Dec. 9, 1930 W. F. DIETRICHSON 1,784,484

CAR CONSTRUCTION

Filed Oct. 21, 1929 2 Sheets-Sheet 1

Fig. 3.

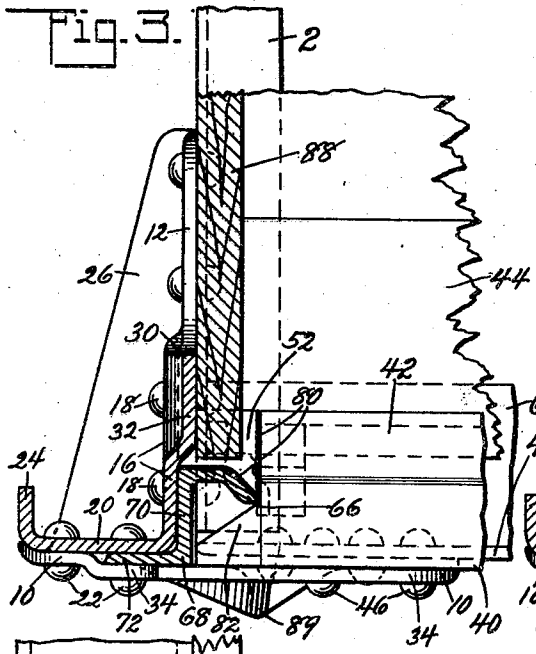


Fig. 5.

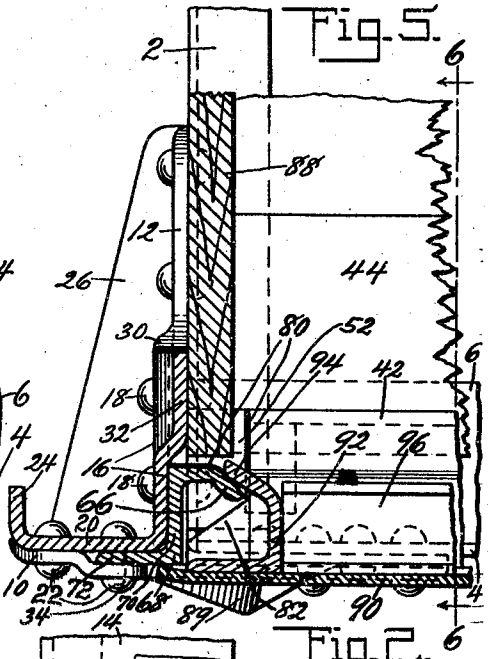


Fig. 1.

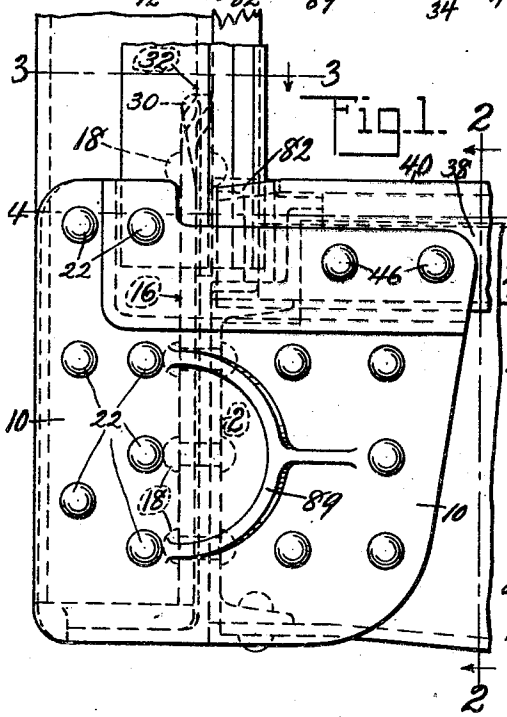
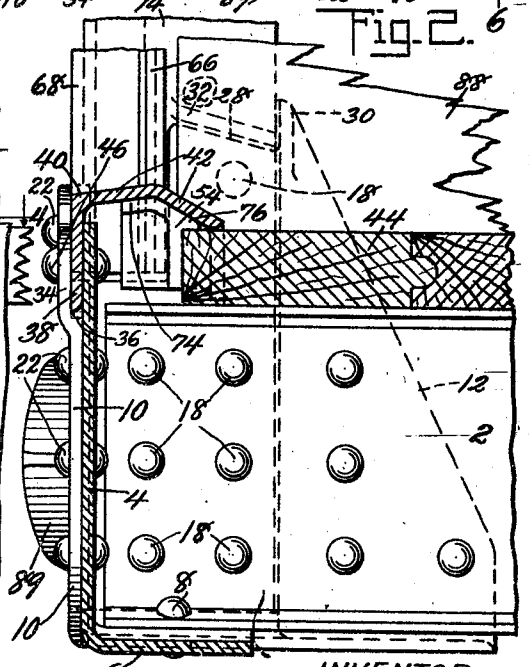


Fig. 2.



