United States Patent

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[45] **June 20, 1972**

[54] MOVABLE COVER FOR RAILWAY FLAT CARS

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[21] Appl. No.: **7,502**

[52] **U.S. Cl.**.....**105/377,** 105/379, 248/119, 296/23 R

[51] **Int. Cl.**.....**B61d 39/00**

[58] **Field of Search** .....105/371, 379, 393, 377; 296/23 R, 137; 52/67; 248/119

[56] **References Cited**

UNITED STATES PATENTS

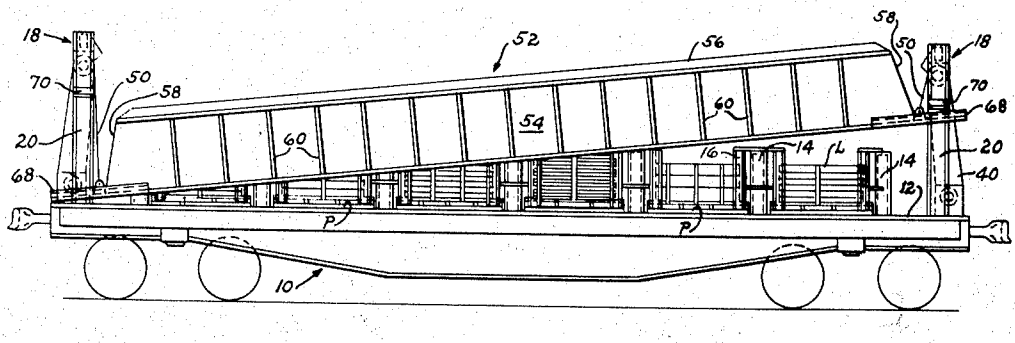
2,587,027	2/1952	Black	105/377
3,098,456	7/1963	Elsner	105/377
3,132,600	5/1964	Allard	105/377
2,977,900	4/1961	Farrar	105/377
2,949,867	8/1960	Ramsey	105/377
3,526,194	9/1970	Schneider	105/377
2,899,912	8/1959	Janeczko	105/377

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Assistant Examiner—Richard A. Bertsch
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[57] **ABSTRACT**

A cover adapted to fit over lading carried on the deck of a flat car. A hoist is provided on a vertically extending support at each end of the flat car to raise the cover to permit loading and unloading of lading from the sides of the flat car, such as by a forklift truck or the like. For movement of the cover to a raised position, one end of the cover is first raised and then the opposite end is raised. Extensions on the ends of the cover guide the cover during raising and lowering thereof to minimize any lateral tilting of the cover.

