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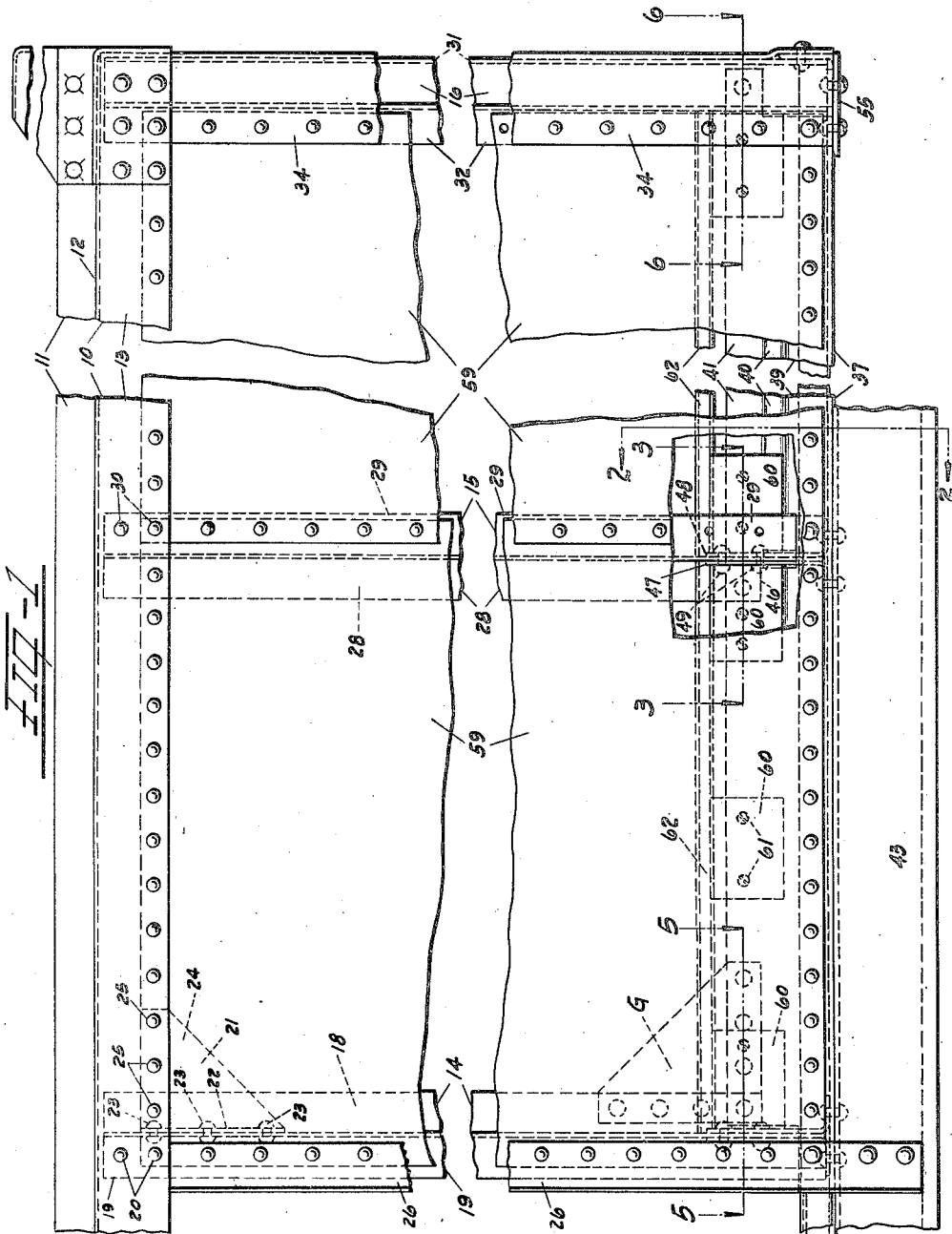
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RAILWAY CAR CONSTRUCTION

