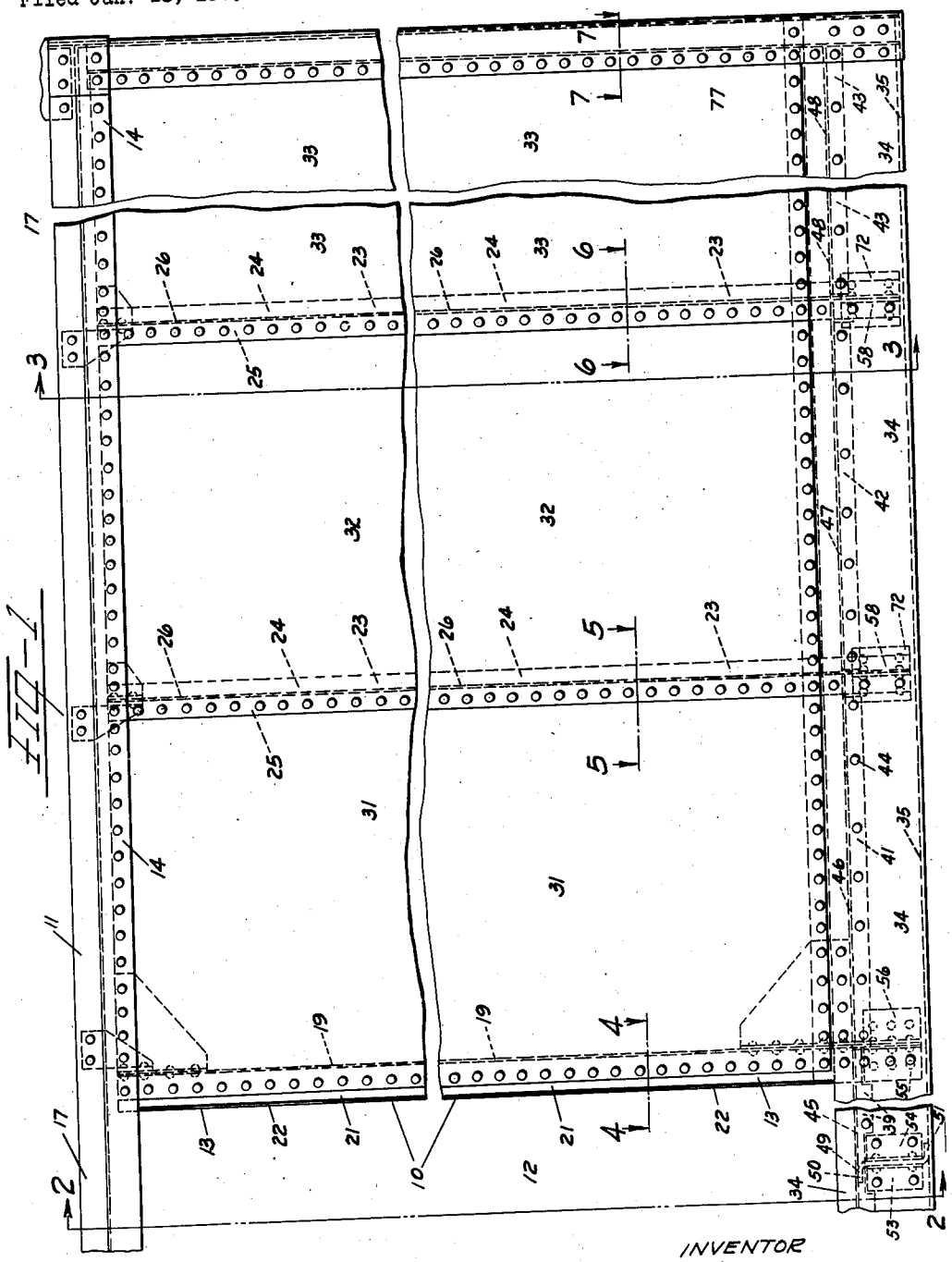
April 26, 1949. A. J. DOYLE 2,468,185

RAILWAY HOUSE CAR

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INVENTOR
ARTHUR J. DOYLE
By Samuel Reese
-ATTY-