2 Claims, 5 Drawing Figures



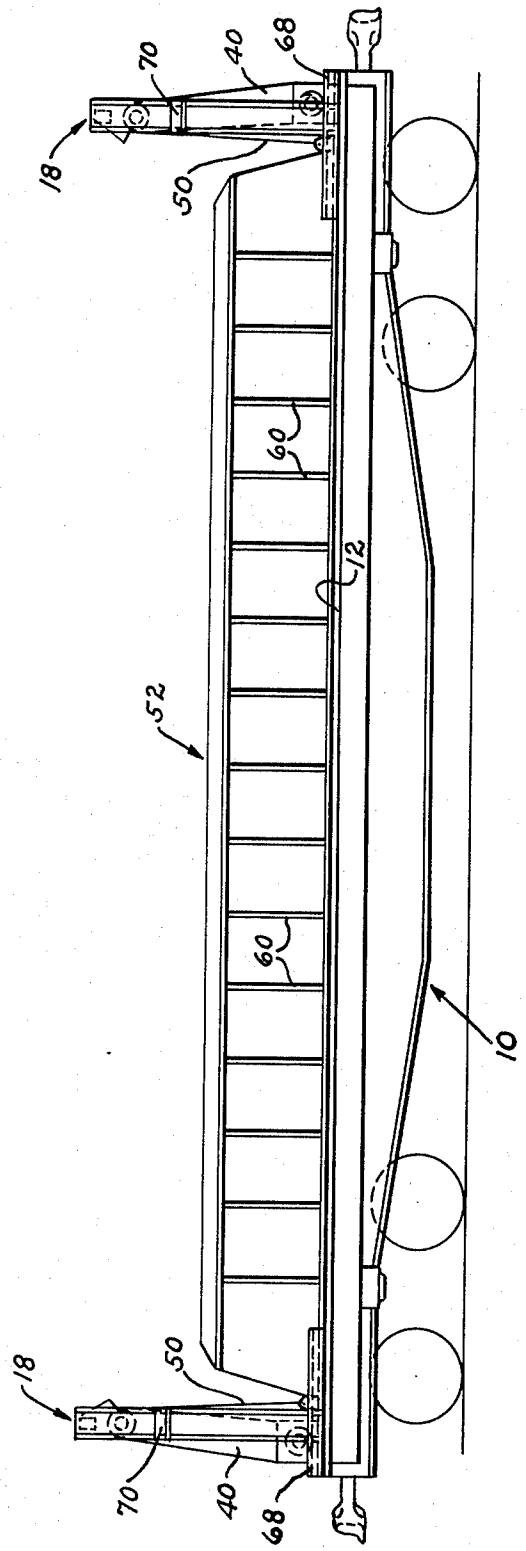


FIG. 1.

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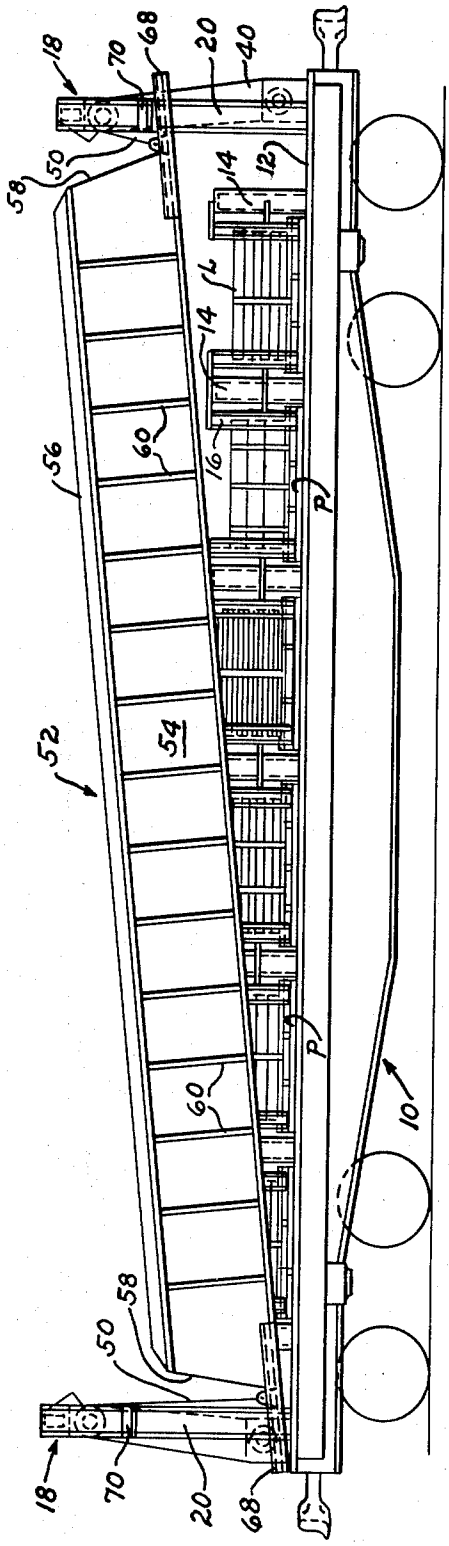

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FIG. 2.