Filed March 12, 1943

2 Sheets-Sheet 1



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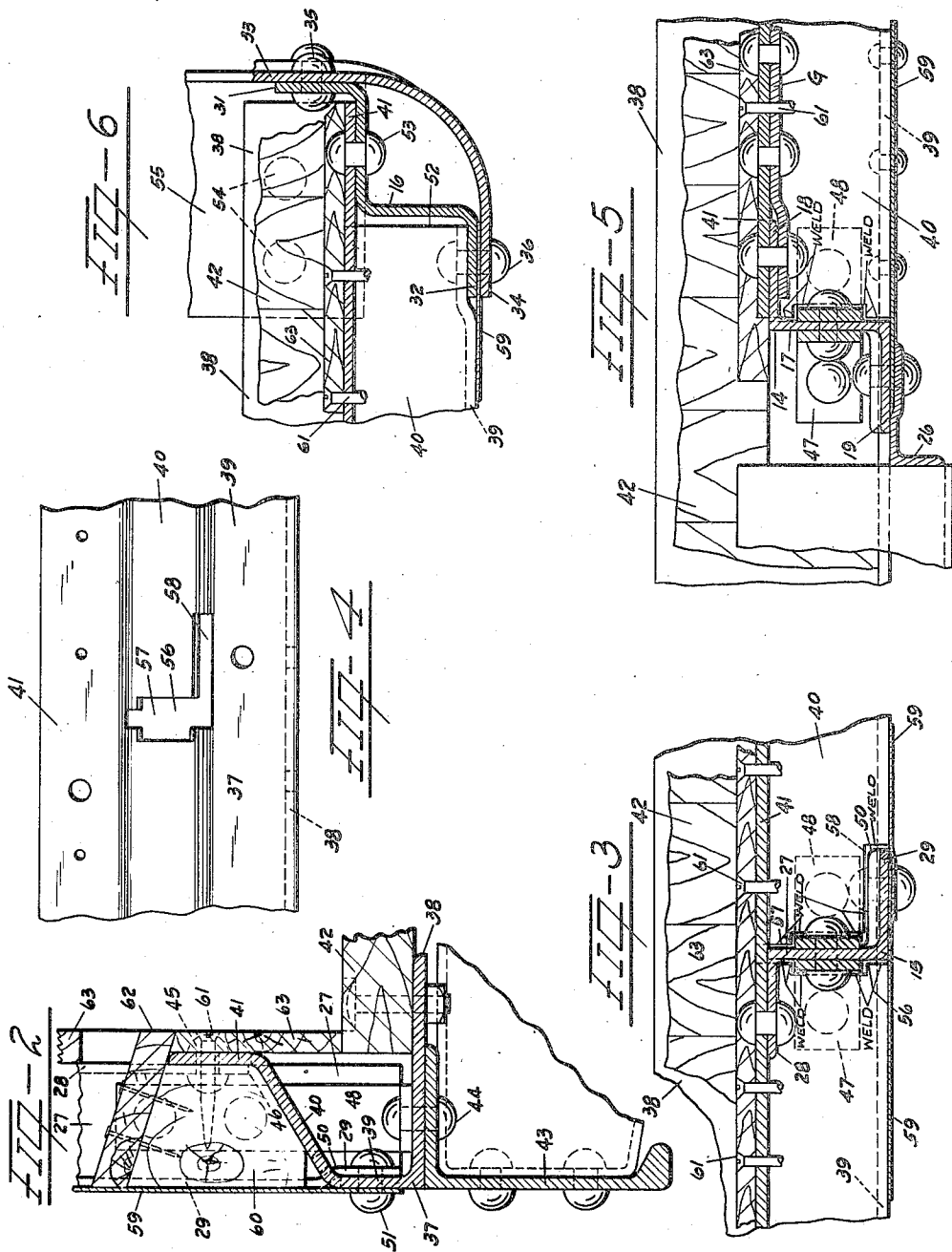
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UNITED STATES PATENT OFFICE

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RAILWAY CAR CONSTRUCTION

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Application March 12, 1943, Serial No. 478,856

18 Claims. (Cl. 195-409)

This invention relates to railway car construction and is directed primarily to the construction of railway freight cars of the house car type.