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CAR CONSTRUCTION

Filed Oct. 21, 1929 2 Sheets-Sheet 2

Fig. 4.

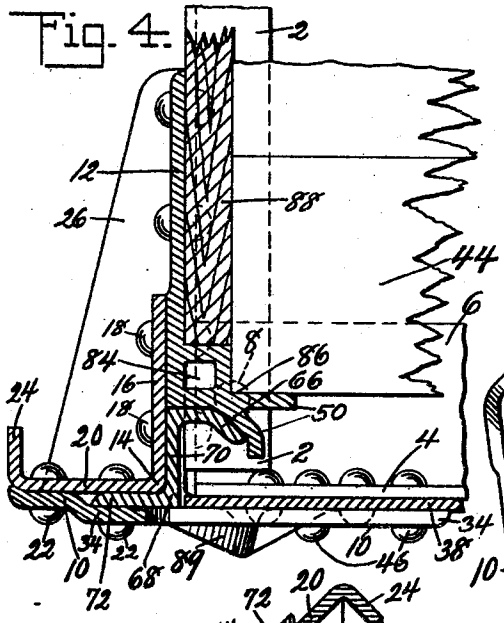


Fig. 7.

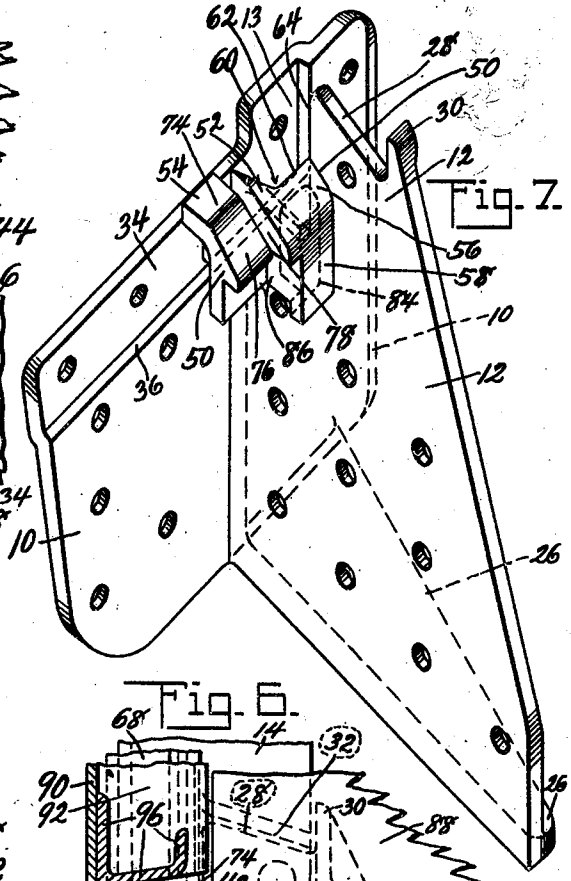


Fig. 5.

