Oct. 9, 1951 J. M. MOON 2,570,368

MULTIPLE LOAD-BINDER ANCHOR

Filed Nov. 26, 1948 2 Sheets-Sheet 1

Fig. 1.

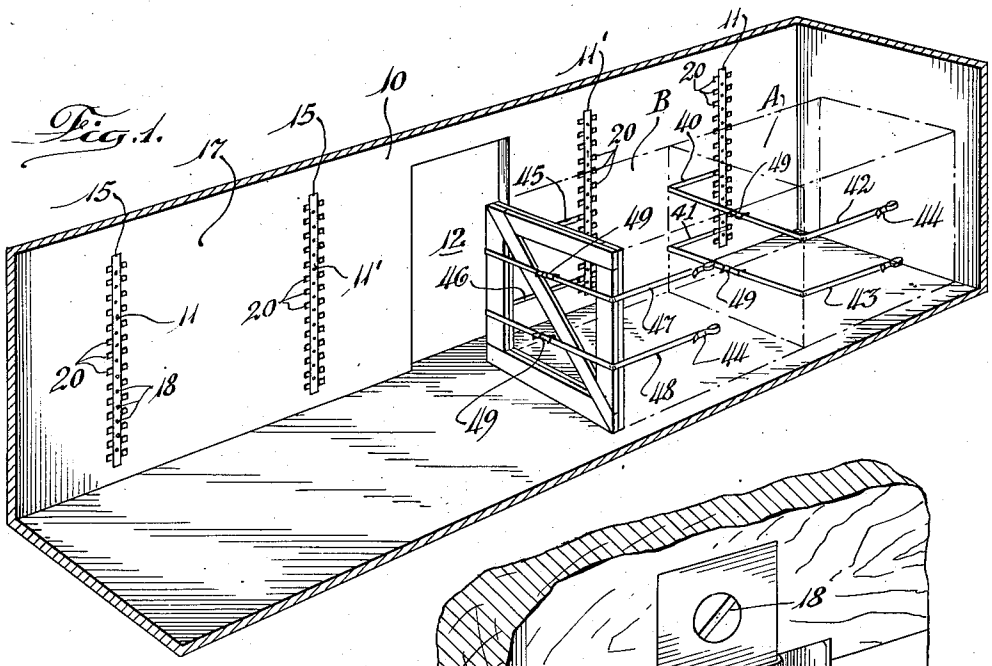


Fig. 2.

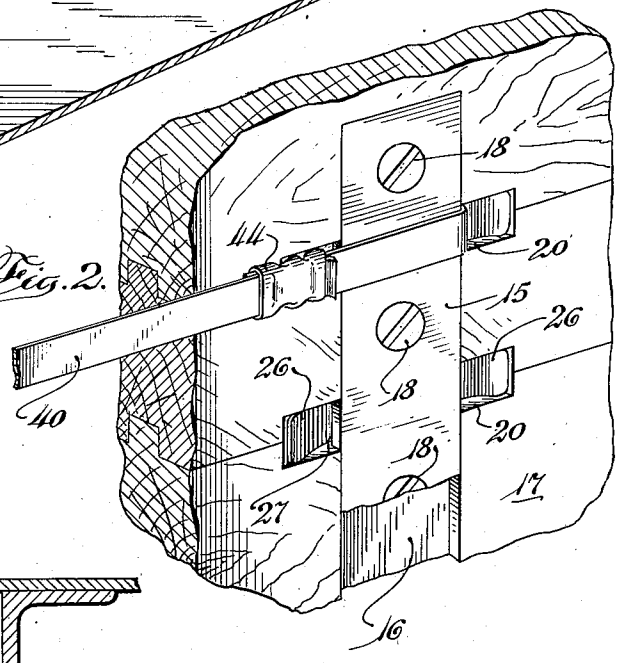
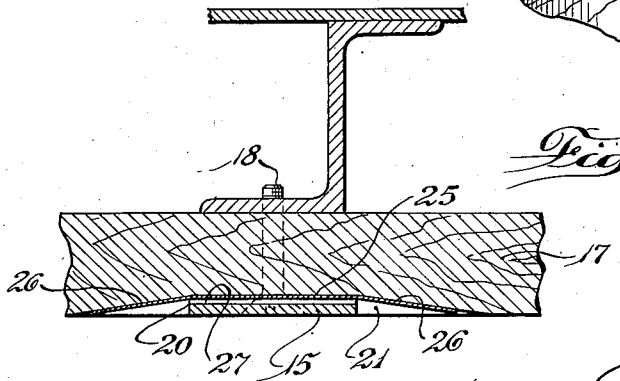


Fig. 3.



