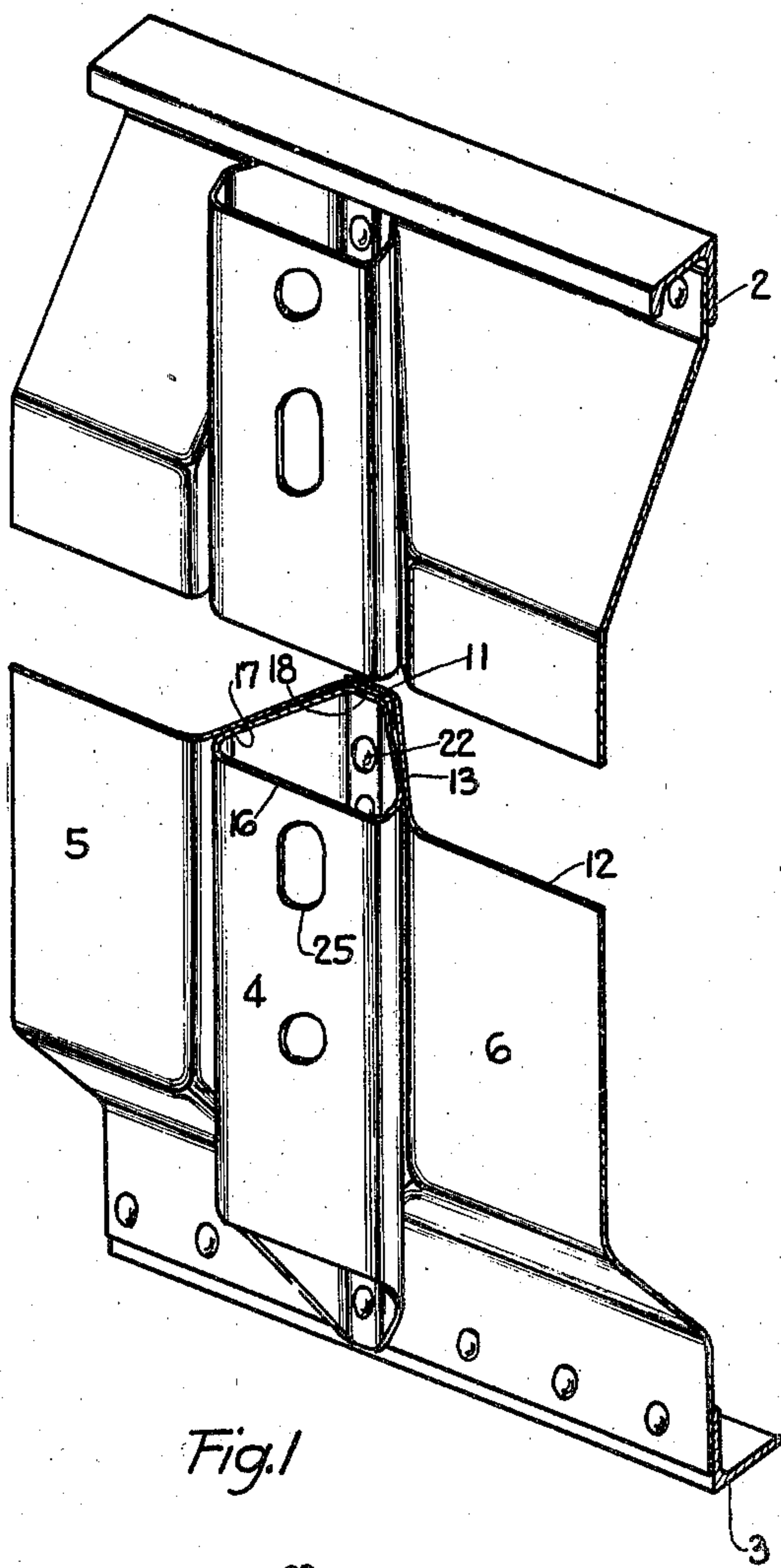


Fig. 1

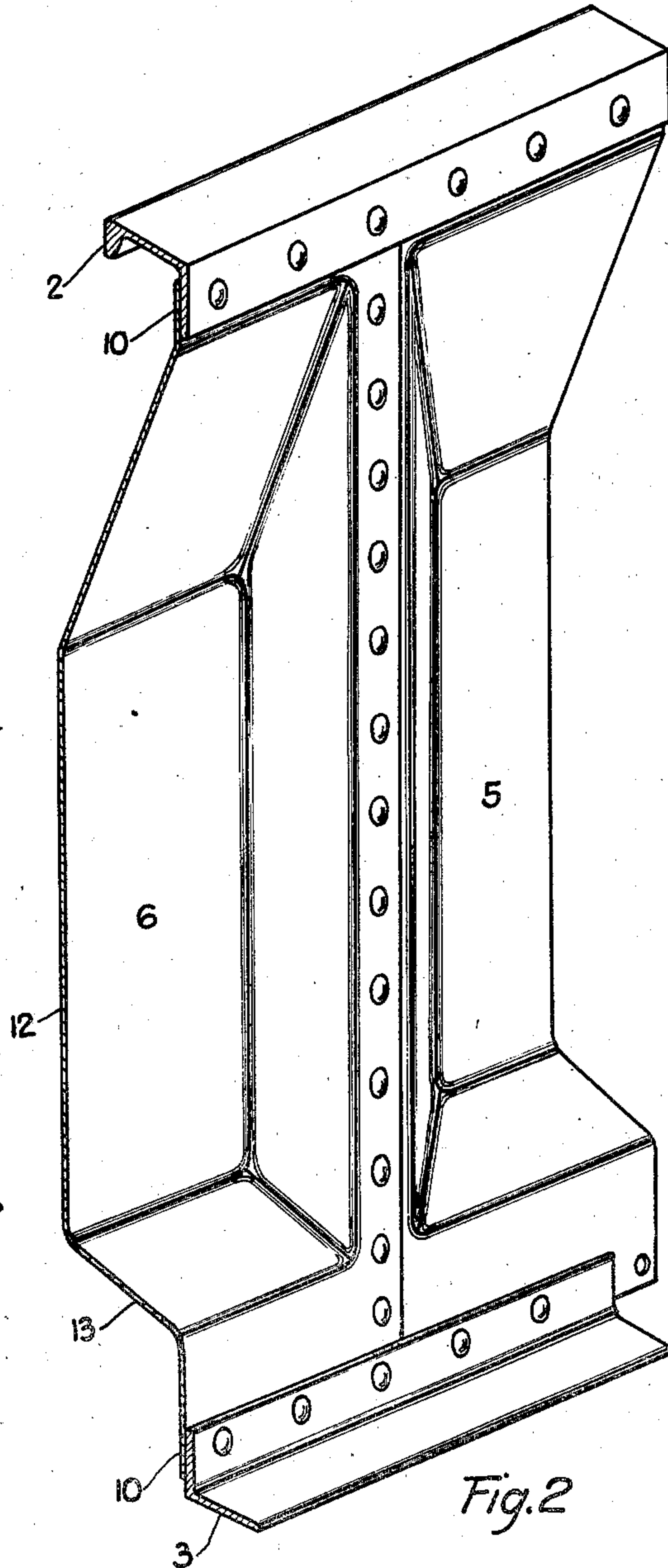


Fig. 2

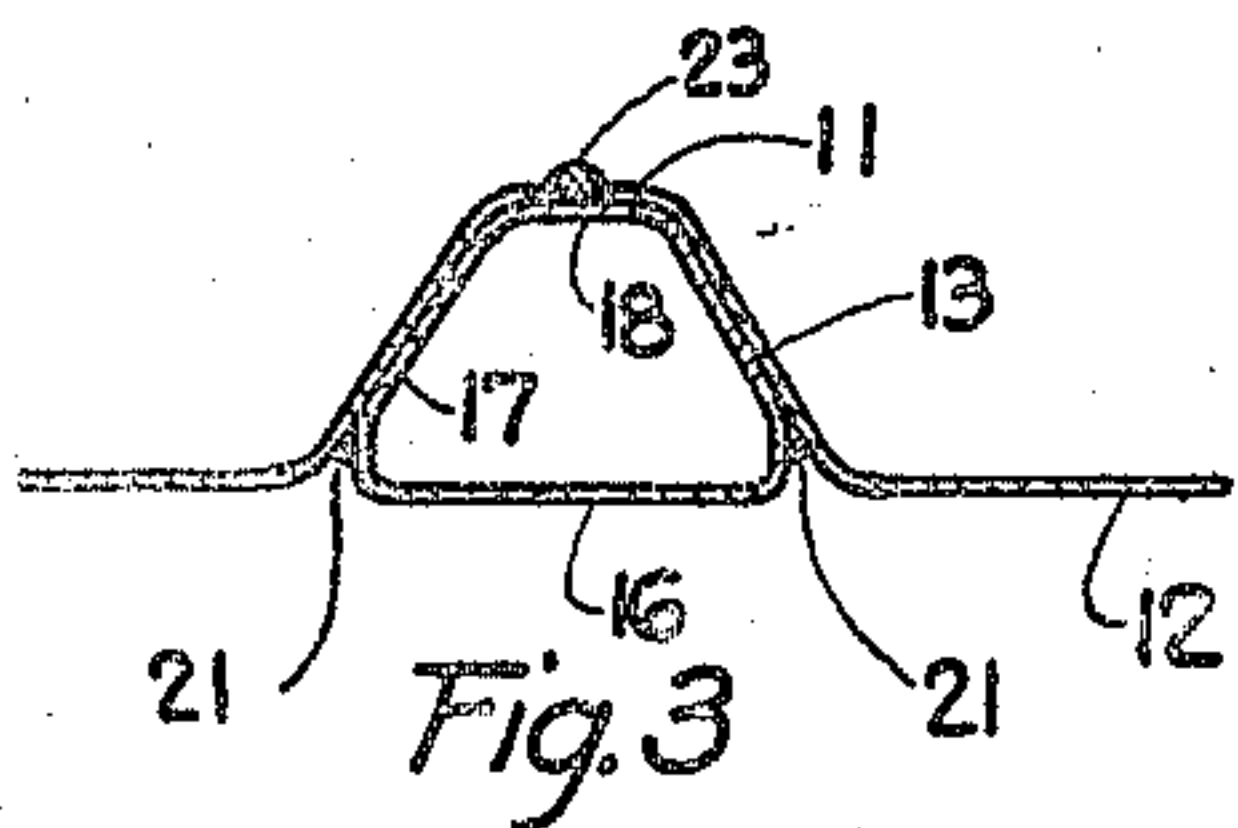


Fig. 3

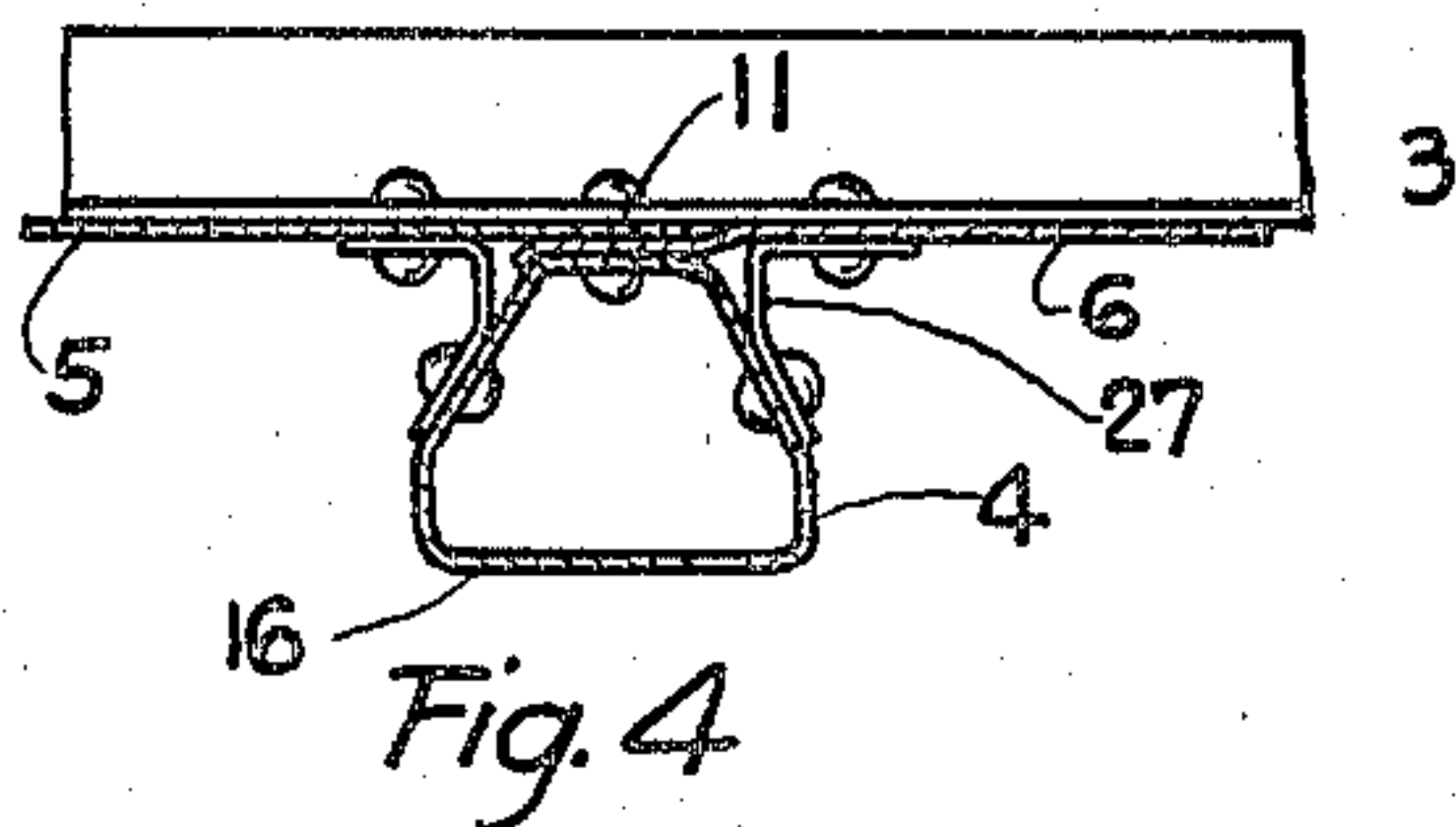


Fig. 4

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## UNITED STATES PATENT OFFICE

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## RAILWAY CAR WALL

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mesne assignments, to Standard Railway  
Equipment Manufacturing Company, a cor-  
poration of Delaware

Application March 22, 1937, Serial No. 132,230