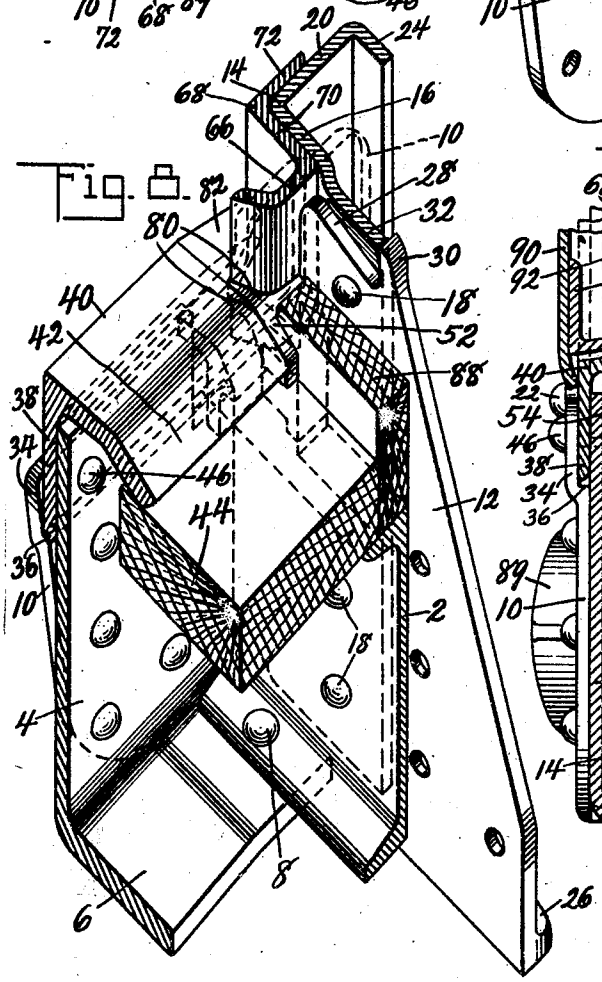
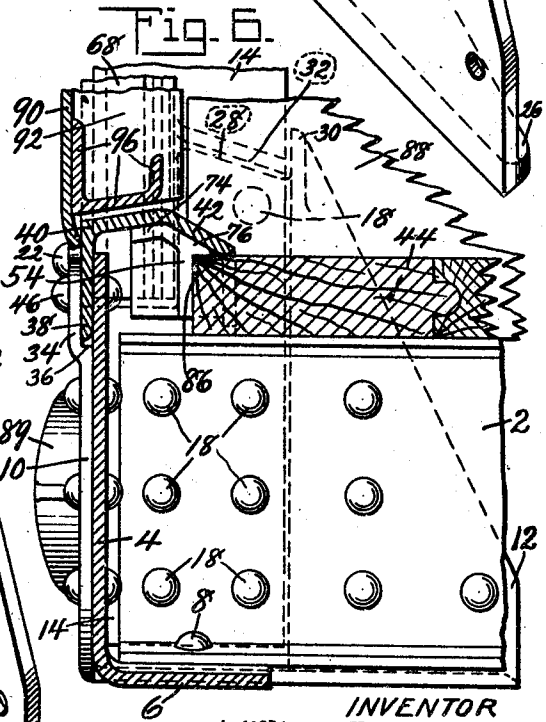


Fig. 6.



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Patented Dec. 9, 1930 1,784,484

# UNITED STATES PATENT OFFICE

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## CAR CONSTRUCTION

Application filed October 21, 1929. Serial No. 401,161.

This invention relates generally to car constructions and has particular reference to a corner bracket for securing together the side and end sills and corner post of a railway car, and for providing a construction which facilitates the formation of a tightly closed or sealed corner in the interior of the car between the flooring and the siding.

One object of this invention is the provision of a bracket adapted to rigidly connect the parts as aforesaid and which is also adapted to support a doorpost.

Another object of the invention is the provision of a reinforcing bracket for the corners of end door railway cars which secure together the end sill, side sill, corner post of the car and which also serves to support a doorpost and threshold plate.

A further object of the invention is the provision of a combination push pole pocket, side and end sill connection for railway cars.

Other objects and advantages of this invention will be apparent from the following description taken in conjunction with the accompanying drawings, in which:

Figure 1 is a front elevation of the bracket of the present invention applied to the corner of a railway car;

Fig. 2 is a sectional view on the line 2—2 Fig. 1;

Fig. 3 is a sectional view on the line 3—3 Fig. 1;

Fig. 4 is a sectional view on the line 4—4 Fig. 1;

Fig. 5 is a sectional view similar to the view shown in Fig. 3 but showing a portion of a door in section;

Fig. 6 is a sectional view on the line 6—6 Fig. 5;

Fig. 7 is a perspective view of the bracket forming the subject matter of the present invention, and

Fig. 8 is a sectional perspective view showing the bracket in position in the car and showing the various parts associated therewith.