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MULTIPLE LOAD-BINDER ANCHOR

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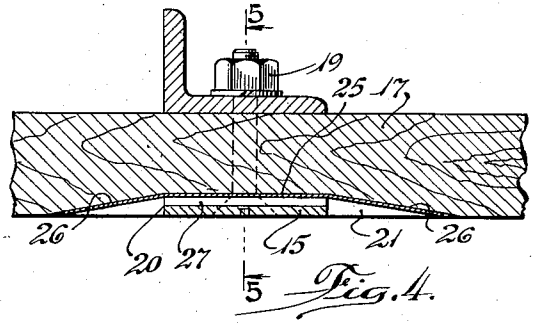


Fig. 4.

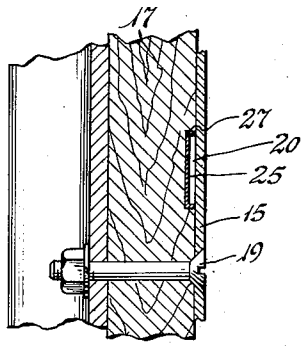


Fig. 5.

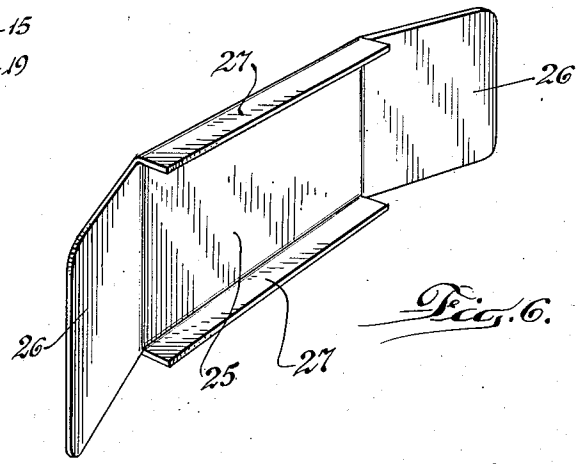


Fig. 6.

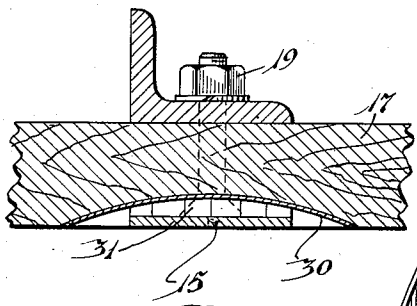


Fig. 8.

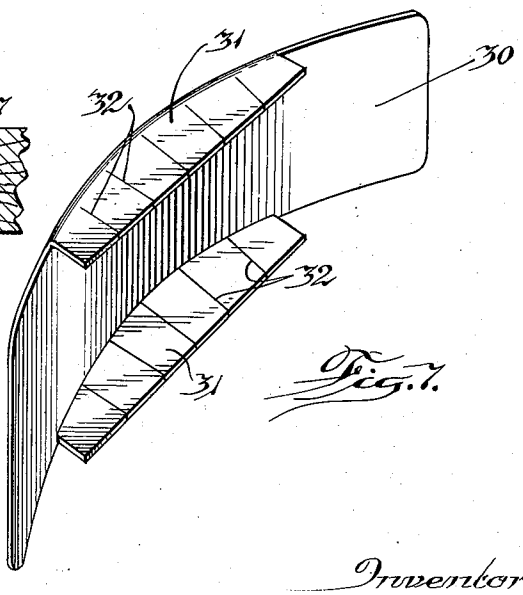


Fig. 7.