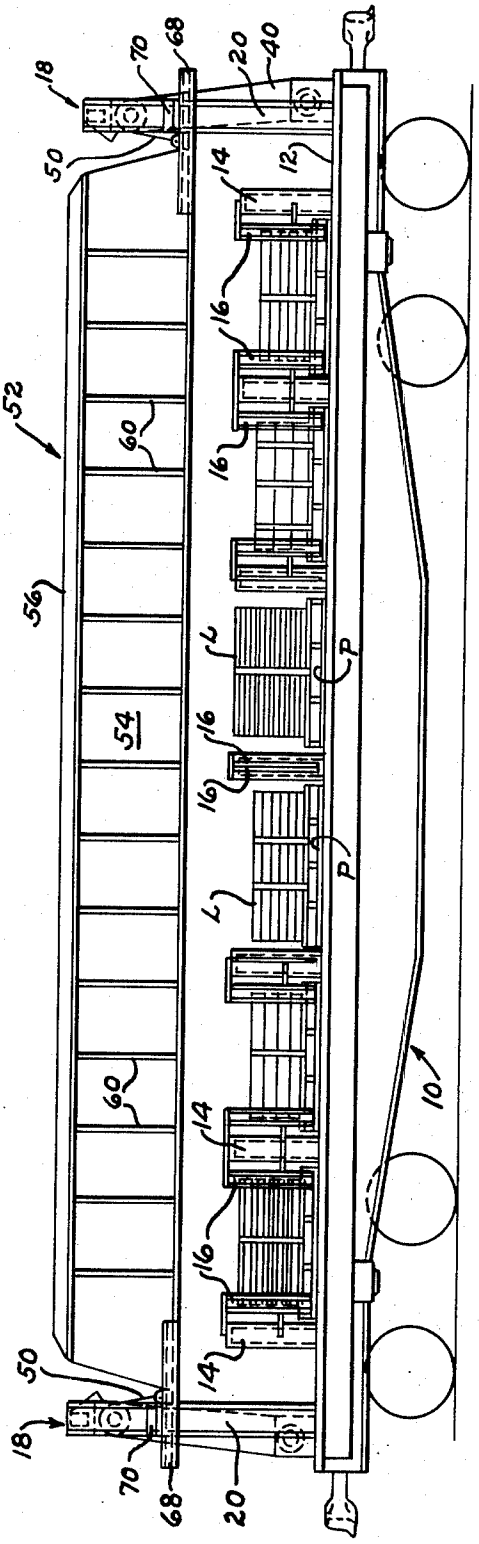

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FIG. 3.

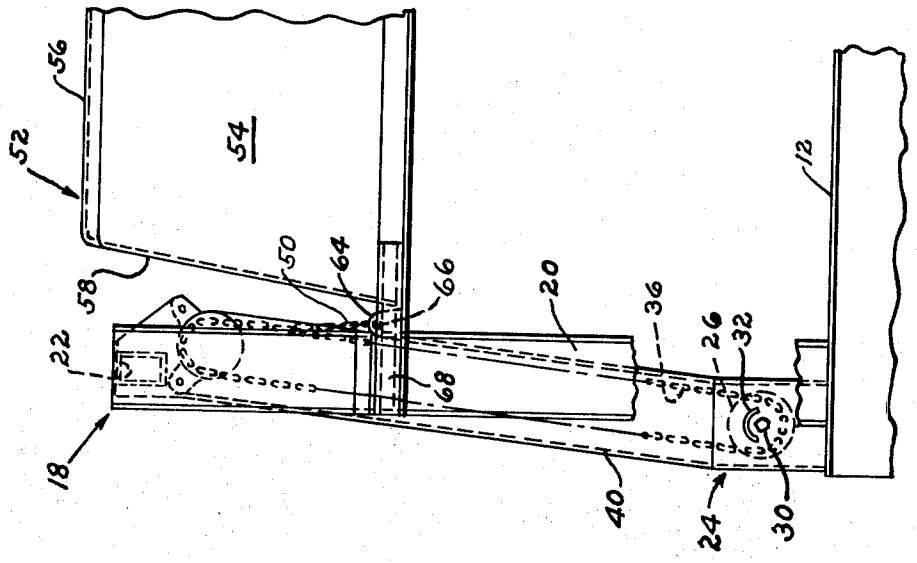

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FIG. 5.