It is an object of this invention to provide an improved and sturdy side wall construction for railway house cars.

A further object is to provide a novel and sturdy frame structure for side walls of railway house cars.

A further object is to provide a new and improved side sill for railway house cars.

Other objects of the invention will become clear as the description thereof proceeds.

In the drawings forming part of this specification:

Fig. 1 is an elevation of a portion of a side wall structure for railway house cars embodying the instant invention, parts being broken away in order to better illustrate the invention.

Fig. 2 is a vertical section taken on line 2-2 of Fig. 1.

Fig. 3 is a horizontal section taken on line 3-3 of Fig. 1.

Fig. 4 is a fragmentary elevation of the new and improved side sill.

Fig. 5 is a horizontal section taken on line 5-5 of Fig. 1.

Fig. 6 is a horizontal section taken on line 6-6 of Fig. 1.

In the drawings which illustrate a preferred embodiment of the invention a portion of the side wall of a railway house car extending from the door opening to one end of the car is shown, parts of the wall being broken away in order to more clearly illustrate the invention. It is to be understood that the portion of the wall extending from the door opening to the other end of the car is complementary to the portion illustrated and that the wall on the other side of the car is substantially similar in construction.

The side wall structure embodies a side plate 10 of well known Z-shaped section so arranged that the flange 11 extends vertically and upwardly from the web 12 and the flange 13 extends vertically and downwardly from the web 12. The side plate 10 extends continuously from end to end of the car and provides means for attachment of door posts 14, intermediate posts 15, and corner posts 16. The door post 14, as more clearly appears from Fig. 5 of the drawings, is Z-shaped in section and embodies a web 17 arranged at right angles to the wall and oppositely extending flanges 18 and 19 arranged parallel to the wall. The flange 19 is secured to the downwardly extending vertical flange 13 of the side plate 10, as

by means of rivets 20, and the web 17 of the door post is secured to the flange 13 of the side plate, as by means of an angle gusset member 21 having one flange 22 fastened to the web 17 by means of rivets 23, and the other flange 24 fastened to the side plate flange 13, as by means of rivets 25. An angle member 26 is secured to the flange 19 of the door post and serves to support a spark and weather strip (not shown).

An intermediate post 15 is more clearly illustrated in Fig. 3 of the drawings. From this figure it will be seen that the intermediate post is Z-shaped in section and comprises a web 27 disposed at a right angle to the side wall and oppositely extending flanges 28 and 29 arranged parallel to the wall. The intermediate posts are fastened to the side plate, preferably by means of rivets 30 which extend through flange 29 and through side plate flange 13.

The corner post 16, which is more clearly illustrated in Fig. 6 of the drawings, is substantially W-shaped in section and embodies the right angularly related flanges 31 and 32 to which the main body portion of a car end 33 and a flange 34 formed thereon are respectively fastened, as by means of rivets 35 and 36.

The side wall construction embodies a side sill 37 to which the lower ends of the door posts, intermediate posts and corner posts are secured. The side sill 37 comprises an inwardly extending horizontal flange 38 which is secured to the car under-frame, as more clearly shown in Fig. 2 of the drawings, a vertical flange 39 extending upwardly from the outer end of the horizontal flange 38, an inwardly and upwardly sloping flange 40, and a vertical flange 41 extending upwardly from the inner end of the flange 40. The side sill 37 extends continuously from substantially end to end of the car except that in the door opening the flanges 40 and 41 and a portion of the upstanding flange 39 are removed so that the side sill does not extend above the floor 42. The side sill is preferably reinforced for a portion of its length by means of a bulb angle 43 fastened to the horizontal flange of the side sill, as by means of rivets 44.