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MULTIPLE LOAD-BINDER ANCHOR

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Application November 26, 1948, Serial No. 62,088

8 Claims. (Cl. 105—369)

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My invention relates to multiple load-binder anchors especially adapted to secure the ends of flexible steel load or cargo binder straps to the side walls of cargo carriers, such as railway box cars, trucks and the like.

Heretofore it has been the practice to secure load or cargo binding straps to car side walls by individual anchors, which are secured in place by nails or screws preparatory to loading the car and removed after the car has been emptied. The use of such anchorages not only consumes time to apply and remove them but their removal is frequently destructive to the wooden car wall sheeting. Also they concentrate the binder tension load upon relatively small areas of the car sheeting and such concentration creates liability of the anchor nails or screws being torn loose under shocks incident to travel and switching, with resultant hazard to the cargo and of injury to the car. It has also been proposed to employ multiple binder anchors but in so far as I am aware, they possess the disadvantage of requiring that they be built into the car during its manufacture and are not readily, if at all, applicable after the car is constructed; or they protrude from the walls and thereby constitute a hazard to the cargo during loading and unloading and in transit.

The principal object of my invention is to provide an improved wall anchor for load or cargo binder straps.

Another object is to provide a permanent anchor readily installable in railway box cars and the like either after or during manufacture.

A further object is to provide an anchor which will distribute the tension and shock load put upon the car sheeting by the load binders and consequently lessen the tendency to be pulled loose with hazard not only to the load or cargo, but also to the car itself.

A further object is to provide a permanent anchorage enabling desirable selectivity in the number and location of binders for accommodating loads of various characteristics.

Another object is to provide a permanent load binder anchorage which does not project into the cargo space.

Another object is to provide an anchor which is simple, inexpensive to produce and install, and effective for the intended purpose.

Other objects and advantages will hereinafter appear.

In general my invention contemplates rigid and strong metal bars securely fastened in pairs to and flush with the inner surface of the opposite

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inside walls of the vehicle, such as a railway box car, and to which one end each of one or more sets of loading anchoring tension binder strap sections may be attached, the sheeting being recessed at spaced intervals behind the bars to enable the binder strap ends to be looped about the bars, and the sheeting recesses being lined with protective and strap guiding shields to facilitate strap application.

Embodiments of my invention are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective of the inside of a railway box car showing multiple anchors attached thereto and indicating load or cargo units in place in one end of the car;

Fig. 2 is an enlarged perspective of a part of one of the binder anchors;

Fig. 3 is an enlarged section through a so-called double sheeted car showing the method of applying the anchor bar and the location of the sheeting recess and protective shield;

Fig. 4 is a similar section of a so-called single sheeted car;

Fig. 5 is a section on the line 5—5 of Fig. 4;

Fig. 6 is an enlarged perspective of one type of sheeting recess guide shield;

Fig. 7 is a perspective of a modified form of shield; and

Fig. 8 is a section similar to Fig. 4 showing the modified guide shield in position.

Referring to the drawings, Fig. 1 pictures a typical railway box car interior viewed as though the near side and end walls had been removed. The visible or far side wall 10 of the car is equipped with two multiple load-binder anchors 11 and 11' at each side of the doorway 12. It will be understood that the near side wall will be equipped with anchors duplicating those on far wall 10 in substantially identical locations relative to the doorway (or car ends) so that anchors will be arranged in sets or pairs—each side wall of the car carrying an anchor of each pair or set. Therefore the following explanation of the binder anchorages for one side of the car (the far side) will be equally applicable to the opposite (near) side.

Each multiple binder anchorage consists of a long metal bar or plate 15, which is preferably set substantially vertically relative to the car floor and embedded in a slot or groove 16 in the car sheeting 17, which is customarily of wood. To avoid any part of the anchorage projecting into the cargo space, which usually is desirable to prevent injury to the cargo, the sheeting grooves 16 should be deep enough to permit the

