April 15, 1952 E. T. DOHERTY 2,592,666

LOAD BRACING MEANS

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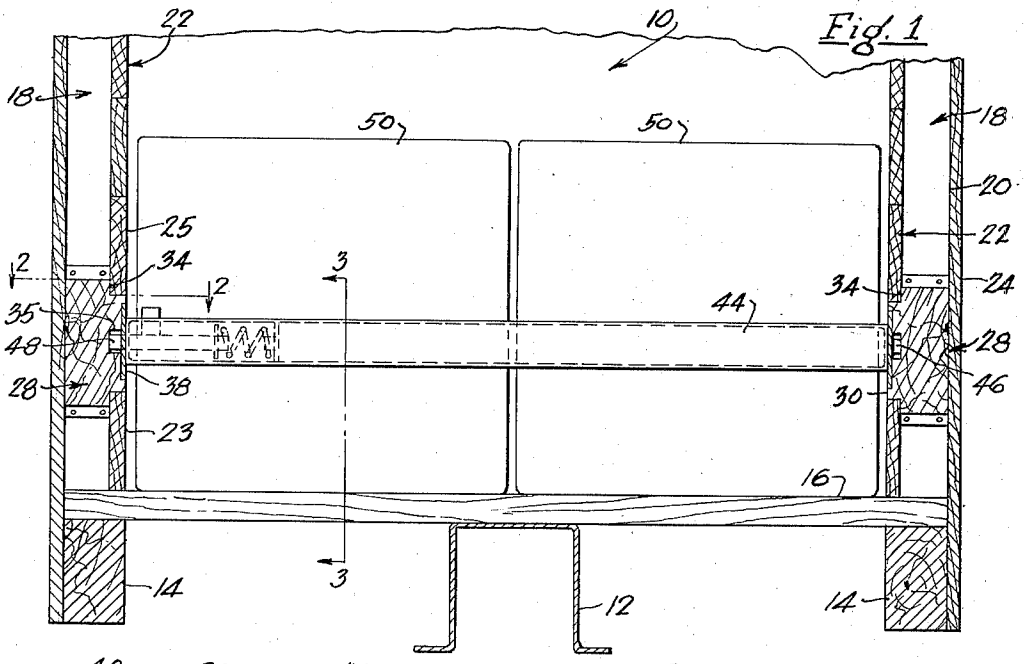


Fig. 1

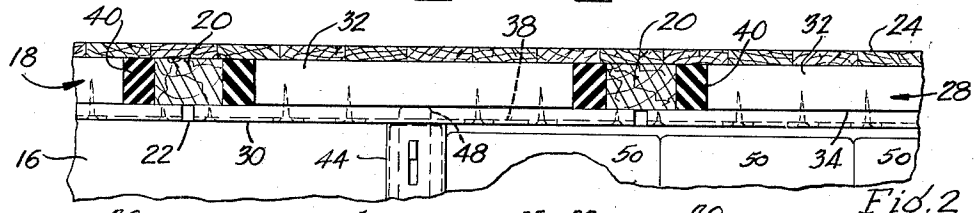


Fig. 2

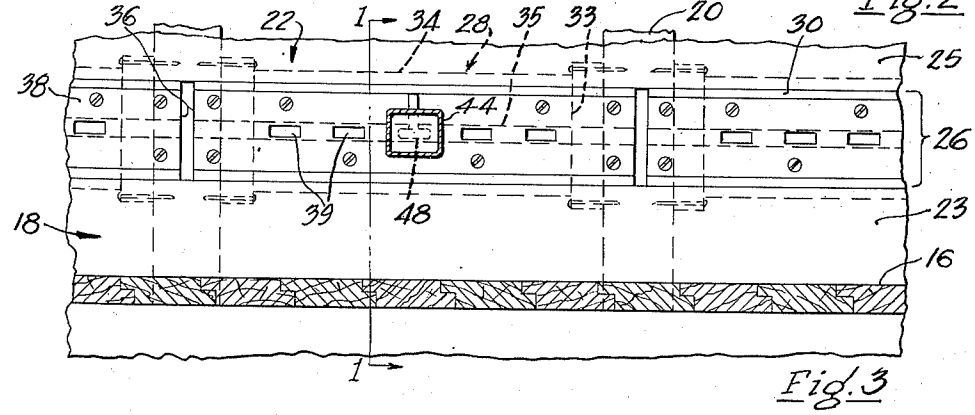


Fig. 3

EDWARD T. DOHERTY
INVENTOR.