9 Claims. (Cl. 105—409)

The invention relates to railway freight cars and more particularly to side and end walls for open top railway cars, such as hopper and gondola cars, though the construction is adaptable for walls of house cars, such as box, automobile and refrigerator cars. The construction is also adaptable for use as roofs, floors, hopper doors and side doors for railway cars. A roof or a floor comes within the meaning of the term "wall" as used in the specification and claims herein.

Railway freight cars are generally designed so that the side walls are girders or trusses to carry part of the weight of the lading and the car itself to the body bolsters which transmit such load to the trucks. Such side walls also retain the load in the car. It is desirable to make the inside horizontal width of the car as wide as possible to increase the cubical capacity of the car but the outside width of the car is limited by tunnels and projections adjacent the track so it becomes imperative to make the side wall as thin horizontally as possible consistent with strength requirements.

Open top railway cars are frequently built with the vertical walls comprising spaced apart upper and lower chords connected at spaced intervals by vertical stakes with wall sheets extending between and secured to the stakes and frame members, which construction forms a girder and also a load retaining wall. It has been proposed to bulge the wall sheets so that the central portions thereof are in a plane spaced apart from the marginal portions of the sheets so as to increase the cubical capacity of the car. Such a construction is shown in Hart Patent No. 1,623,591 of April 5, 1927.