The lower portions of the posts are disposed outwardly of the upstanding flange 41 of the side sill. The flange 28 of the intermediate post 15 abuts the outer face of the upstanding flange 41 of the side sill to which it is secured, as by means of a rivet 45. Since it is preferred that the flange 28 terminate above the sloping flange 40 of the side sill, it is coped as indicated at 46. The web 27 of the intermediate post extends continuously

to a point adjacent to flange 38 of the side sill and is fastened to said flange and to the side sill reinforcement 43, where such reinforcement occurs, by means of angle clips 47 and 48. These angle clips are disposed on opposite sides of the web of the post and are secured thereto, as by means of rivets 49, and to the side sill flange 38 and the side sill reinforcement by means of the rivets 44 which fasten the latter two members together.

Flange 29 of the intermediate post 15 also extends continuously to a point adjacent the side sill flange 38. Since the post flange 29 is in alignment with the upstanding flange 39 of the side sill, flange 29 is offset inwardly, as indicated at 50, so as to lie against the inner face of sill flange 39. Post flange 29 and sill flange 39 are secured together, as by means of rivets 51.

The mode of attachment of the door posts to the side sill is more clearly illustrated in Figs. 1 and 5 of the drawings. With particular reference to Fig. 5, it will be apparent that the sloping flange 40 and the inner vertical flange 41 of the side sill terminate adjacent to the web 17 of the door post, being spaced therefrom a distance sufficient to accommodate the vertical leg of the angle clip 48 which, together with the angle clip 47, serves to secure the web of the door post to the horizontal flange 38 of the side sill. The outer vertical flange 39 of the side sill, reduced in height for the reasons noted above, and the horizontal flange 38 of the sill, extend continuously across the door opening. Additional securement between the door post and the side sill is obtained by means of an angle gusset G which, as more clearly shown in Fig. 1 of the drawings, is riveted to the inner flange 18 of the door post and to the inner vertical flange 41 of the sill.

With reference to Fig. 6 of the drawings, it will be seen that a portion of the horizontal sill flange 38 and vertical flange 39 and sloping flange 40 are coped, as indicated at 52, and that vertical sill flange 41 and a portion of the horizontal sill flange 38 extend beyond the cope. The vertical flange 39 of the side sill is disposed against the inner face of flange 32 of the corner post and is secured by means of rivets 36 which fasten flange 32 to flange 34 of the car end 33. The vertical flange 41 of the side sill abuts the corner post and is secured thereto, as by means of rivets 53. The horizontal flange 38 of the side sill is secured, as by means of rivets 54, to the end sill 55.

To permit extension of the intermediate posts to a point adjacent to the horizontal flange 38 of the side sill, the sloping flange 40 of the sill is formed with angularly shaped openings 56, more clearly shown in Fig. 4 of the drawings. The vertical portion 57 of these openings accommodates the web of a post and angle clips 47 and 48. The horizontal portion 58 of the openings 56 accommodates the continuously extending flange of a post. Preferably the posts are secured to the side sill by welding them to the sill around the angularly shaped openings 56.

Metallic sheathing 59 is secured upon the outside of the posts and the upstanding flange 39 of the side sill and upon the inside of the side plate flange 13, as more clearly shown in Fig. 1 of the drawings.

Nailing blocks 60 are disposed at spaced intervals between the upstanding flange 41 of the side sill and the metallic sheathing 59. These nailing blocks are secured to the upstanding flange 41, as by means of screws 61, and serve as

supports for slope boards 62 which are nailed thereto. The inner lining of the car is shown at 63.

It will be apparent that numerous changes and modifications in the details of the invention will be clear to those skilled in the art. It is intended, therefore, that all such modifications and changes be comprehended within this invention, which is to be limited only by the scope of the claims appended hereto.

I claim:

1. A frame structure for a side wall of a railway house car comprising a side plate, a plurality of spaced posts secured to said side plate, a side sill, said sill having a horizontal flange adapted to be secured to the underframe of said car, an outer upstanding flange, an inwardly directed flange and an inner upstanding flange, means securing said posts to said inner upstanding flange, said posts extending through apertures in said inwardly directed flange inwardly of said outer upstanding flange, means securing said posts to said latter flange, means securing said posts to said inwardly directed flange, and means securing said posts to said horizontal flange.