BY

Arthur F. O'Connor
AGENT

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LOAD BRACING MEANS

Edward T. Doherty, Chicago, Ill., assignor to
Arthur F. O'Connor, Chicago, Ill.

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8 Claims. (Cl. 105—369)

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The invention relates to improvements in railway cars and like vehicles used for transporting various types of lading therein and is particularly well adapted for use in box or house-type cars. The invention is especially adaptable for use in box cars designed for shipping mixed freight or freight consisting of articles, cartons, automobile parts or parts of various forms, sizes or compositions which make it desirable to divide the car load into separate compartments or sections lengthwise of the car. It is also readily adaptable for use as means for supporting auxiliary floors or platforms above the main floor of the car.

An important object is to provide improved load dividing and bracing means adapted to cushion the shock received by the lading due to the common longitudinal shifting of lading in freight cars, which shifting causes damage to the lading, resulting in the payment by the carriers of very large damage claims annually and resultant loss in earnings which has been a matter of grave importance to railroads for many years.

A further object is to provide improved means providing an auxiliary to the draft gear on all freight cars in cushioning horizontal shocks received by the car and lading; the draft gear being essentially the only device on the conventional freight car adapted for cushioning horizontal blows received by the car and lading and being well known to fall far short of providing sufficient protection to lading.

A further object is to provide improved means for preventing the common and costly bulging out of the car end walls due to the longitudinal shifting of an undivided carload of lading, bodily, against the end walls.

Another object is to provide improved means for forming separate compartments or divisions of the lading lengthwise of the car, wherein the bracing means for a given compartment will yieldably retard the movement of the lading in that particular compartment essentially independent of the movement of the lading in adjacent compartments.

A further object is to provide improved means whereby a transversely disposed bracing member may be anchored to the opposed walls of the car in finer adjustment to suit various sizes of lading than is possible in prior art devices wherein the wall anchoring means or sockets are spaced widely apart lengthwise of the car.

Another object is to provide improved means whereby the lading in more than one of the

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compartments lengthwise of the car, or all of them, may be cushioned simultaneously, if desired.

A further object is to provide improved means for preventing damage to side wall structures of freight cars due to the rigid, unyielding fastening of the opposed ends of the bracing members to the side wall structures.

Another object is to provide improved longitudinally yieldable bracing members economical to manufacture and readily applicable to the conventional box car, as well as to new cars, without requiring any essential changes in conventional box car construction; the device of the invention being readily placeable in parts of the side wall structures heretofore unused.

Further objects, advantages and capabilities of the invention will be apparent from the following description, when read in conjunction with the accompanying drawings, in which—

Fig. 1 is a fragmentary, vertical, transverse sectional view through the lower portion of a box car embodying the preferred form of the invention.

Fig. 2 is a fragmentary sectional view taken along line 2—2 of Fig. 1.

Fig. 3 is a fragmentary sectional view taken along line 3—3 of Fig. 1.

In th drawings, 10 designates a car body comprising a center-sill 12, side-sills 14, a floor 16, side walls 18, side posts 20, inner wall lining 22 and outer wall sheathing 24; all of which are conventional components of a box car. In the preferred form of the invention, the lining 22 comprises a substantially uninterrupted wall secured to the inner faces of aligned side posts 20 and extending from the floor line to the roof of the car, although the major part of the lining 22 is not essential to the functioning of the invention. I show an inner lining board 23 traversing a plurality of the posts 20 adjacent the car floor and an upwardly spaced lining board 25, to form a horizontally disposed elongated opening 26 in the inner lining 22 adapted as a guide means hereinafter explained. An elongate member 28 is shown in longitudinal guided alignment with the opening 26 having a portion or face 30 substantially flush with the inner aligned surfaces of the lining 22 and having opposed end portions in overlapping relation with a pair of the posts 20 and having an outwardly projecting portion 32 disposed within the vertical bounding planes of said posts. The opposed ends 33 of the portion 32 form abutments which terminate short of the adjacent posts 20. The portion 32

