United States Patent

[11] 3,540,384

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[21] Appl. No. **721,458**
[22] Filed **April 15, 1968**
[45] Patented **Nov. 17, 1970**

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[54] **SIDE SILL STRUCTURE FOR RAILWAY FLAT CAR**
6 Claims, 7 Drawing Figs.

[52] **U.S. Cl.** **105/418,** 105/380; 280/145
[51] **Int. Cl.** **B61d 17/00;** B61f 1/08
[50] **Field of Search** ..... 105/390, 391, 418, 422, 380—391; 280/145

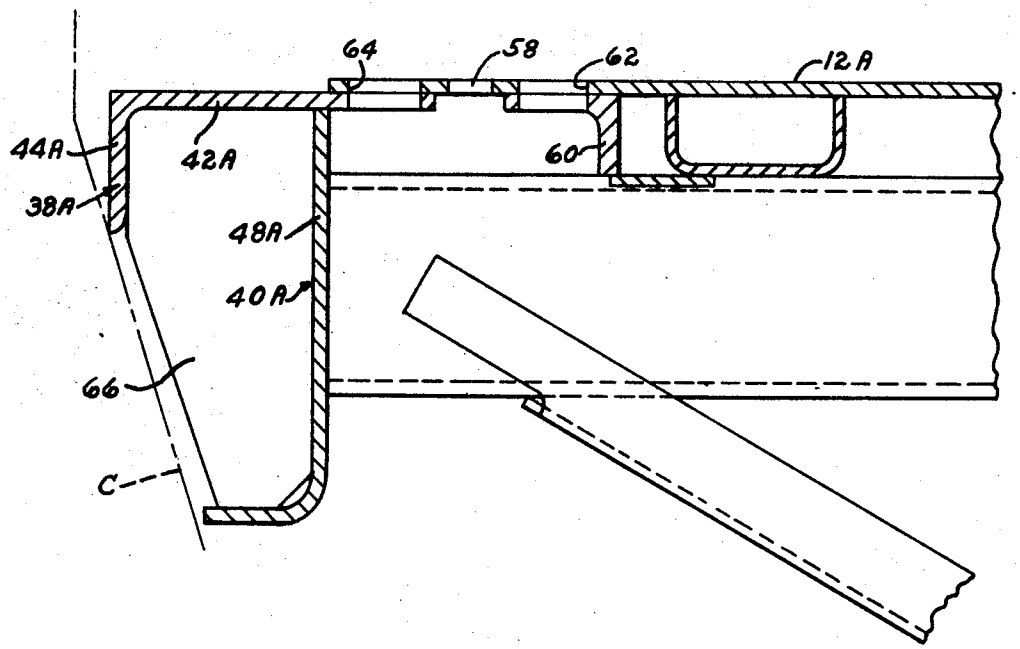
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ABSTRACT: A side sill structure for a railway flat car having a generally flush or even deck surface with the side sill structure forming a generally smooth continuation of the deck surface to provide a flush deck of a maximum width for carrying containers and the like. The side sill structure includes an outer angle-shaped member and an inner angle-shaped member joined to form the side sill structure. The upper horizontal leg of the outer member forms a continuation of the deck surface and has openings therein to receive side stakes, and the lower horizontal flange of the inner member extends outwardly beneath the openings to form supports for the lower ends of the side stakes.



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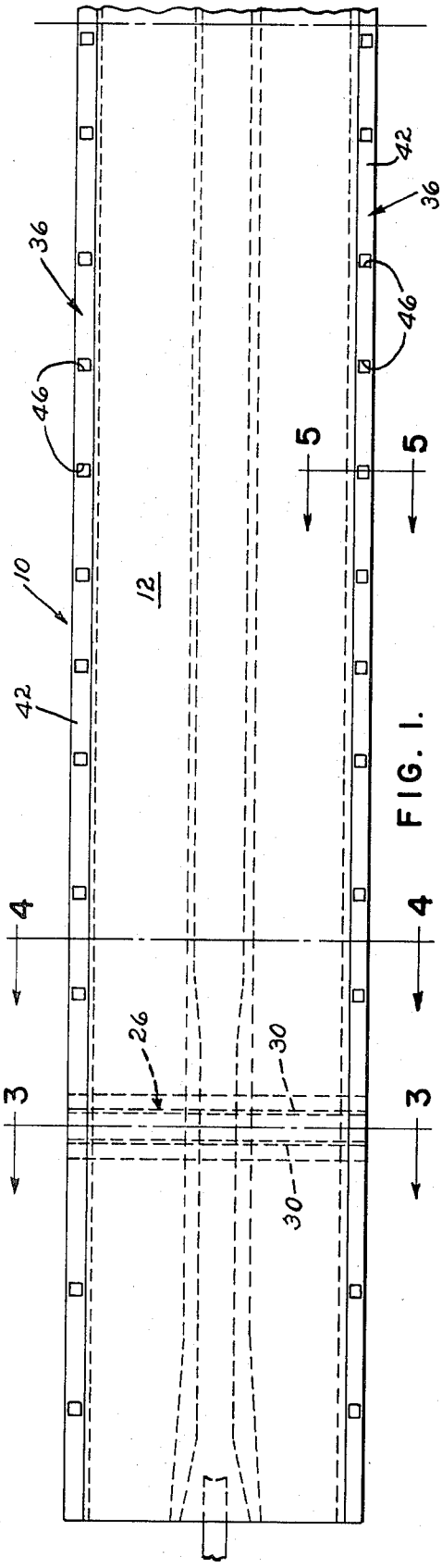