In the manufacture of railway cars it is desirable that the sides and ends be strongly built in order to withstand end shocks and crushing stresses to which such cars may be subjected. To this end reinforcing brackets are provided which include portions for attachment to the side and end sills and which also include means for supporting a car corner post. The present invention is directed to such a bracket but the bracket of the present invention not only serves to connect the side and end sills to the corner post of the car but also is so formed as to support and have connected thereto a door frame corner post and a threshold plate; the bracket being particularly adapted for use in connection with railway cars having end doors such as are in use at the present day for the transportation of automobiles and which are commonly known as automobile cars. The bracket is also particularly adapted to form a substantial gusset connection betwen the door post and side sills which is essential inasmuch as the door post carries the weight of the door and roof and it is desirable to keep the door post in proper position whereby the doors are maintained in their proper position such that they may operate easily. In the construction of end door cars of the present day it has been the practice to employ several plates and cumbersome connections for accomplishing what has been done by the present unitary casting; this casting taking the place of the several plates and connections heretofore used and simplifying the construction and assembling of the door posts and end sills so that a framing which includes door post, end sill and bracket, with the doors properly fitted, can be applied to the car as a complete unit.

It has heretofore been difficult to form a tight floor at the junction of the doorpost and threshold plate in cars having end doors. A tight joint is effected by means of the present invention, as will appear hereinafter.

In carrying out the present invention the side sill 2 is of conventional form (a channel in the instance shown) and the end sill 4 is of angle form, the base 6 thereof extending inwardly and having the side sill secured thereto by suitable fasteners such as the rivets 8.

The present invention comprises an arrangement of parts which includes a corner

bracket for connecting the side and end sills to the corner post of the car and the bracket itself is clearly shown in perspective in Figure 7. The bracket comprises a front plate 10 and a side plate 12 extending rearwardly from the front plate intermediate the side edges of the latter and at substantially right angles thereto. The bracket is a unitary casting and a portion of the side plate near the upper portion at its junction with the front plate is cut away to define a door post receiving opening 13 as more clearly described hereinafter.

Secured to the outer side of the side plate 12 is a corner post indicated generally at 14 which is of angle form and in fact, substantially L-shaped in cross section, the leg 16 of the corner post resting against the outer side of the side plate 12 and being secured thereto by suitable fasteners such as the rivets 18, which rivets also secure the side sill 2, while the leg 20 of the corner post extends adjacent the rear face of the front plate 10 and rests thereagainst as shown clearly in Figs. 3, 4 and 5 and said leg 20 is secured to the front plate 10 of the bracket by means of suitable fasteners such as the rivets 22. For providing stiffness the edge of the leg 20 is inwardly flanged as shown at 24 and the corner post 14 may be seated on an external web 26 connecting the lower edges of the front and side plates 10 and 12 respectively.

The upper edge of the side plate 12 is notched as shown at 28, the notch defining a lip 30 which is of greater width than the normal thickness of the side plate, and the leg 16 of the corner post is offset inwardly at the notch 28 as shown at 32 to lie over and in alinement with the side plate. By thickening the side plate at the lip 30 it will be apparent that an opening between the corner post and side plate is avoided. As clearly shown in Figs. 7 and 8 the upper edge of the side plate at the notch inclines downwardly toward the lip 30 and this provides for draining any water which may tend to collect at the joint formed at the corner post and side plate 12.

The upper edge of the front plate 10 is offset as at 34 to define a shoulder 36, and also to provide a space between the side sill 4 and the front plate 10 to receive the downturned flange or attaching portion 38 of a threshold plate 40. The threshold plate is an angle, the wear portion 42 of which has its forward edge downwardly inclined to rest upon the transversely arranged end floor board 44 as clearly shown in Fig. 8. The threshold plate is secured in position by being riveted as shown at 46 to the end sill 4 and to the offset portion 34 of the front plate 10.

Arranged in the angle defined by the front and side plates 10 and 12 respectively and adjacent the opening 13 in the side plate is a projection indicated generally at 50 and formed integral with said side and end plates. The projection comprises, in effect, two lugs 52 and 54 respectively, and is of the form shown clearly in Fig. 7; the lug 52 comprising a downwardly inclined top 56 and a vertical end 58. The top 56 of lug 52 is provided with an angle shaped recess 60 the wall 62 of which is alined with the edge 64 of the side plate 12 at the opening 13, and said recess 60 is so formed as to conform to the shape of one chord 66 of a Z-bar door frame post 68, the web 70 of which rests against and is secured to the leg 16 of the corner post 14 and the other chord 72 of which rests against and is secured to the leg 20 of the corner post 14 and to the front plate 10 of the bracket. The opening 13, heretofore mentioned, therefore provides for the arrangement and positioning of the doorpost 68 as will be apparent.