is of greater width than the width of the opening 26 and is formed along its opposed inner longitudinal margins with offset portions 34 adapted to overlap the lower edge of the board 25 and the upper edge of the board 23.

Throughout the specification, the word "inner" is intended to indicate toward the car interior and the word "outer" is intended to indicate toward the car exterior.

The portion 30 is of substantially the same width as the width of the opening 26 and of substantially the same thickness as the thickness of the boards 23 and 25 and may be formed lengthwise of its inner surface with a groove 35. The opposed ends 36 of the portion 30 terminate adjacent the vertical centerline of the adjacent posts 20 and, in the preferred embodiment of the invention, the end 36 of one member 28 is spaced from the end 36 of the next aligned member 28, although I specifically contemplate one embodiment wherein the adjoining ends 36 abut each other or are integrated. An elongate metal plate 38 may be secured lengthwise of the inner surface of the portion 30 and, as best shown in Fig. 3, is formed with a series of spaced apart openings 39 in the plate. The openings 39 are shown in axial alignment but may be staggered, if a finer graduation is desired for securement of a load-bracing member hereinafter described. A rubber block 40 is shown affixed to each post 20 coincident each adjacent abutment portion of the ends 33 of the members 28 and I propose the use of blocks 40 of such dimensions that any movement of an end 33 toward the block 40 will immediately compress the rubber. It will be apparent that springs of various types or friction shock-absorbing devices may be substituted for the rubber blocks 40, which springs and devices may be used without departing from the scope of my invention.

A load-bracing member 44 is shown in the drawings in one of the selective positions lengthwise of the car and comprises a hollow beam of substantially the same length as the distance between the opposed linings 22 of the car, formed at one of its ends with an outwardly projecting lug 46 and provided at its opposed end with a selectively propellable and retractable lug 48 adapted to enter and interlock with the aligned openings 39 on opposed sides of the car.

The use of rigid elongate load-bracing members is old in the art, as is the use of steel-strapping secured across the car, for bracing or partitioning one portion of a car load from another portion. While I have shown and prefer to use a rigid load-bracing member, it will be understood that steel-strapping can be used, in place of the rigid member, without departing from the scope of my invention; the use of steel-strapping requiring only a change from the openings 39 to alternate fastening means adapted to accommodate the tying of the ends of the strapping to the members 28. It is particularly pointed out that protection of the lading from damage caused by the longitudinal shifting thereof against a rigid end wall or against a rigid, non-yielding bracing member, of the type shown in the art, is an important object of my invention.

In the preferred embodiment of the invention, as shown in the drawings, it will be readily understood that the horizontal forces applied against the lading in a given compartment (by end-shocks received by the car) will be transmitted to the bracing member or beam 44 which, in turn, will transmit these forces to the co-

operating members 28, to be cushioned or absorbed by compression of the blocks 40. The spacing shown in the drawings, between adjacent ends 36 of adjoining members 28 may be varied so that each separate member 28 may move a distance equal to the full compression of a given rubber block 40, without exerting any thrust against the next aligned member 28, or the spacing may be such as to cause one member 28 to contact the next aligned member 28 whereby the last mentioned two members will act simultaneously to cushion the blow. I contemplate the use of one continuous member, comparable to the portion 30, traversing a plurality of side posts 20, with a plurality of projecting portions 32 affixed thereto, adapted to cushion or absorb a given shock received by the lading, by compressing a plurality of the rubber blocks 40 simultaneously.