FIG. 1.

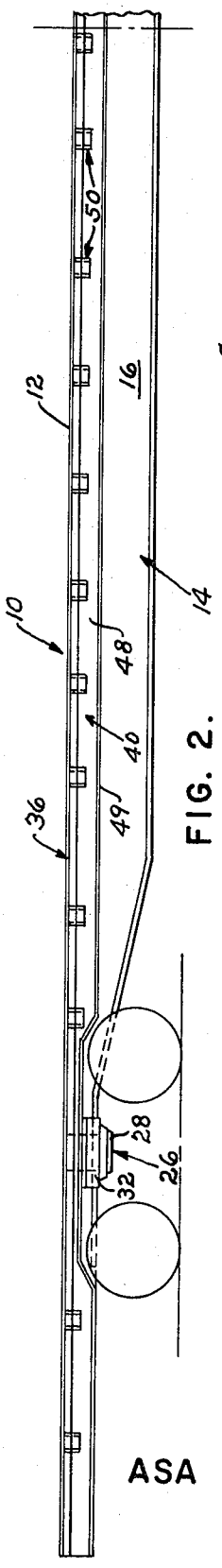


FIG. 2.

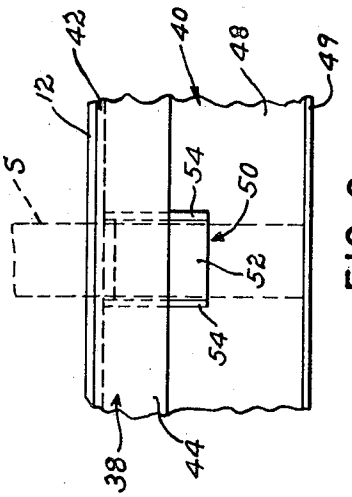


FIG. 6.

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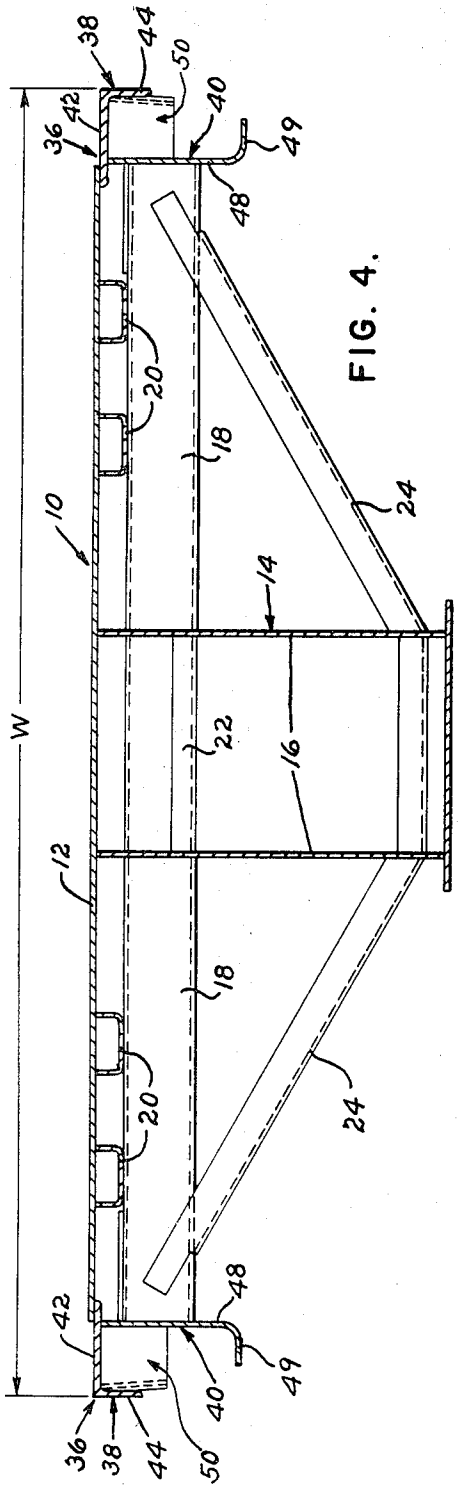