The lug 54, forming a portion of the projection 50, is provided with a top portion 74 having the rear end thereof downwardly inclined as shown at 76 in accordance with the inclination of the forward edge of the threshold plate 40 to serve as a support and reinforcement for the threshold plate. The top 74 of the lug 54 is arranged at a lower elevation than the top 56 of lug 52 (see Fig. 7) to define a shoulder 78 against which the side edge of the threshold plate 40 may fit as shown clearly in Fig. 8; the shoulder 78 being of a depth substantially equal to the thickness of the threshold plate whereby the wear portion 42 of the threshold plate and the top 56 of lug 52 will be flush with each other to provide a smooth and even joint. At the junction of the threshold plate and lug 52 and also at the junction of the door post 68 and lug 52 suitable waterproofing material 80 may be employed if desired to seal the joint.

In order to properly fit the threshold plate 40, the wear portion 42 thereof is provided at its end with cut out portions thereby providing ends 82 which may be fitted to the contour of the door post 68; the ends 82 preferably being inclined downwardly as shown clearly in Fig. 1. In casting the lug 54 is preferably cored out as shown at 84 and the lower portion of the lug 54 and the side of lug 52 adjacent lug 54 are each undercut to define a sharp right-angled recess 86 into which a corner of the end floor board 44 is fitted, thereby providing a tight joint of the floor board and the projection 50.

The siding for the car is preferably arranged horizontally and the lowermost board 88 has its end undercut or recessed to conform to the shape of the top and end of lug 52 to rest thereon as shown clearly in Fig. 8. Preferably the siding boards are of the same thickness as the width of the vertical face 58 of lug 52 whereby the end board 44 and the lowermost siding board 88 are arranged in

abutting relation to provide a tight joint at the junction of said two boards.

From the above description it is believed that those skilled in the art will readily see that a construction has been devised which results in an extremely tight connection of the side and floor boards which connection forms a tight joint at the corner of the car; this construction being effected by reason of the provision of the lugs 52 and 54 in the form shown in the drawings. It is also believed that those skilled in the art will see that due to the formation of the lugs 52 and 54, openings which are usually present in cars now in every day use are avoided.

The construction heretofore described may be assembled as a unit and then applied as a unit to a car under construction. That is, the corner bracket may be secured to an end sill and the threshold plate 40, door frame post 68 and corner post 14 may be all riveted together if desired, and the assembled construction then fitted to the side sill and be riveted thereto, thus providing an easy and quick assembly of parts. In connection herewith it is to be understood that the construction shown is duplicated at the other end of the end sill or, to be more exact, in the opposite corner of the car.

The corner bracket has its front plate 10 provided with a push pole pocket which is defined by an integral flange 89.

As before mentioned, the present invention is designed for cars having end doors and to that end the door frame post 68 has been provided. The doors may assume any preferred or desired form and inasmuch as the specific construction of the doors forms no part of the present invention, only portions of a conventional door construction are shown. In Fig. 5 a door panel 90 is shown which is hingedly mounted in any suitable manner to swing outwardly, and the panel has a frame member 92 secured thereto. The frame member is substantially a channel, one chord 94 of which is adapted to close against the chord 66 of the door post 68 when the door is in closed position. Along the lower edge of the door is a member 96 which likewise is a channel in the construction shown (see Fig. 6) which channel is adapted to overlie the threshold plate 40 when the door is in closed position.

From the above description it is believed that the construction will be fully apparent to those skilled in the art without further elaboration. The drawings, it is to be understood, are for illustrative purposes only and obviously, within the spirit of the invention, many changes in the form and proportions may be made without departing from the scope of the claims.

What is claimed is:

1. A corner bracket for railway cars comprising a unitary casting having a front plate, a side plate extending from the front plate intermediate the side edges thereof to define external and internal angles, and a multipart projection in the internal angle formed with the side plate.

2. A corner bracket for railway cars comprising a unitary casting having a front plate, a side plate extending from the front plate intermediate the side edges thereof to define external and internal angles, and a multipart projection in the internal angle formed with the side plate and having a floor board receiving recess formed therein.

3. A corner bracket for railway cars comprising a unitary casting having a front plate, a side plate extending from the front plate intermediate the side edges thereof, said side plate having a notched upper edge and having a portion removed adjacent its upper edge at its junction with the front plate.

4. A corner bracket for railway cars comprising a unitary casting having a front plate, a side plate extending from the front plate intermediate the side edges thereof, said side plate having a notched upper edge and having a portion removed adjacent its upper edge at its junction with the front plate and a two part projection formed with the side plate adjacent the upper and inner edges thereof.