My invention is an improvement upon the Hart construction and one of the objects of the invention is to form and associate the wall sheets and stakes comprising the wall of the Hart car so that the sloping webs of adjacent bulged wall sheets may be positioned closer together than in the construction of the Hart patent and thereby increase the cubical capacity of the car.

Another object is to form and associate the wall sheets and stakes so that they may be welded or riveted together and that when so welded or riveted together the wall sheets reinforce the stakes, whereby the stakes and the adjacent parts of the wall sheets cooperate to form the struts of the girder between the upper and lower chords thereof and also to form the horizontally loaded beams between such struts to retain the load in the car.

Another object is to provide a hollow stake open at one or both ends to prevent moisture and the accumulation of dirt and other foreign matter on the inside thereof which would cause corrosion, and a further object is to form such hollow stake so that it can be made of a deformed pipe, or a flat metallic sheet, welded to form a tube or may be made of cast metal.

Another object is to provide a side wall with stakes having a relative large bearing area to engage the blocking of the unloading or tipping machines.

Another object is to provide a wall having a smooth exterior surface to reduce wind resistance. In the drawing:

Fig. 1 shows an exterior view of a part of a car wall of a railway car incorporating my invention.

Fig. 2 is an interior view of Fig. 1.

Fig. 3 shows a modified construction.

Fig. 4 shows a stake reinforcement.

In the form of my invention illustrated I have merely shown spaced apart upper chord 2 and lower chord 3 and one of the stakes 4 with parts of adjacent wall sheets 5—6 showing how these elements are associated to obtain the objects of the invention.

Each wall sheet comprises end marginal portions 10, side marginal portions 11, a central portion 12 in a spaced apart plane from the marginal portions 10—11 and sloping webs 13 connecting the marginal portions and the central portion. The end marginal portions 10 are secured to the upper and lower chords respectively.

The stake is preferably of tubular or hollow construction with both ends open and comprises an outer wall 16, spaced apart sloping side walls 17 and an inner wall 18. The outer wall 16 is preferably substantially flush with the central portions 12 of the adjacent wall sheets to provide a smooth exterior surface to the wall of the car. The sloping side walls 17 are substantially parallel with the sloping webs 13 of the adjacent wall sheets and are preferably in engagement therewith and means are provided to secure the sloping walls of the stake to the sloping webs of the wall sheets. This means may be a plurality of rivets, but I prefer to use welded material 21 applied at the junctions of the side walls 17 of the stake with the sloping webs 13 of the wall sheets, which material preferably extends the full length of the said junctions to prevent foreign matter from getting between the stake and the sloping webs. Means are also provided to secure the side margins 11 of the wall sheets to the inner



part 18 of the stake which may be a plurality of rivets 22 or welded material. In Fig. 3 the welded material 23 secures the margins 11 of adjacent sheets together as well as to the inner part 18 of the stake. When rivets are used I provide apertures 25 in the outer wall of the stake to facilitate driving the rivets.

The bracing members 27 are secured to the stakes and one of the chords 2—3 to brace the parts of the stake above and below the central portions 12 of the wall sheets against lateral deflection. This lateral deflection may be caused by a heavy load on the stake as a beam or by being hit by a projection adjacent the moving car.

The accompanying drawing illustrates 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. A wall for a railway car comprising an upper chord, a lower chord, a stake connecting said chords and wall sheets, each of said wall sheets comprising end marginal portions secured to said chords, side marginal portions, a central portion in a spaced apart plane from said marginal portions and sloping webs connecting said portions, said stake being of tubular section and having an outer wall, converging side walls substantially parallel with and engaging the sloping webs of the wall sheets, and an inner wall secured to the side margins of the wall sheets.

2. A wall for a railway car comprising an upper chord, a lower chord, a stake connecting said chords and wall sheets, each of said wall sheets comprising end marginal portions secured to said chords, side marginal portions, a central portion in a spaced apart plane from said marginal portions and sloping webs connecting said portions, said stake being of tubular section and having an outer wall, converging side walls substantially parallel with and engaging the sloping webs of the wall sheets, an inner wall secured to the side margins of the wall sheets, and means to secure the sloping walls of the stake to the sloping webs of the wall sheets.