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FIG. 4.

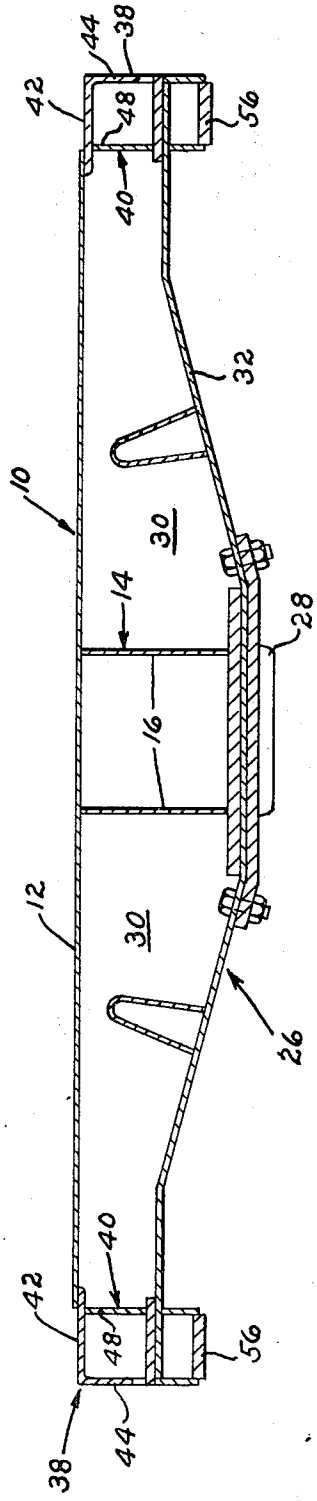

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FIG. 3.

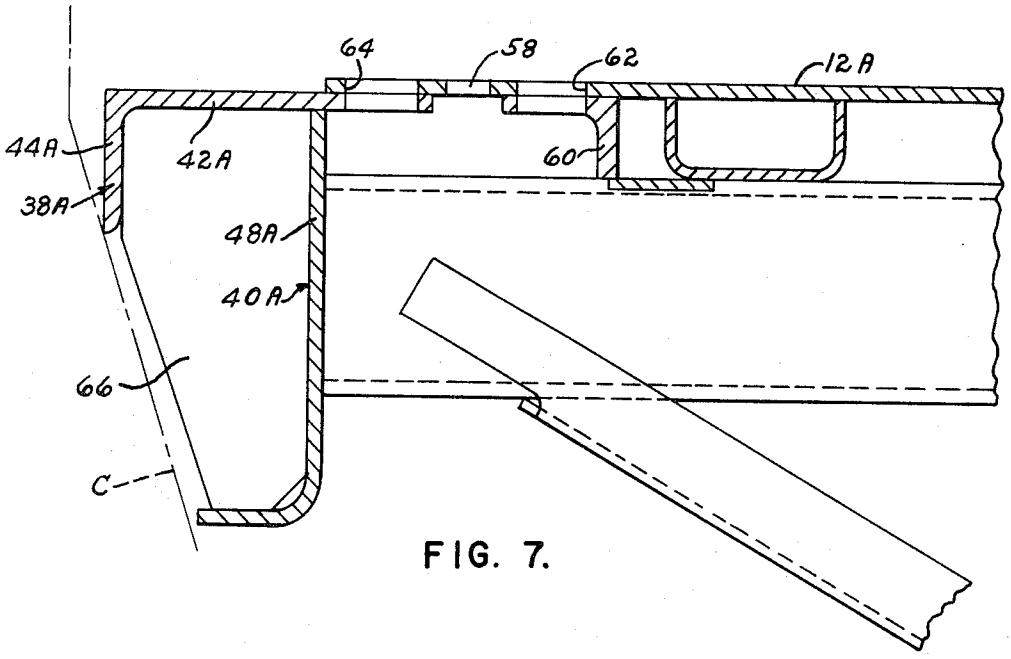

64
58
62
12A
44A
42A
60
38A
48A
40A
66
C

FIG. 7.