anchor bars to lie with the outer faces flush with the exposed surface of the sheeting. The length of anchor plates **15** should be such as to accommodate the desired number of cargo-binder sections at the desired spacing. Ordinarily, in order that an installation may serve in the binding of cargo units varying in height from the minimum to the maximum permissible for the car, the length of the anchor plates will be somewhat less than the wall height of a car (or less than sheeting height if only the lower part of the car walls are sheeted) and have opposite ends spaced relatively short distances above the car floor and below the eaves of the car roof (or below the top edge of the sheeting if the car is only partially sheeted). Each plate is securely and rigidly fastened to the car wall by suitable means, such as screws **18** when the car is of the so-called double sheeted type, as shown particularly in Fig. 3. If the car is of the type known as single sheeted, then bolts **19**, as shown in Figs. 4, 5 and 8 are to be preferred. The number and spacing of these anchor bar attaching screws or bolts are susceptible of some variation but should be such as to distribute the load of the tensioned cargo binders, bear the maximum loads of tension and shock to be expected and prevent the pull of the binders objectionably bending or bowing the bars. Locating an attaching screw or bolt slightly above and below the top and bottom binder strap locations and also between each intermediate pair of binder strap locations has been found to give good results.

At spaced intervals along each anchor bar **15** recesses **20** are formed in the car sheeting beneath or behind the bar. Each recess is somewhat longer than the width of an anchor bar and extends, preferably equal distances, beyond the opposite edges of the bar. Behind the anchor bars the depth of recesses **20** is slightly more than the thickness or gage of the heaviest binder strap it is contemplated will be used to bind cargo in the car. The width of recesses **20** should, of course, be slightly in excess of the maximum width of the contemplated strap binder. And if, as will be later explained, these recesses are to be lined with metallic guide shields, the depth and width of each sheeting recess should be appropriately increased to accommodate its shield, and still leave sufficient space for the insertion and passage of binder strap behind an anchor bar between bar and shield. In order to facilitate the insertion of the end of a binder strap into and through a sheeting recess behind an anchor bar, each end of a recess where it extends beyond an edge of its anchor bar may be tapered in depth from its maximum in line with the bar edge to zero at the extreme outer end, as most clearly indicated at **21** in Figs. 3 and 4.

Thus each multiple binder anchorage includes a rigid binder anchoring bar fixed in place on a car side wall and a plurality of spaced sheeting recesses which, substantially at right angles to the bar, lie therebeneath and extend somewhat beyond each vertical edge thereof. This arrangement is such that, at spaced intervals within the height of a cargo load unit, ends of binder strap sections may be readily threaded behind anchor bars and looped and secured thereabout to anchor them to the car.

In order to facilitate the threading of the binder strap through the sheeting recesses behind the anchor bars and to protect the sheeting against cutting by the usually sharp edges of the steel cargo-binder ends, each recess may be lined by a metallic guide shield one form of which is shown in detail in Fig. 6. This shield guide, which may be made from a single piece of sheet metal, has a main body portion **25** flanked on opposite ends by wings **26** and along opposite edges formed with upstanding flanges **27**. The length of body portion **25** is substantially the same as the width of the associated anchor bar so as to cover the uniform depth part of the sheeting recess therebehind. Wings **26** are long enough substantially to coincide with the tapering parts of the sheeting recesses. Flanges **27** are of a depth such that, when the shield is in its recess and the anchor bar is fixed in place, they cause the anchor bar tightly to press the shield's back portion **25** away from the bar into the deeper part of the recess and firmly hold it there, thereby retaining the entire guide shield in proper position in its sheeting recess to afford a lined passageway for the strap between the bar and shield.

Instead of forming the sheeting recesses with flat bottoms behind the anchor bars as previously desirable, it may be the preference, especially in equipping old cars, to cut the recesses with a circular tool resembling a milling cutter. In such a case the recess will be curved from end to end as shown in Fig. 8 and the guide shield may conveniently take the form shown in Fig. 7. Here the bottom wall **30** of the shield is provided in its mid region with side flanges **31**. These flanges are proportioned and provided with slots **32**, which initially were triangular, so that when the shield is bent to fit the curved sheeting recess, they present a substantially straight unbroken edge to the back of the anchor bar and function in essentially the same manner as already explained.