While I have shown in the drawings a single row of aligned members 28, it will be apparent that any additional number of such rows may be used intermediate the car floor and the car ceiling. My invention is not limited to the use of wooden parts or to a wood-constructed car, as any of the wooden parts shown may be made of metal or other suitable material. Car lading, in the form of boxes or bales, is indicated by the reference numeral 50, in Figs. 1 and 2.

It will be obvious to those skilled in the art that various types of abutments may be used instead of the ends 33 shown in the drawings and it will be obvious that the rubber blocks 40 or their equivalent resilient members may be backed up by a fixed side wall member other than the side post 20 and I contemplate such alternate structures.

I claim:

1. In a railway car having opposed side walls, each of said walls including upstanding post members; load bracing means comprising a movable member mounted on each opposed side wall adapted for movement in a horizontal plane parallel with said walls, fastening means formed on said movable member, an abutment formed on said movable member extending within the inner and outer bounding planes of said post members, said abutment being movable toward a fixed side wall member, said abutment and said wall member each having a spaced apart opposed substantially vertical backing portion, resilient means disposed intermediate said abutment and said wall member adapted to yieldably resist the movement of said abutment toward said wall member, a load bracing member disposed transversely of the car formed adjacent each opposed side wall with fastening means selectively engageable with the adjacent first named fastening means, said bracing member being adapted in response to the force of lading shifting thereagainst to urge the cooperating movable member at each opposed side wall toward and adapted to compress said resilient means between an adjacent wall member and an adjacent abutment whereby to cushion the force of the shifting lading with respect to the car.

2. In a railway car having opposed side walls, each of said walls including side posts; load bracing means comprising horizontally disposed track means on each opposed side wall, a movable member having longitudinal sliding relation with said track means adapted for movement in a horizontal plane parallel to the plane of said walls, fastening means formed on said movable

member, an abutment formed on said movable member extending within the inner and outer bounding planes of said posts, said abutment being movable toward a fixed side wall member, said abutment and said wall member each having a spaced apart opposed substantially vertical backing portion, resilient means disposed intermediate said abutment and said side wall member adapted to yieldably resist the movement of said abutment and its associated movable member toward said side wall member, a load bracing member disposed transversely of the car formed adjacent each opposed movable member with fastening means adapted for selective fixed relation with said first named fastening means, said bracing member being adapted in response to the force of lading shifting thereagainst to urge said movable member in a direction toward and adapted to compress said resilient means between said wall member and the adjacent abutment whereby to cushion the force of the shifting lading with respect to the car.

3. In a railway car having opposed side walls, each of said walls including side posts; load bracing means comprising a horizontally disposed elongate track member secured to and in coplanar alignment with each of said opposed walls, an elongate movable member slidably guided by and adapted for movement longitudinally of said track member, fastening means formed on said movable member, an abutment formed on said movable member extending within the inner and outer bounding planes of said posts and movable toward a fixed side wall member, said abutment and said wall member each having a spaced opposed substantially vertical backing portion, resilient means disposed intermediate the opposed backing portions of said abutment and said side wall member adapted to yieldably resist the movement of said abutment toward said side wall member, a load bracing member disposed transversely of the car formed adjacent each opposed side wall with fastening means adapted for fixed relation with said first named fastening means, said bracing member being adapted in response to the force of shifting lading thereagainst to urge the opposed cooperating movable members in a horizontal direction whereby to compress said resilient means between an adjacent abutment and fixed wall member and cushion the shock of the shifting lading with respect to the car.

4. In a railway car having opposed side walls, each of said walls including spaced side posts and an inner wall lining secured thereto; load bracing means comprising an elongate horizontally disposed interrupted portion formed in said lining, an elongate longitudinally movable member slidably disposed in said interrupted portion with opposed end portions thereof in overlapping relation with a pair of said posts, fastening means formed on said movable member, an abutment formed on said movable member extending within the inner and outer bounding planes of said posts movable toward a fixed side wall member said abutment and said wall member each having a spaced apart opposed substantially vertical backing portion, resilient means disposed between said abutment and said wall member adapted to yieldably resist the movement of said abutment toward said wall member, a load bracing member disposed transversely of the car formed adjacent each side wall with fastening means adapted for interlocked relation with said first named fastening means, said bracing member being adapted in response to the force of lading shifting thereagainst to urge the opposed cooperating movable members in a horizontal plane toward and adapted to compress said resilient means between an adjacent wall member and the adjacent abutment, whereby to cushion the shock of the shifting lading with respect to the car.