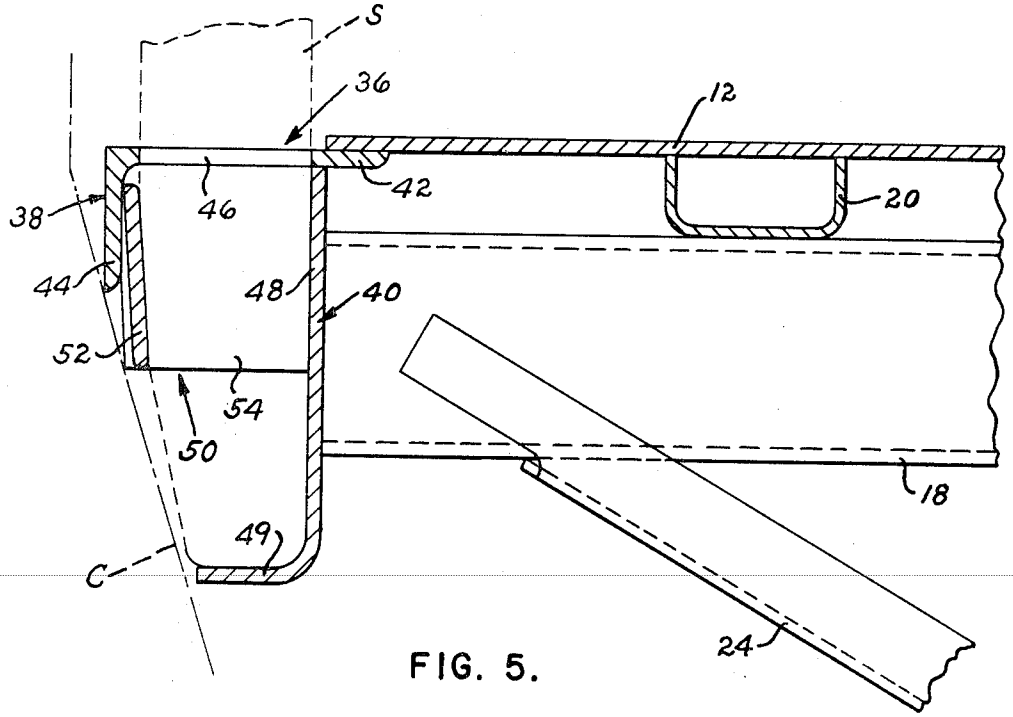

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FIG. 5.

SIDE SILL STRUCTURE FOR RAILWAY FLAT CAR

BACKGROUND AND DESCRIPTION OF THE INVENTION

Conventional side sills for railway flat cars normally project above the deck and provide an obstruction to loading and unloading operations from the side of the flat car. Also, conventional side stake pockets extend outwardly from the side sills to receive side stakes. Such a design limits the width of the deck as Association of American Railroads (AAR) clearance diagrams restrict the maximum widths of railway flat cars.

The present invention provides a railway flat car having a maximum width deck within the AAR plate B clearance diagram and with side sill structures forming a continuation of the deck surface. Since a side sill structure along each side of the deck forms a continuation of the deck surface, a full 9-feet wide deck is provided for the entire upper deck surface. The side sill structures do not project above the deck and do not obstruct the surface of the deck in any manner. In the event the flat car is employed for the transport of containers or the like, loading and unloading equipment having arms which extend beneath the containers may easily be employed and are not obstructed by any side sills.

The side sill structure of this invention has so-called "built-in" stake pockets while forming a continuation of the deck surface to provide a maximum width deck. The side sill structure includes outer and inner angle-shaped members joined together. The outer member has an upper inwardly extending horizontal leg secured to the deck plate to form a continuation thereof and a plurality of spaced openings to receive side stakes or the like. The inner member has a lower outwardly extending horizontal leg beneath the openings for supporting the lower ends of the side stakes thereon.

The invention accordingly comprises the constructions hereinafter described, the scope of the invention being indicated in the following claims.