The manner of using the hereinbefore described binder anchorage will be best understood by again referring to Fig. 1. Here the right hand end of a box car is indicated with two load units A and B bound therein ready for shipment. In thus loading an end of the car, the cargo space is prepared for receiving the load by first anchoring to each anchor bar one end of as many binder strap-sections as the number of binders the associated load unit is to be provided with. In the illustrated car end load each of units A and B is to be bound in place by two tensioned binders. Hence each anchor bar will have the ends of two binder sections anchored thereto. Bar **11** serves as the wall anchorage for the two binder sections **40** and **41**, and its associated bar (not shown) on the near wall of the car serves as the wall anchorage for the companion binder sections **42** and **43**. Each fixed end of a binder section may be anchored by threading it through the appropriate sheeting recess, looping the end around the anchor bar and back upon the body of the binder section, and thus securing the end to the body of the binder section by an appropriate joint **44** as shown most clearly in Fig. 2. In like manner one end of each of binder sections **45** and **46** for the front load unit B is anchored to the car wall by means of anchor bar **11'**, and companion binder sections **47** and **48** are anchored by means of the associated anchor bar (not shown) on the near wall of the car. It will be understood that, as desired, a car may be prepared for receiving its load by thus anchoring all of the binder sections for all of the load units before any of the load is placed or a car may be prepared by sequentially anchoring only the

binder sections required for the next load unit to be placed. In this connection the precaution to be borne in mind is that no load unit space should be filled until after the binder sections intended to anchor it are attached to the proper anchor bars. Otherwise the presence of cargo will interfere with, if not absolutely prevent, the attachment of the binder sections to the anchor bars.

Assuming that the binder sections for cargo units A and B are all in place, the elements comprising unit A are loaded into the right end of the car against the rear wall outwardly toward the doorway beyond anchor bar 11 and its associated bar on the rear wall. Then the companion binder sections 40—42 and 41—43 are brought together at the face of the load unit, tensioned, preferably by a suitable tool, to the desired extent and finally overlapping free ends of the binder sections are joined together by appropriate joints 49 to retain the binders in tension. In a similar manner load unit B is completed and bound in place in the car against unit A by companion binder sections 45—47 and 46—48. After one end of the car is thus loaded, the other end may be likewise loaded, or the loading of both ends may proceed together.

When destination is reached the load is unbound preparatory to unloading merely by cutting the binders. And as cargo units are removed, or after all have been removed, the old binder sections can be easily and quickly disposed of by merely cutting the loops about the anchor bars and pulling the strap therefrom.

Of course, each end of the car may be provided with only one set or pair of anchors instead of with two as shown, or either or both ends of a car may be equipped with more than two sets of anchors, as desired. The number and arrangement of the anchor bar sets within a car may be varied to suit loading conditions expected to be met and what may be considered the better and more flexible practice. The purpose of the anchorage bars is to provide a ready and unobstructing means for securing to the car wall one end of each of a pair of load binder sections, each air of binder sections, when the free ends are brought together at the front of the load and joined after tightening as previously explained, constitutes a cargo or load unit binder anchoring the constituents of the unit together and the unit to the car. By providing each anchor bar wih a series of spaced binder anchorage locations, of which the loader may select and use as many or as few as required, the possible number and arrangement (spacing) of such binder section pairs will be sufficiently variable to meet a wide variety of loading conditions. And, of course, the greater the number of anchor bars installed in the end of a car the more can each end load be subdivided into smaller units. However, the fact that a car is equipped for a certain number of cargo units in each end does not mean that the car cannot be used to accommodate fewer and larger cargo units—say only one in each end—because accommodation to larger units merely means that some anchor bars will not be used at the time. The anchorages do not protrude into cargo space so that, whether used or not used, they do not interfere with or tend to injure the cargo. The capability of subdividing the load into independently anchored units is of special convenience in the shipping of less than car load lots to receivers at different points. Thus, by loading a car with a unit for each receiver and

in the inverse order to the necessity for discharge, it will be easy at each station to unbind and remove only that part of the load which is desired, leaving the rest of the load intact and firmly bound.

By using flat steel strap or ribbon as the load unit binder material and making the recesses through which the binder is threaded in looping binder section ends about anchor bars as small as feasible to permit such threading, there are no objectionable cavities opening into cargo spaces even when the anchorages in a car are not being used. Objectionably large cavities would permit bulk commodities, such as grain, and dirt to collect in them. Goods contained in what may be termed "soft" packages, such as in cloth and paper bags, would tend to protrude into larger cavities and become damaged. In short, my anchorages are not objectionable when cars equipped with them are used to carry loads which do not require or do not lend themselves to binding and consequently cars so equipped are still available for general service.