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RAILWAY HOUSE CAR

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FIG-2

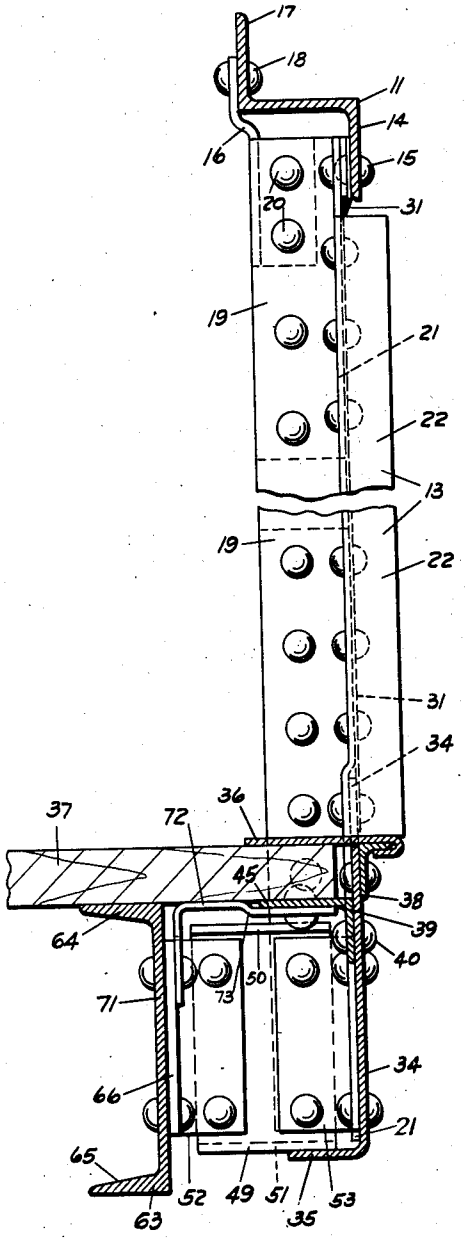
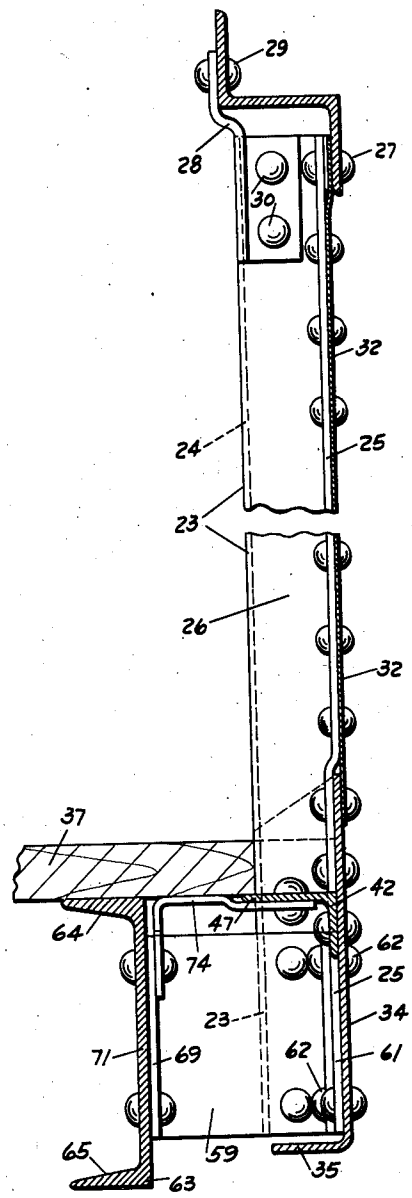