2. A frame structure for a side wall of a railway house car comprising a side plate, a plurality of spaced posts secured to said plate, a side sill, said sill having a horizontal flange adapted to be disposed upon and secured to the underframe of said car, said flange forming a support for the floor of said car, an upstanding flange disposed outwardly of said floor and an inwardly directed flange terminating above said floor, said posts extending through apertures in said inwardly directed flange inwardly of said upstanding flange, means securing said posts to said latter flange, means securing said posts to said inwardly directed flange, and means securing said posts to said horizontal flange.

3. A frame structure for a side wall of a railway house car comprising a side plate, a plurality of spaced posts secured to said side plate, a side sill, said sill having a horizontal flange adapted to be disposed upon and secured to the underframe of said car, an outer upstanding flange and an inwardly directed flange, said posts extending through apertures in said inwardly directed flange inwardly of said outer upstanding flange, means securing said posts to said latter flange, and means securing said posts to said inwardly directed flange.

4. A frame structure for a side wall of a railway house car comprising a side plate, a plurality of spaced posts secured to said side plate, a side sill, said sill having a horizontal flange adapted to be secured to the underframe of said car, an outer upstanding flange, an inwardly directed flange and an inner upstanding flange, means securing said posts to said inner upstanding flange, said posts extending through apertures in said inwardly directed flange inwardly of said outer upstanding flange, means securing said posts to said latter flange, and means securing said posts to said inwardly directed flange.

5. A frame structure for a side wall of a railway house car comprising a side plate, a plurality of spaced posts secured to said side plate, a side sill, said sill having a horizontal flange adapted to be secured to the underframe of said car, an outer upstanding flange, an inwardly directed flange and an inner upstanding flange, means securing said posts to said inner upstanding flange, said posts extending through apertures in

said inwardly directed flange inwardly of said outer upstanding flange, means securing said posts to said latter flange, and means securing said posts to said horizontal flange.

6. A frame structure for a side wall of a railway house car comprising a side plate, a plurality of spaced posts secured to said side plate, a side sill, said sill having a horizontal flange adapted to be secured to the underframe of said car, an outer upstanding flange, an inwardly directed flange and an inner upstanding flange, means securing said posts to said inner upstanding flange, said posts extending through apertures in said inwardly directed flange inwardly of said outer upstanding flange, and means securing said posts to said latter flange.

7. A frame structure for a side wall of a railway house car comprising a side plate, a plurality of spaced posts secured to said side plate, a side sill, said sill having a horizontal flange adapted to be secured to the underframe of said car, an outer upstanding flange and an inner upstanding flange, means securing said posts to the outer face of said inner upstanding flange, means securing said posts to the inner face of said outer upstanding flange, and means securing said posts to said horizontal flange.

8. A frame structure for a side wall of a railway house car comprising a side plate, a plurality of spaced posts secured to said side plate, a side sill, said sill having a horizontal flange adapted to be secured to the underframe of said car, an outer upstanding flange and an inner upstanding flange, means securing said posts to the outer face of said inner upstanding flange, and means securing said posts to the inner face of said outer upstanding flange.

9. A frame structure for a side wall of a railway house car comprising a side plate, a plurality of spaced posts secured to said side plate, a side sill, said sill having a horizontal flange adapted to be secured to the underframe of said car, an outer upstanding flange, an inwardly and upwardly sloping flange and an inner upstanding flange, means securing said posts to said inner upstanding flange, said posts extending through apertures in said sloping flange inwardly of said outer upstanding flange, means securing said posts to said latter flange, said posts being welded to said sloping flange around said apertures.

10. A frame structure for a side wall of a railway house car comprising a side plate, a plurality of spaced posts secured to said side plate, a side sill, said sill having a horizontal flange adapted to be disposed upon and secured to the underframe of said car, said flange forming a support for the floor of said car, an upstanding flange disposed outwardly of said floor and an inwardly and upwardly sloping flange terminating above said floor, said posts extending through apertures in said sloping flange inwardly of said upstanding flange, means securing said posts to the inner face of said latter flange, said posts being welded to said sloping flange around said apertures.