3. A wall for a railway car comprising an upper chord, a lower chord, a stake connecting said chords and wall sheets, each of said wall sheets comprising end marginal portions secured to said chords, side marginal portions, a central portion in a spaced apart plane from said marginal portions and sloping webs connecting said portions, said stake being of tubular section and having an outer wall, converging side walls substantially parallel with and engaging the sloping webs of the wall sheets, an inner wall secured to the side margins of the wall sheets, and welded material applied at the junctions of the stake with the sloping webs to secure the sloping walls of the stake to the sloping webs of the wall sheets.

4. A wall for a railway car comprising an upper chord, a lower chord, a stake connecting said chords and wall sheets, each of said wall sheets comprising end marginal portions secured to said chords, side marginal portions, a central portion in a spaced apart plane from said marginal portions and sloping webs connecting said portions, said stake having an outer wall, sloping side walls substantially parallel with and engag-

ing the sloping webs of the wall sheets, an inner wall secured to the side margins of the wall sheets, and welded material applied at the junctions of the stake with the sloping webs to secure the sloping walls of the stake to the sloping webs of the wall sheets, said welded material extending the full length of said junctions to prevent foreign matter from getting between the stake and the sloping webs.

5. A wall for a railway car comprising an upper chord, a lower chord, a stake connecting said chords and wall sheets, each of said wall sheets comprising end marginal portions secured to said chords, side marginal portions, a central portion in a spaced apart plane from said marginal portions and sloping webs connecting said portions, said stake being of tubular section and having an outer wall, converging side walls substantially parallel with and engaging the sloping webs of the wall sheets, an inner wall secured to the side margins of the wall sheets, and means to secure the converging walls of the stake to the sloping webs of the wall sheets, and members secured to said converging walls and said chords to brace the parts of the stake above and below the central portions of the wall sheets against lateral deflection.

6. A wall for a railway car comprising an upper chord, a lower chord, a stake connecting said chords and wall sheets, each of said wall sheets comprising end marginal portions secured to said chords, side marginal portions, a central portion in a spaced apart plane from said marginal portions and sloping webs connecting said portions, said stake having an outer wall, sloping side walls substantially parallel with and engaging the sloping webs of the wall sheets, and an inner wall, means to secure the sloping walls of the stake to the sloping webs of the wall sheets, and rivets securing the side margins of the wall sheets together and to the inner wall of the stake, said outer wall of the stake being provided with apertures to facilitate driving the rivets.

7. A wall for a railway car comprising an upper chord, a lower chord, a stake connecting said chords and wall sheets, each of said wall sheets comprising end marginal portions secured to said chords, side marginal portions, a central portion in a spaced apart plane from said marginal portions and sloping webs connecting said portions, said stake being of tubular construction with both ends open and having an outer wall, sloping side walls substantially parallel with and engaging the sloping webs of the wall sheets, and an inner wall secured to the side margins of the wall sheets, and means to secure the sloping walls of the stake to the sloping webs of the wall sheets.

8. A wall for a railway car comprising an upper chord, a lower chord, a stake connecting said chords and wall sheets, each of said wall sheets comprising end marginal portions secured to said chords, side marginal portions, a central portion in a spaced apart plane from said marginal portions and sloping webs connecting said portions, said stake being of tubular construction and having an outer wall and converging side walls substantially parallel with the sloping webs of the wall sheets, and means to secure the side margins of the wall sheets to said stake.

9. A wall for a railway car comprising an upper chord, a lower chord, a stake connecting said chords and wall sheets, each of said wall sheets comprising end marginal portions secured



to said chords, side marginal portions, a central  
portion in a spaced apart plane from said mar-  
ginal portions and sloping webs connecting said  
portions, said stake being of tubular construc-  
5 tion and having an outer wall and converging  
side walls substantially parallel with the sloping  
webs of the wall sheets, and means to secure

the side margins of the wall sheets to said stake,  
the outer wall of the stake being substantially  
flush with the central portions of the wall sheets  
so as to provide a smooth exterior surface for  
the car wall.

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