FIG-3



— INVENTOR —
ARTHUR J. DOYLE
By — Samuel Reese
— ATT'Y. —

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FIG-4

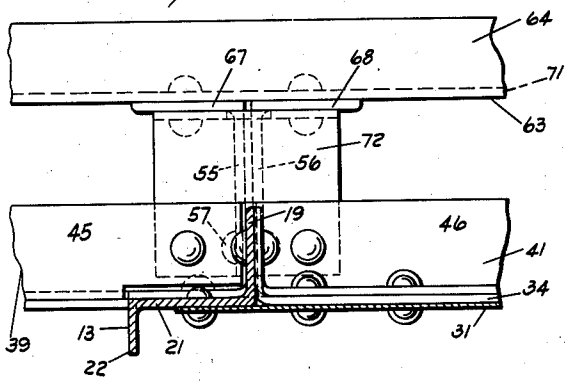


FIG-5

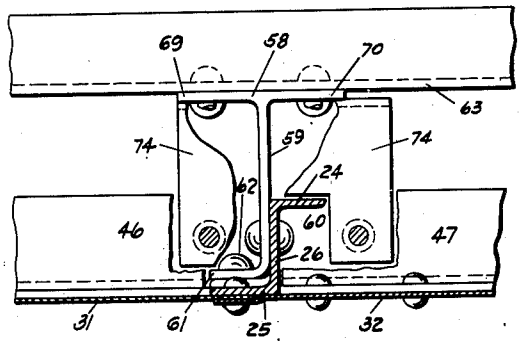


FIG-6

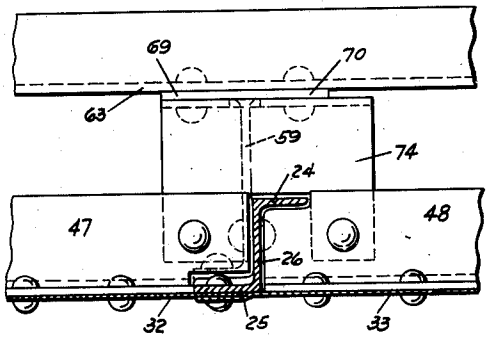
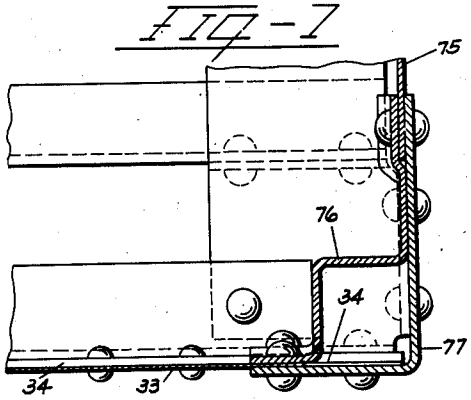


FIG-7



~INVENTOR~
ARTHUR J. DOYLE
BY- Samuel Reese
~ATT'Y.~

Patented Apr. 26, 1949

2,468,185

UNITED STATES PATENT OFFICE

2,468,185

RAILWAY HOUSE CAR

Arthur J. Doyle, Cleveland, Ohio, assignor to The Youngstown Steel Door Company, Cleveland, Ohio, a corporation of Ohio

Application January 18, 1946, Serial No. 642,030

8 Claims. (Cl. 105—409)

1

This invention relates to railway house cars and is concerned more specifically with a side wall structure particularly applicable to the repair and widening of existing house cars but capable of use in new house car construction.

It is an object of this invention to provide a side wall structure for railway house cars which shall dispense with castings, effect a reduction in the number of parts required and in cost.

A further object of this invention is to provide a side wall structure which shall be applicable without change to house cars irrespective of differences in width of underframe and inside width of said cars and be capable of utilizing door posts and intermediate posts extending below the top of the underframe.

A further object is to provide a side wall structure for railway house cars which shall constitute a stress-carrying girder and embody a bottom stress-carrying member extending from end to end of the cars and door posts and intermediate posts extending below the top of the underframe of said cars.

A further object is to provide a side wall structure for railway house cars which shall possess greater strength, permit an increase in the inside width of cars and utilize a bottom stress carrying member extending from end to end of the cars and capable of application to all house cars regardless of their width.

A further object is to provide a side wall structure for railway house cars which shall incorporate a bottom stress-carrying member extending from end to end of the cars and adapted to be secured directly to and reinforce the side sills of the car underframe so as to permit re-use of the side sills despite loss of section resulting from corrosion or the like and obtain uniform deflection of the side sill under load and embody door posts and intermediate posts extending below the top of the underframe.