5. In a railway car having opposed side walls, each of said walls including upstanding side posts; load bracing means comprising an elongate horizontally disposed track member on and in parallel relation to each opposed side wall, said track member traversing a plurality of aligned posts, a plurality of spaced elongate movable members longitudinally slidable on said track member, fastening means formed on said movable members, a plurality of said movable members each having an abutment extending within the inner and outer bounding planes of the posts and movable toward a fixed side wall member, said abutment and said wall member each having a spaced apart opposed substantially vertical backing portion, resilient means disposed between the opposed backing portions of said abutment and a fixed side wall member adapted to yieldably resist the movement of said abutment toward said fixed member, the spacing between the adjacent ends of adjoining movable members being less than the maximum predetermined horizontal movement of either of said adjoining movable members adapted to cause one actuated movable member to engage and impart axial movement to the next adjacent forward movable member, a load bracing member extending transversely of the car formed adjacent opposed side walls with fastening means adapted for secured relation with said first named fastening means, said bracing member being adapted in response to the force of lading shifting thereagainst to urge the opposed cooperating movable members in a horizontal direction adapted to compress said resilient means between said abutment and said fixed side wall member whereby to cushion the shock of the shifting lading with respect to the car.

6. Load bracing means for a railway car comprising an elongate horizontally disposed track member mounted on and in parallel relation with each opposed side wall of the car, an elongate movable member having longitudinal slidable guided relation with said track member, a load bracing member extending transversely of the car between opposed track members, said bracing member being selectively movable to desired positions lengthwise of the car and being formed adjacent each opposed side wall with fastening means adapted to interlock with cooperating fastening means on opposed movable members, an abutment formed on said movable member extending within the inner and outer bounding planes of an adjacent side wall, said abutment being spaced from and movable toward a fixed side wall member, said abutment and said wall member each having a spaced apart opposed substantially vertical backing portion, resilient means disposed between the opposed backing portions of said abutment and said fixed member adapted to yieldably resist the movement of said abutment toward said fixed member, said bracing member being adapted in response to the force of lading shifting thereagainst to urge the opposed cooperating movable members longitudinally of the car whereby to move the abutments of said last named members toward and adapted

to compress said resilient means between adjacent fixed wall members and said abutments and cushion the shock of the shifting lading with respect to the car.

7. In a railway car having opposed side walls; load bracing means comprising a movable member on each of said walls adapted for movement in a horizontal plane parallel to said walls, fastening means on said movable member, a fixed member on each side wall in cooperative relation with an abutment on an adjacent movable member, said fixed member and said abutment each having a spaced apart opposed substantially vertical backing portion, resilient means disposed intermediate the opposed backing portions of said fixed member and said abutment adapted to yieldably resist the said movement of said movable member, a load bracing member disposed transversely of the car formed at opposite ends with fastening means adapted for securement to said first named fastening means, said bracing member being adapted in response to the force of lading shifting thereagainst to urge the opposed backing portions of said fixed member

and said abutment into yieldably resisted relation with said resilient means whereby to cushion said force and protect the lading from damage ordinarily caused by the shifting of lading against a solidly fixed bracing member.

8. In a railway car having opposed longitudinal side walls including post members; a movable member supported by and adapted for movement in a horizontal plane parallel with each of said walls, a fixed member on each of said walls, resilient means connectively disposed between said movable member and said fixed member adapted to yieldably resist the movement in one direction of said movable member with respect to said fixed member, a bracing member extending transversely of the car removably secured at each end portion thereof to an adjacent movable member, said bracing member being adapted to brace and yieldably resist the movement of the car lading longitudinally of the car.

EDWARD T. DOHERTY.

No references cited.