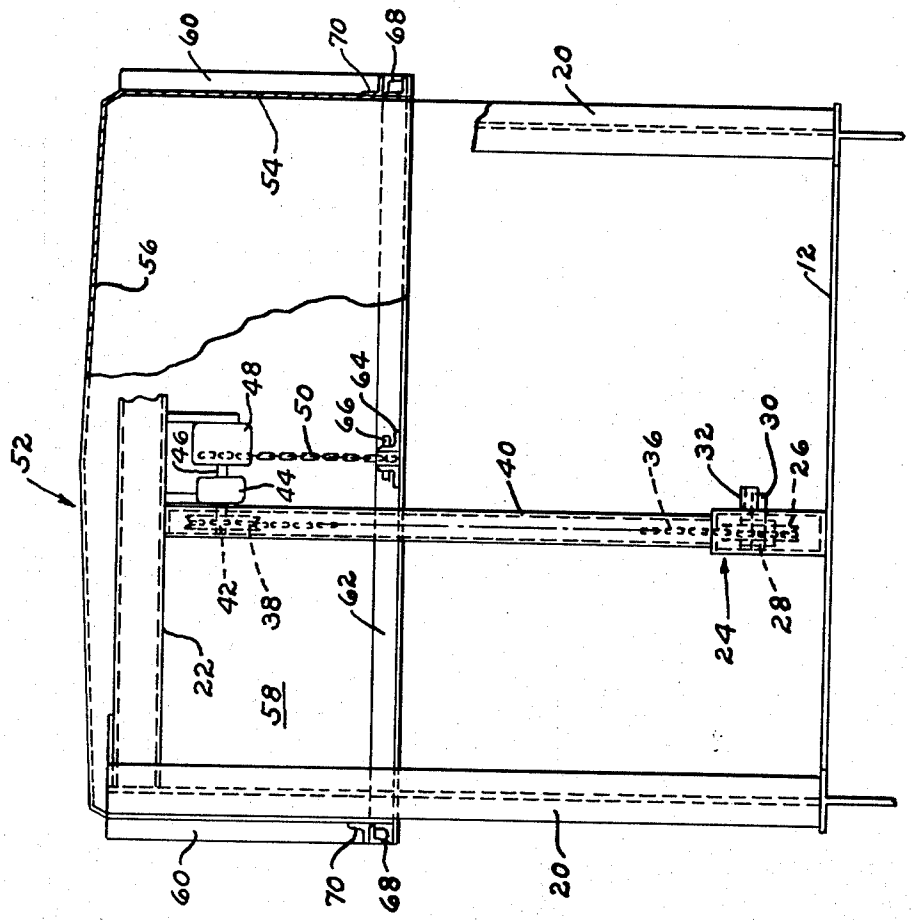

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FIG. 4.

MOVABLE COVER FOR RAILWAY FLAT CARS

BACKGROUND OF THE INVENTION

Various types of covers have been mounted on gondola cars, and have been removed by an overhead crane or the like for the unloading and loading of the lading. Also, railway cars which have been adapted to carry cylindrical steel coils have employed covers which have been removed in a variety of ways for the loading and unloading of the steel coils by an overhead crane or the like.

DESCRIPTION OF THE INVENTION

The present invention is directed to a railway flatcar having a vertical support at each end thereof and a cover positioned between the vertical supports adapted to rest on the deck of the car. The support is secured to each end of the deck and includes a pair of spaced vertically extending posts with the cover having a pair of extensions at each end projecting alongside an associated vertical post which restrains lateral movement of the cover during raising and lowering of the cover. Hoist means are mounted on the supports and connected to the cover for raising the cover from the surface of the deck upon actuation, and stops on the posts limit the upward movement of the cover upon contact therewith by the extensions on the cover. Thus, the extensions act to guide the cover during vertical movement thereof and also to restrict lateral movement or tilting of the cover during raising and lowering.

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 one of various possible embodiments of the invention is illustrated,

FIG. 1 is a side elevation of a railway flat car having the cover thereon supported on the deck over lading mounted on the deck;

FIG. 2 is a side elevation similar to FIG. 1 but showing an end of the cover in a raised position;

FIG. 3 is a side elevation similar to FIGS. 1 and 2 but showing the cover in fully raised position with lading on the deck adapted to be loaded and unloaded by side unloading means, such as a forklift truck of the like;

FIG. 4 is an end elevation of the railway car shown in FIG. 1 indicating the cover in a raised position in contact with abutments on the vertical supports; and

FIG. 5 is a partial side elevation of an end portion of a railway flat car indicating the hoist means for raising and lowering the cover.