A further object is to provide a side wall structure for railway house cars which shall incorporate a flat plate as a bottom stress-carrying member and door posts and intermediate posts extending below the top of the underframe of the cars.

Other objects will become clear as the description thereof proceeds.

In the drawings forming part of this specification:

Fig. 1 is a fragmentary elevation of a portion of a carside embodying the instant invention.

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

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Fig. 3 is a vertical section taken on line 3—3 of Fig. 1.

Fig. 4 is a horizontal section taken on line 4—4 of Fig. 1.

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.

Fig. 7 is a horizontal section taken on line 7—7 of Fig. 1.

The instant invention which is an improvement upon the invention illustrated in the patent to Ditchfield, 2,235,449, granted March 18, 1941, is embodied in a carside designated generally by the reference numeral 10. The drawings illustrate a portion of the carside extending from the door opening to one end of the car. It will be understood, however, that the remaining portion of the carside is similar to that illustrated and that the carside structure upon the opposite side of the railway house car will be of similar construction.

The carside 10 of the instant invention embodies a side plate 11 which, as is well known, extends from end to end of the car. The door opening 12 formed in the carside is defined in part by means of a door post 13 which is secured to the depending leg 14 of the side plate as by means of rivets 15. The door post is further secured to the side plate by means of an angle bracket 16 which as shown is fastened to the upstanding leg 17 of the side plate as by means of rivets 18 and to the inwardly extending flange 19 of the door post as by means of rivets 20. The door post 13, as more clearly shown in Figs. 2 and 3 of the drawings, embodies in addition to the inwardly extending flange 19, a web 21 disposed parallel to the side wall and an outwardly extending flange 22.

The side wall 10 also embodies a plurality of spaced intermediate posts 23 which are Z-shaped in section and arranged so that the inner and outer flanges 24 and 25 thereof lie parallel to the side wall and the web 26 at right angles to the side wall. The intermediate posts are secured to the depending leg 14 of the side plate as by means of rivets 27 and to the upstanding leg 17 of the side plate by means of angle brackets 28 and rivets 29 and 30 respectively. Metallic sheets 31, 32 and 33 are secured to the depending leg 14 of the side plate and to the outer faces of the door posts and intermediate posts.

The side plate, door posts and intermediate posts and the sheathing constitute the upper

chord and web of a side wall girder construction which is completed by means of a bottom chord 34 extending substantially from end to end of the car and secured as by means of riveting to the outer face of the door posts and intermediate posts. The lower margin of the metallic sheathing is secured upon the outside of the bottom chord as shown in Fig. 3 of the drawings. The bottom chord 34 is in the form of a flat plate member which, if desired, may be flanged inwardly as indicated at 35 so as to reinforce the plate.

With reference to Figs. 2 and 3 of the drawings, it will be apparent that the flat plate member, which constitutes the bottom chord 34, permits the extension of the inner flange 19 and the web 21 of the door post 13 and each of the intermediate posts 23 downwardly substantially to the bottom of the plate member. The outwardly extending flange 22 of the door post terminates adjacent to the threshold plate 36 which is customarily disposed upon the car floor 37 and supported outwardly of the car floor by means of an angle member 38 carried by the bottom plate member. By virtue of the foregoing construction it will be apparent that the integrity of the intermediate posts and of the web and inwardly extending flange of the door posts is maintained to the fullest extent so that a substantial increase in the strength of the side wall structure is obtained.

An angle member 39 extending between the door posts is fastened to the bottom plate member as by means of rivets 40. Similar angle members 41, 42 and 43 secured to the bottom plate member as by means of rivets 44, extend between the posts from the door posts to the ends of the car. The horizontal legs 45, 46, 47, and 48 of these angle members extend inwardly from the plate member and serve to support the adjacent end of the car floor 37.

Brackets are provided in order to obtain securement of the carside structure to the underframe of a railway house car either in the repair of such a car or in the construction of a new car. The brackets utilized for securement of the carside structure to the car underframe below the door opening are formed of a plate member 49, the upper and lower margins of which are oppositely flanged as indicated at 50 and 51 to provide a structure which is substantially Z-shaped in vertical section. Angle members, one of which is shown at 52, are secured as by means of riveting to the opposite faces of the plate member 49 along the inner vertical margin thereof and similar angle members 53 and 54 are secured to the opposite faces of the plate member 49 along the outer vertical margin thereof.