5. A corner bracket for railway cars comprising a unitary casting having a front plate, a side plate extending from the front plate intermediate the side edges thereof, said side plate having a notched upper edge and having a portion removed adjacent its upper edge at its junction with the front plate, and a two part projection formed with the side plate adjacent the upper and inner edges thereof, said projection having a recess formed in its top surface, one wall of which is alined with the edge of the side plate at that part thereof where a portion has been removed.

6. A corner bracket for railway cars comprising a unitary casting having a front plate, a side plate extending therefrom and having a portion thereof spaced from said front plate, a multipart projection formed with the side plate and having a recess formed therein adapted to receive one corner of a floor board, and a web connecting the lower edges of the side and end plates.

7. A corner bracket for railway cars comprising a unitary casting having a front plate a portion of the upper edge of which is offset, a side plate extending from the front plate intermediate the side edges of the latter to define internal and external angles, a web connecting said plates at the external angle, said side plate having a portion removed at the junction of the upper portion thereof with the front plate to define a post receiving area, a lug cast with the side and

front plates in the internal angle adjacent the post receiving area and having an angle shaped inner edge defining an engaging surface for a post to be positioned in the post receiving area, and a second lug of less size than said first named lug cast with the latter and having a surface adapted to form an angle shaped recess with the first named lug.

8. A corner casting for railway cars comprising a front plate having its upper edge offset, a side plate cast with the front plate and extending from the latter intermediate its side edges and defining external and internal angles with the front plate, a web connecting the front and side plates at the external angle and a multipart projection in the internal angle adjacent the side plate.

9. In a railway car, a side sill, an end sill, a corner post, a unitary bracket connecting said sills and corner post, a door post connected to said bracket and corner post, and a threshold plate secured to the bracket and extending over the end sill.

10. In an end door railway car the combination of a side sill, an end sill, a corner post, and a single piece bracket securing the said sills and corner post together, of a door frame post supported by the bracket and secured thereto.

11. In an end door railway car the combination of a side sill, an end sill, a corner post, and a single piece bracket securing the said sills and corner post together, of a door frame post supported by the bracket and secured thereto and to the corner post.

12. In a railway car, the combination of a side sill, an end sill, a corner post, a single piece bracket securing said sills and corner post together, said bracket comprising a front plate to which the end sill is secured, and a side plate extending from the front plate intermediate its side edges and to which the side sill is secured, said side plate defining an external and an internal angle, said corner post being arranged in the external angle and being secured to the front and side plates.

13. In a railway car, the combination of a side sill, an end sill, a corner post, a single piece bracket securing said sills and corner post together, said bracket comprising a front plate to which the end sill is secured, and a side plate extending from the front plate intermediate its side edges and to which the side sill is secured, said side plate defining an external and an internal angle, said corner post being arranged in the external angle and being secured to the front and side plates and adjacent the upper edge of the side plate being offset to lie over and in alinement with the side plate.

14. In a railway car, an end sill, a side sill, a corner bracket to which the side and end sills are secured, said bracket comprising a front plate and a side plate extending rearwardly from the front plate intermediate the side edges of the latter and providing external and internal angles, a corner post arranged in the external angle and secured to the front and side plates of the bracket, said side plate having a portion thereof removed adjacent the upper edge thereof at its junction with the front plate to define an opening, a projection in the internal angle adjacent the opening, a door frame post arranged in the opening and engaged with the projection and with the corner post, and a threshold plate secured to the front plate and overlying the end sill and in engagement with said projection.

15. In a railway car, an end sill, a side sill, a corner bracket to which the side and end sills are secured, said bracket comprising a front plate and a side plate extending rearwardly from the front plate intermediate the side edges of the latter and providing external and internal angles, a corner post arranged in the external angle and secured to the front and side plates of the bracket and at the upper edge of the bracket offset to be arranged over and in line with the said side plate, said side plate having a portion thereof removed adjacent the upper edge thereof at its junction with the front plate to define an opening, a projection in the internal angle adjacent the opening, a door frame post arranged in the opening and engaged with the projection and with the corner post, and a threshold plate secured to the front plate and overlying the end sill and in engagement with said projection.