11. A frame structure for a side wall of a railway house car comprising a side plate, a plurality of spaced posts secured to said side plate, a side sill, said sill having a horizontal flange adapted to be secured to the underframe of said car, an outer upstanding flange, an inwardly directed flange and an inner upstanding flange, means securing said posts to said latter flange, and

means securing said posts to said inwardly directed flange.

12. A side wall structure for a railway house car comprising a side plate, a plurality of spaced posts secured to said side plate, a side sill, said sill having a horizontal flange adapted to be secured to the underframe of said car, an outer upstanding flange, an inwardly directed flange and an inner upstanding flange, means securing said posts to said latter flange, means securing said posts to said inwardly directed flange, the outer face of said posts being in substantial alignment with the outer face of said outer upstanding flange, and metallic sheathing secured to said side plate and to said faces of said posts and outer upstanding flange.

13. A side wall construction for a railway house car comprising a side plate, a plurality of spaced posts secured to said side plate, a side sill, said sill having a horizontal flange adapted to be secured to the underframe of said car, an outer upstanding flange, an inwardly directed flange and an inner upstanding flange, means securing said posts to said inner upstanding flange, said posts extending through apertures in said inwardly directed flange inwardly of said outer upstanding flange, means securing said posts to said latter flange, means securing said posts to said inwardly directed flange, means securing said posts to said horizontal flange, and metallic sheathing secured to said side plate and to the outer faces of said posts and outer upstanding flange.

14. A side wall construction for a railway house car comprising a side plate, a plurality of spaced posts secured to said side plate, a side sill, said sill having a horizontal flange adapted to be disposed upon and secured to the underframe of said car, said flange forming a support for the floor of said car, an upstanding flange disposed outwardly of said floor and an inwardly directed flange terminating above said floor, said posts extending through apertures in said inwardly directed flange inwardly of said upstanding flange, means securing said posts to said latter flange, means securing said posts to said inwardly directed flange, and metallic sheathing secured to said side plate and to said posts and outer upstanding flange.

15. A frame structure for a side wall of a railway house car comprising a side plate, a plurality of spaced posts secured to said side plate, a side sill, said sill having a horizontal flange adapted to be secured to the underframe of said car, an outer upstanding flange, an inwardly directed flange and an inner upstanding flange, means securing said posts to said inner upstanding flange, said posts extending through apertures in said inwardly directed flange inwardly of said outer upstanding flange, means securing said posts to said latter flange, and metallic sheathing secured to said side plate and to said posts and outer upstanding flange.

16. A frame structure for the side walls of a railway house car comprising a side plate, a plurality of spaced Z-shaped posts, the webs of said posts being disposed at a right angle to said wall and the flanges parallel to said wall, means securing the outer of said post flanges to said side plate, a side sill, said sill having a horizontal flange adapted to be secured to the underframe of said car, an outer upstanding flange, an inwardly directed flange, and an inner upstanding flange, the inner flanges of said posts terminating above said inwardly directed sill flange, means securing the said inner post flanges to said inner upstanding sill flange, the webs and outer

flanges of said posts extending below said inner post flanges and through apertures in said inwardly directed sill flange inwardly of said outer upstanding sill flange, and means securing said outer post flanges to said latter sill flange.

17. A side sill for a railway house car comprising a horizontal flange adapted to be secured to the underframe of said car, an outer flange extending upwardly from said horizontal flange, a flange directed inwardly from said outer flange and an inner flange extending upwardly from said latter flange adapted to be secured to posts of said car, said inwardly directed flange having spaced apertures through which said posts of said car are adapted to extend.

18. A side sill for a railway house car comprising a horizontal flange adapted to be secured to the underframe of said car, an outer flange extending upwardly from said horizontal flange, a sloping flange directed inwardly and upwardly from said outer flange and an inner flange extending upwardly from said latter flange adapted to be secured to posts of said car, said inwardly and upwardly sloping flange having spaced apertures through which said posts of said car are adapted to extend.

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