A bracket is secured to the inwardly extending flange 19 of each of the door posts 13 and as illustrated is in the form of two angle members 55 and 56 secured to the opposite faces of flange 19 as by means of rivets 57.

The bracket utilized at each of the intermediate posts 23 is in the form of a substantially T-shaped member 58 whose stem 59 is secured as by means of rivets 60 to the web 26 of the intermediate posts. In addition the stem 59 is flanged as indicated at 61 so as to abut the outer flange 25 of the intermediate post and permit securement of the bracket 58 to said flange and to the bottom plate member which constitutes the lower chord of the side wall girder as by means of rivets 62.

The side wall structure as above described is

applied to the car underframe as a unit and secured thereto by the attachment of the brackets to a side sill of the car underframe. The side sill 63 is customarily in the form of a channel arranged with its upper and lower flanges 64 and 65 extending inwardly. The side wall structure is so disposed relative to the car underframe that the bottom plate member lies substantially in opposed relationship to the side sill and the bottom plate member and door posts and intermediate posts are offset outwardly relative to the underframe. In this manner the side wall structure may serve as a replacement for the side wall structures of existing cars while obtaining an increase in the effective inside width of the car or it may serve as a side wall structure for a new car. In either instance it will be apparent that an increase in the customary cross bearers of car underframes is avoided while an increase in the effective inside width of the car is obtained. When the carside structure is properly disposed relative to the car underframe, the flanges, such as flange 66, of the angle members, one of which is indicated at 52, the flanges 67 and 68 of the door post bracket, and the flanges 69 and 70 of each of the intermediate post brackets are then secured to the web 71 of the side sill 63 as by means of riveting, thereby firmly attaching the carside structure to the underframe. The floor 37 of the car when applied is supported upon the upper flange 64 of the side sill and upon the inwardly extending flanges of the floor supporting angles 39, 41, 42 and 43.

Attachment of the inwardly extending flanges 45 and 46 of floor supporting angles 39 and 41 to the side sill 63 is provided at each door post by means of an angle bracket member 72 secured as by means of riveting to said flanges and to flanges 67 and 68 of door post bracket angle members 55 and 56. Between inner flanges 45 and 46 and flanges 67 and 68 the angle bracket member 72 is offset upwardly as indicated at 73 to provide an additional floor supporting member.

Similarly, angle bracket members 74 are utilized to secure the inwardly extending flanges of the floor supporting angle members 41, 42 and 43 to the side sill 63 at the intermediate door posts.

At each corner of the car the side wall structure 10 is secured to the end wall 75 by means of an inner substantially W-shaped member 76 and an outer angle member 77 as more clearly appears in Fig. 7 of the drawings.

It is apparent from the foregoing detailed description of the instant invention that castings have been eliminated and a reduction in parts and a consequent reduction in cost have been secured. The structure of the side wall girder has been standarized and its application obtained to railway house car underframes without modification thereof irrespective of differences in the width of underframe. Moreover, the side wall structure permits the utilization of door posts and intermediate posts which extend substantially for the full height of the structure and substantially enhance the strength of the structure. The disposition of the bottom chord member of the side wall girder and its attachment to the side sill of the car underframe enables the bottom chord member to directly reinforce the side sill so as to compensate for a loss of section thereof which might be occasioned by wear, or corrosion, or the like, and at the same time to smooth out the sharpness of deflection of the

side sill which otherwise occurs at the door posts when the car underframe is under load. More uniform deflection of the side sill under load is thereby obtained.

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. In a railway house car having a side sill, a side wall comprising a side plate, a vertical bottom stress-carrying plate member extending substantially from end to end of said car in outwardly spaced opposed relationship to said side sill, door posts and intermediate posts secured to said side plate, said door posts and intermediate posts extending downwardly below the top of said side sill and into the space between said side sill and bottom plate member, means securing said bottom plate member to the outer face of said posts, sheathing secured to said posts, side plate and bottom plate member, structural brackets lying in the space between said side sill and bottom plate member, and means fastening said brackets to said side sill, posts and bottom plate member.