16. In a railway car, an end sill, a side sill, a corner post, and an angular corner bracket connecting said sills and corner post, means for forming a tight joint at the corner of the car comprising an integral lug in the angle formed by the bracket, said lug having a recess in its lower portion, a floor board fitted into the recess, a side board fitted over the lug and with which the end of the floor board contacts, and a threshold plate secured to the bracket and overlying the end sill and having its side edge arranged against the said lug.

17. In a railway car, a corner construction comprising an end sill, a side sill, a corner post, and a door frame post, a corner bracket connecting said sills and posts, a lug formed with the bracket and with which the door frame post is fitted, a floor board fitted into the lug, a side board having its end fitted over the lug, and a threshold plate secured to the bracket and having a wear portion resting on the floor board with its side edge in close fitting engagement with the side of said lug.

18. In a car construction, an end sill, a side sill, a bracket to which the side and end sills are secured, said bracket including a front plate and a side plate extending therefrom intermediate its side edges to define an

external and an internal angle, a corner post in the external angle and secured to the front and side plates, a door frame post in engagement with the corner post and having one portion thereof extended into the internal angle, a lug in the internal angle with which the door frame post is fitted, a floor board fitted into said lug, a side board contacting with the end of the floor board and engaging said lug, and a threshold plate overlying the floor board and having its side edge in engagement with the lug.

19. In an end door railway car, an end sill, a side sill, a bracket connecting said sills and comprising a front plate secured to the end sill and a side plate formed integral with the front plate and extending therefrom intermediate the side edges of said front plate and to which the side sill is secured, the side plate defining external and internal angles, a corner post in the external angle secured to the front and side plates, and a door frame post secured to the corner post and front plate and having one portion thereof extended into the internal angle.

20. In a railway car, the combination of a side sill, an end sill, a corner post, a single piece bracket securing said sills and corner post together, said bracket comprising a front plate to which the end sill is secured, and a side plate extending from the front plate intermediate its side edges and to which the side sill is secured, said side plate defining an external and an internal angle, said corner post being arranged in the external angle and being secured to the front and side plates and adjacent the upper edge of the side plate being offset to lie over and in alinement with the side plate, and a web connecting the lower ends of the front and side plates in the external angle on which the corner post rests.

21. In a railway car, an end sill, a side sill, an angular bracket connecting the end sill and side sill, flooring for the car, side boards for the car, and means for forming a tight joint at the corners of the car between the flooring and the side boards comprising a projection formed with the bracket and having a sharply defined recess formed therein into which one corner of the end floor board is fitted and over which the lowermost side board is fitted, said side board being substantially the thickness of the lug whereby the end of said floor board abuts the side of the side board.

22. In a railway car, an end sill, a side sill, an angular bracket connecting the end sill and side sill, flooring for the car, side boards for the car, and means for forming a tight joint at the corners of the car between the flooring and the side boards comprising a projection formed with the bracket and having a sharply defined recess formed therein into which one corner of the end floor board is fitted and over which the lowermost side board is fitted, said side board being substantially the thickness of the lug whereby the end of said floor board abuts the side of the side board and a plate secured to the end sill and overlying the floor board and having its side edge in engagement with the side of said lug.

23. In a car construction, an end sill, a side sill, a bracket connecting said sills and formed of a unitary casting having a front plate secured to the side sill and a side plate extending from the front plate and to which the side sill is secured, a corner post secured to one side of the side plate and to the front plate, a portion of the side plate being removed adjacent its upper edge at the junction of the side and front plates to provide a post receiving opening, a **Z**-shaped door frame post arranged in said opening and having its web and one leg in engagement with the corner post and its other leg extended into the angle defined by the end sill and side plate, a projection formed with the side plate and with which the door frame post engages, said projection including a reduced portion defining a shoulder and a supporting portion adjacent thereto, a plate secured to the end sill and front plate and extending over the supporting portion of the projection with its side edge in engagement with the said shoulder, and an end floor board fitted to the projection and on which said plate rests.

24. In a railway car, an end sill, a side sill, a corner post, an angle shaped corner bracket connecting said sills and corner post, and means for forming a tight joint at the corner of the car comprising an integral lug in the angle formed by the bracket, said lug having a sharply defined angular recess in its lower portion, a floor board having its end fitted into the angular recess, a side board fitted over the lug and with which the end of the floor board contacts, and a threshold plate secured to the bracket and end sill and overlying the latter and having its side edge arranged against said lug.

In witness whereof I have hereunto set my hand.

WILLIAM F. DIETRICHSON.