Referring now to the drawings for a better understanding of this invention, a railway flat car is generally indicated **10** and has a flat deck **12** thereon. Load dividers **14** extend transversely of deck **12** and are secured thereto for positioning lading L. Mounted on each end of each divider **14** are a pair of movable gates **16** which may be pivoted between open and closed positions. A suitable means (not shown) releasably secure gates **16** in a closed position for restraining the lading from any lateral movement on deck **12**. Dividers **14** restrain longitudinal movement of lading L along deck **12**. Lading L may, for example, comprise a plurality of metal bars mounted on a pallet P which may be loaded from the side of the car, such as by a forklift truck or the like while gates **16** are in open position. Gates **16** may be moved to a closed position upon loading of lading L on deck **12**.

A support structure generally indicated **18** is secured to each end of deck **12** and comprises a pair of vertical posts **20** having an upper cross connecting beam **22**. Mounted between posts **20** at each end of the car on deck **12** is a housing **24** having a sprocket **26** therein mounted on shaft **28** which terminates outwardly at end **30** which is adapted to be engaged by a suitable air wrench or the like for rotation of sprocket **26**.

A guard **32** is mounted over end **30** for protection thereof. A chain **36** extends about sprocket **26** to an upper sprocket **38** mounted on housing **40** secured to cross member **22**. Input shaft **42** is connected to a suitable gear reduction unit **44** and output shaft **46** extends therefrom to a drum **48**. Chain **50** is adapted to be wound about drum **48** and extends downwardly therefrom.

A cover is generally indicated **52** and comprises a pair of sides **54**, a roof or top **56**, and ends **58**. Stiffeners **60** are secured along sides **54** for reinforcement. Mounted along the lower marginal portion of each end **58** is a cross brace member **62** having a bracket **64** thereon. The lower end of chain **50** is connected to pin **66** on bracket **64**. Cover **52** may be raised and lowered by actuation of sprocket **26** by rotation of shaft **28** upon insertion of a suitable air wrench or the like about end **30**.

Extending from the lower corner of each end **58** is an extension **68** generally box-shaped in cross section and projecting alongside an adjacent post **20**. A stop or abutment **70** projects outwardly from each post **20** and restricts the upward movement of cover **52** upon contact of abutment **70** with extension **68** as shown in FIG. **3**.

To raise cover **52** from the position of FIG. **1**, an air wrench engages end **30** for lifting one end of cover **52** as shown in FIG. **2**. The opposite end which remains on deck **12** is supported on extensions **68** and thus has a so-called "two-point" support which minimizes any tilting or lateral movement of cover **52** during raising. Posts **20** restrain any lateral movement of cover **52** by contact with extensions **68**. Upon contact with abutments **70** by extensions **68** as shown in FIG. **2**, the opposite end is then lifted to the position of FIG. **3**. In this position, lading L may be removed from the sides of flat car **10** by a suitable forklift truck.

While cover **52** has been shown in the drawings as restricted by stops **70** in its upward movement, in some instances, it might be desirable to have cover **52** removed from a position over the deck of the car. In these instances, abutments **70** might be adapted to be selectively movable to a disengaged position with respect to extensions **68** and by disconnecting of chains **50** from brackets **64**, thereby to permit cover **52** to be removed from car **10**.

What is claimed is:

1. A railway flat car comprising, a generally flat deck adapted to support lading thereon, an end support at each end of the deck each including a pair of posts extending in a generally vertical direction a substantial distance above the deck, a cover positioned between the supports and being generally channel-shaped in cross section adapted to fit over lading on the deck while resting on the upper surface of the deck, a cross member extending horizontally between each pair of posts generally adjacent their upper ends, separate lift means supported on each cross member and connected to the cover for raising the cover from the surface of the deck upon actuation thereof, a pair of horizontally extending extensions at each end of said cover projecting outwardly from the adjacent end of the cover alongside the associated pair of posts and restraining lateral movement of the cover by contact with the associated posts during raising and lowering of the cover by the lift means, and stop means on the end supports to engage the extensions and stop the upward movement of the cover, each lift means being independently actuated for selectively lifting one end of the cover, the opposite end of the cover being supported on the extensions of said opposite end when said one end of the cover is lifted.

2. A railway flat car as set forth in claim **1** wherein said lift means comprises a pair of sprockets connected in driving relation to each other, an output shaft extending from the driven sprocket, a gear reduction unit connected to said output shaft, and means connecting the gear reduction unit to the cover for lifting the cover upon actuation of the lift means.

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