2. In a railway house car having a side sill, a side wall comprising a side plate, a vertical bottom stress-carrying plate member extending substantially from end to end of said car in outwardly spaced opposed relationship to said side sill, door posts and intermediate posts secured to said side plate, said door posts and intermediate posts extending downwardly below the top of said side sill and into the space between said side sill and bottom plate member, means securing said bottom plate member to the outer face of said posts, sheathing secured to said posts, side plate and bottom plate member, brackets lying in the space between said side sill and bottom plate member, and means fastening said brackets to said side sill, posts and bottom plate member.

3. In a railway house car having a side sill, a side wall comprising a side plate, a vertical bottom stress-carrying plate member extending substantially from end to end of said car in outwardly spaced opposed relationship to said side sill, door posts and intermediate posts secured to said side plate, said door posts and intermediate posts extending downwardly below the top of said side sill and into the space between said side sill and bottom plate member, means securing said bottom plate member to the outer face of said posts, sheathing secured to said posts, side plate and bottom plate member, floor supporting members secured to said bottom plate member and extending between said posts, structural brackets lying in the space between said side sill and bottom plate member, and means fastening said brackets to said side sill, posts and bottom plate member.

4. In a railway house car having a side sill, a side wall comprising a side plate, a vertical bottom stress-carrying plate member extending substantially from end to end of said car in outwardly spaced opposed relationship to said side sill, door posts and intermediate posts secured to said side plate, said door posts and intermediate posts extending downwardly below the top of said side sill and into the space between said side sill and bottom plate member, means securing

said bottom plate member to the outer face of said posts, sheathing secured to said posts, side plate and bottom plate member, floor supporting members secured to said bottom plate member and extending between said posts, means securing said floor supporting members to said side sill, structural brackets lying in the space between said side sill and bottom plate member, and means fastening said brackets to said side sill, posts and bottom plate member.

5. A load carrying side wall structure for railway house cars comprising a side plate, door posts and intermediate posts secured to said side plate, a vertical bottom plate member secured to the outer face of said posts and extending substantially from end to end of said side wall structure, said posts extending substantially to the lower edge of said plate member, sheathing secured to said posts, side plate and bottom plate member, and structural brackets secured to said posts and bottom plate member, said brackets being adapted to fasten said side wall structure to a side sill of a said car in offset relationship to said side sill with said bottom plate member in opposed relationship to said side sill.

6. A load carrying side wall structure for railway house cars comprising a side plate, door posts and intermediate posts secured to said side plate, a vertical bottom plate member secured to the outer face of said posts and extending substantially from end to end of said side wall structure, floor supporting means secured to said bottom plate member, said posts extending downwardly below said floor supporting means, sheathing secured to said posts, side plate and bottom plate member, and brackets secured to said posts and the inside of the bottom plate member.

7. In a railway house car having a side sill, a side wall comprising a side plate, a bottom stress-carrying member extending substantially from end to end of said car in outwardly spaced opposed relationship to said side sill, door posts and intermediate posts secured to said side plate, said door posts and intermediate posts extending downwardly below the top of said side sill and into the space between said side sill and bottom member, means securing said bottom member to the outer face of said posts, sheathing secured to said posts, side plate and bottom member, structural brackets lying in the space between said side sill and bottom member, and means fastening said brackets to said side sill and posts.

8. A load carrying side wall structure for railway house cars comprising a side plate, door posts and intermediate posts secured to said side plate, a bottom stress carrying member secured to the outer face of said posts and extending substantially from end to end of said side wall structure, said posts extending substantially to the lower edge of said member, sheathing secured to said posts, side plate and bottom member, and structural brackets secured to said posts, said brackets being adapted to fasten said side wall structure to a side sill of a said car in offset relationship to said side sill with said bottom member in opposed relationship to said side sill.

ARTHUR J. DOYLE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,092,959	Ditchfield	Sept. 14, 1937