Having thus explained the nature and illustrated embodiments of my invention, what I claim and desire to secure by United States Letters Patent is as follows:

1. A cargo strap-binder anchorage for railway cars provided with interior sheeting, comprising an elongated metal bar rigidly attached substantially vertically to the car wall and embedded in the car sheeting with its front face exposed, the sheeting at spaced intervals along the bar being provided with recesses extending on both sides of and behind the bar whereby binder strap ends may be looped about the bar to effect anchorage of strap to bar, and a sheet metal shield lining the bottom of each sheeting recess.

2. A cargo strap-binder anchorage for railway cars provided with interior sheeting, comprising an elongated metal bar rigidly attached substantially vertically to the car wall and embedded in the car sheeting with its front face exposed, the sheeting at spaced intervals along the bar being provided with recesses extending on both sides of and behind the bar whereby binder strap ends may be looped about the bar to effect anchorage of strap to bar, and a sheet metal shield lining the bottom of each sheeting recess, said shield having upstanding flanges which are engaged by the bar to hold the shield spaced therefrom to form a metal lined channel for the passage of the binder strap.

3. A cargo strap-binder anchorage for cargo carriers provided with interior side wall sheeting, comprising an elongated rigid metal bar attached substantially vertically to the carrier side wall and embedded in the sheeting with its front face exposed, the sheeting at spaced intervals along the bar being recessed, each recess being longer than the width of the bar and lying therebelow and extending beyond opposite edges thereof so that binder strap may be looped about the bar for anchorage thereto, and a sheet metal guide shield for each recess held in place by the bar in spaced relation thereto to form a lined channel for the passage of the strap through the recess.

4. A cargo strap-binder anchorage for railway cars provided with interior side wall sheeting, comprising an elongated metal bar positioned substantially vertically against and embedded substantially flush with the sheeting, the sheeting at spaced intervals along the bar having strap receiving recesses transverse to and longer than

the width of the bar and tapering from a depth greater than strap thickness behind the bar to substantially zero depth at each end beyond the edges of the bar, and means for rigidly attaching the bar to the car wall.

5. A cargo strap-binder anchorage for railway cars provided with interior side wall sheeting, comprising an elongated metal bar positioned substantially vertically against and embedded substantially flush with the sheeting, the sheeting at spaced intervals along the bar having strap receiving recesses transverse to and longer than the width of the bar and tapering from a depth greater than strap thickness behind the bar to substantially zero depth at each end beyond the edges of the bar, means for rigidly attaching the bar to the car wall, and a sheet metal shield lining the bottom of the sheeting recesses.

6. A cargo strap-binder anchorage for railway cars provided with interior side wall sheeting, comprising an elongated metal bar positioned substantially vertically against and embedded substantially flush with the sheeting, the sheeting at spaced intervals along the bar having strap receiving recesses transverse to and longer than the width of the bar and tapering from a depth greater than strap thickness behind the bar to substantially zero depth at each end beyond the edges of the bar, means for rigidly attaching the bar to the car wall, and a sheet metal shield lining the bottom of the sheeting recesses, each shield having outstanding flanges engaged by the bar to hold the shield in place in its sheeting recess.

7. In combination with box car side wall sheeting having in the sheeting at each side of the car a vertically arranged series of spaced recesses, a vertical rigid metallic bar bridging the recesses composing each series, the bar being of a width less than the length of the recesses so that the recesses form channels through which cargo strap binder straps may be looped at spaced intervals about each bar in anchoring straps to the bar, and means for rigidly attaching the bars to the car side walls.

8. A shield for lining tapering recesses in box car sheeting which are in part bridged by rigid metal bars about which cargo binder strap may be looped for anchorage, comprising a sheet metal strip having outstanding flanges along the mid region of its length, said flanges being of a depth corresponding substantially to the depth of the portion of the sheeting recess behind the bar so that the bar engages the flanges to hold the shield in place in its sheeting recess.

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