In the accompanying drawings, in which two possible embodiments of the invention are illustrated:

FIG. **1** is a top plan of a railway flat car embodying the present invention and illustrating one-half the length of the car;

FIG. **2** is a side elevation of the railway flat car shown in FIG. **1**;

FIG. **3** is a cross section taken generally along line **3–3** of FIG. **1**;

FIG. **4** is a cross section taken generally along line **4–4** of FIG. **1**;

FIG. **5** is an enlarged partial cross section taken generally along line **5–5** of FIG. **1** and illustrating the opening for the side stake;

FIG. **6** is an enlarged fragment of FIG. **2** illustrating the side stake pocket; and

FIG. **7** is an enlarged section of a modification in which an arrangement is provided to accommodate pedestals for supporting the lower corners of containers.

Corresponding reference characters indicate corresponding parts throughout the several views of the drawings.

Referring now to the drawings for a better understanding of this invention, a railway flat car is indicated generally **10** and has a deck or floor plate **12** thereon. A center sill indicated generally **14** and having a pair of vertical webs **16** extends longitudinally of railway flat car **10**. Crossmembers **18** extend outwardly from webs **16** and stringers **20** are secured between deck **12** and crossmembers **18**. Transverse webs **22** are secured between vertical webs **16** of center sill **14**. Struts **24** are secured between the outer end portions of crossmembers **18** and the outer surfaces of webs **16**.

A bolster structure generally indicated **26** is illustrated in FIG. **3** and includes a center plate **28** adapted to receive the center pin (not shown) of a suitable truck. Spaced vertical bolster webs **30** extend transversely of the car beneath deck **12** and a lower cover plate **32** extends transversely of the car beneath webs **30**.

The side sill structure comprising the present invention is generally indicated **36** and extends longitudinally along each side of deck **12**. Side sill structure **36** includes an outer angle-shaped member **38** and an inner angle-shaped member **40** joined to each other. Outer member **38** has an upper horizontal leg **42** extending inwardly beneath deck **12** and welded thereto for forming a general continuation of the upper deck surface. A lower vertical leg **44** extends downwardly from leg **42** to the AAR clearance line C and forms the outer side surface of railway car **10**. Spaced along the length of outer member **38** in horizontal leg **42** are openings **46** which are adapted to receive a side stake S therein shown in broken lines in FIG. **5**. Extending downwardly from the underside of web **42** is vertical web **48** of inner member **40** which extends downwardly a distance at least twice the vertical extent of vertical leg **44**. An outturned lower flange or leg **49** of member **40** extends outwardly substantially to the AAR clearance line C and is positioned beneath openings **46** in leg **42** to support the lower end of a side stake S.

Forming a box-shaped sleeve or pocket below each opening **46** for receiving side stake S is a generally channel-shaped member **50** secured by welding to the outer face of vertical web **48** beneath each opening **46**. Channel-shaped member **50** includes a generally vertically extending plate member **52** secured adjacent the inner surface of lower leg **44** and extending downwardly to the AAR clearance line C. Transverse webs **54** extend between plate member **52** and the inner face of vertical web **48** to form a sleeve extending downwardly from each opening **46**. Plate member **52** is tapered inwardly to direct side stake S against vertical web **48** and to provide a wedge-type fitting for side stake S. Side stake S may be beveled adjacent its lower end to be within the AAR clearance line C.

The arrangement of side sill structure **36** as shown permits the utilization of the entire width of car **10** as a lading support surface. A width W of 9 feet is provided when utilizing the upper leg **42** as a portion of the deck surface. This arrangement also permits side stakes to be employed with the side stakes being received by the adjacent side sill structure **36**. As shown in FIGS. **2** and **3**, inner member **40** has its vertical web **48** of a smaller vertical dimension adjacent bolster structure **26** and a lower channel-shaped reinforcement **56** is secured beneath bolster lower cover plate **26**.

As shown in FIG. **7**, a modification is illustrated which is particularly adapted to be utilized with pedestals for supporting the lower corners of containers. Deck **12A** has a longitudinally extending slot **58** which forms a guideway for pedestals to slide along for positioning at selected intervals along the deck to accommodate containers of various lengths. Angle **60** is secured beneath deck **12A** and has a slot **62** therein. Horizontal leg **42A** of outer member **38A** has a slot **64** therein. Reinforcing webs **66** are spaced along the length of outer member **38A** between vertical leg **44A** and vertical web **48A** of inner member **40A**. Cooperating projecting lugs on the underside of suitable pedestals engage slots **62** and **64** for positioning the associated pedestals thereat. Slots **62** and **64** are spaced along the length of guideway **58** for positioning at selected intervals. For further details of a suitable pedestal or corner support, reference is made to U.S. Pat. No. 3,391,654 dated July 9, 1968 and entitled "Railway car", the entire disclosure of which is incorporated by this reference.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results obtained.

I claim:

1. In a railway flat car having a generally flat deck; the improvement of a side sill structure extending longitudinally of the car along each side thereof and having an upper horizontal surface generally flush with the upper surface of the deck, each side sill structure including generally angle-shaped inner and outer members, said outer member having an upper inwardly extending horizontal leg lapping the deck and secured thereto to form a continuation of the deck surface and an outer vertical leg extending downwardly from the horizontal

leg to form the outer side of the associated side sill structure, said horizontal leg having a plurality of openings therein spaced along the length of the car and adapted to receive side stakes or the like therein, said inner member comprising a vertical web secured beneath said deck in inwardly spaced relation to said vertical leg and extending downwardly a distance substantially greater than the extent of said vertical leg, said inner member including a lower flange extending outwardly in a generally horizontal direction away from the lower end of said vertical web and spaced vertically a substantial distance below the lower edge of the vertical leg of said outer member, said lower flange being positioned beneath the openings in the horizontal leg of said outer member and adapted to support the lower ends of side stakes or the like received within the openings.

2. A railway flat car as set forth in claim 1 wherein the outer surface of said vertical web defines the inner portion of said openings, and an outer generally vertical plate member is secured adjacent the inner face of the vertical leg of said outer member adjacent each opening to define the outer portion of the associated opening, said outer plate member being tapered inwardly to direct a side stake or the like inwardly toward the vertical web.

3. A railway flat car as set forth in claim 1 wherein a box-shaped stake pocket extends about each of the openings in the horizontal leg of said outer member, said box-shaped stake pocket comprising an outer generally vertical plate member secured adjacent said vertical leg of said outer member, and a pair of transverse webs extending between the outer plate member and the inner surface of said vertical web thereby to define the opening for a side stake or the like.

4. In a railway flat car having a generally flat deck; the improvement of a side sill structure extending longitudinally of the car along each side thereof and having an upper horizontal surface generally flush with the upper surface of the deck, each side sill structure including generally angle-shaped inner and outer members, said outer member having an upper inwardly extending horizontal leg lapping the deck and secured thereto to form a continuation of the deck surface and an outer vertical leg extending downwardly from the horizontal leg to form the outer side of the side sill structure, said inner member comprising a vertical web secured beneath said deck in inwardly spaced relation to said vertical leg and extending

downwardly a distance substantially greater than the extent of said vertical leg, said inner member including a lower flange extending in a generally horizontal direction from the lower end of said vertical web and spaced vertically a substantial distance below the lower edge of the vertical leg of said outer member.

5. A railway flat car having a maximum width of around 9 feet within AAR clearance limits and comprising, a deck, a side sill structure extending longitudinally along each side of the deck and having an upper horizontal surface generally flush with the upper surface of the deck, each side sill structure including generally angle-shaped inner and outer members, said outer angle-shaped member having an upper inwardly extending horizontal leg lapping the deck and secured thereto to form a continuation of the deck surface and an outer vertical leg extending downwardly from the horizontal leg substantially to the AAR clearance limit to form the outer side of the side sill structure, said inner member comprising a vertical web secured beneath the deck in inwardly spaced relation to said vertical leg and extending downwardly a distance at least around twice the vertical extent of said vertical leg, said inner member including an integral lower flange extending outwardly from the lower end of said vertical web in a generally horizontal direction substantially to the AAR clearance limit and spaced vertically a substantial distance below the lower edge of the vertical leg of said outer member.

6. In a railway flat car having a generally flat deck; the improvement of a side sill structure extending longitudinally of the car along each side thereof and having an upper horizontal surface generally flush with the upper surface of the deck, each side sill structure including an outer vertical leg extending downwardly to form the outer side of the side sill structure and an inner vertical web secured beneath said deck in inwardly spaced relation to said vertical leg, the side sill structure including a generally horizontal leg between the inner web and the outer vertical leg which forms generally a continuation of the deck surface, said horizontal leg having a plurality of openings therein spaced along the length of the car and adapted to receive side stakes or the like therein, the outer surface of said inner vertical web defining the inner portion of the openings, and means on the inner surface of said outer vertical leg to direct a side stake or the like inwardly toward the inner vertical web.