Sept. 17, 1968 W. E. O'LEARY 3,401,646

MEANS TO SUPPORT CONTAINERS ON RAILWAY FLAT CARS

Filed Jan. 25, 1967 4 Sheets-Sheet 1

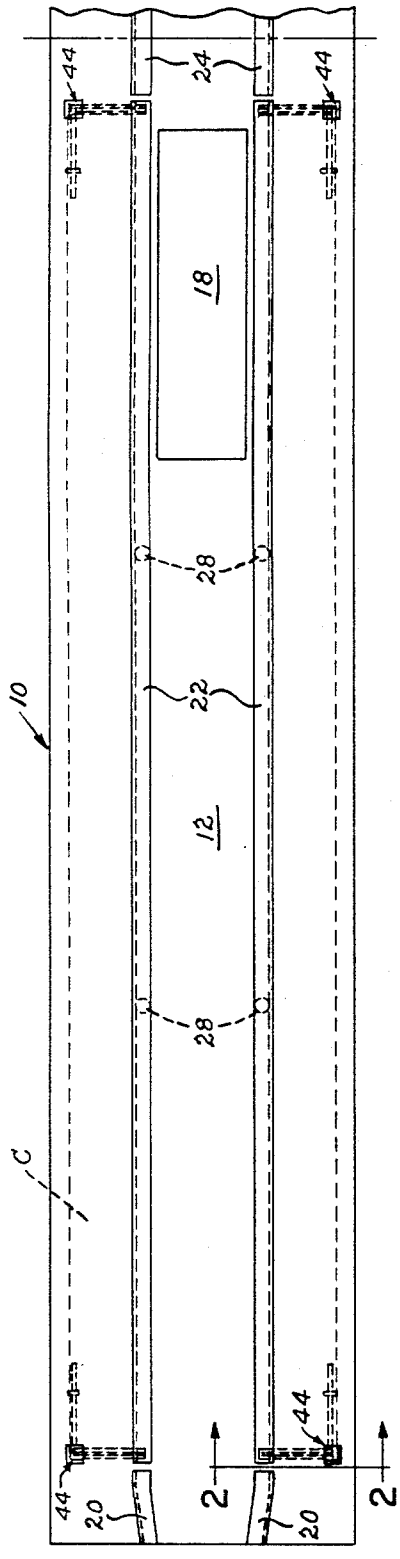


FIG. 1.

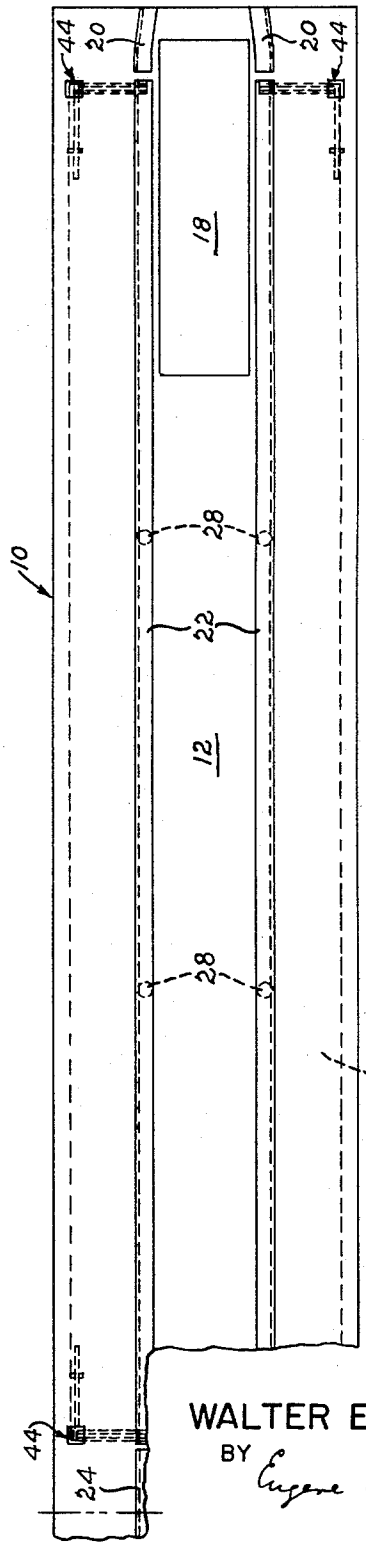


FIG. 1A.

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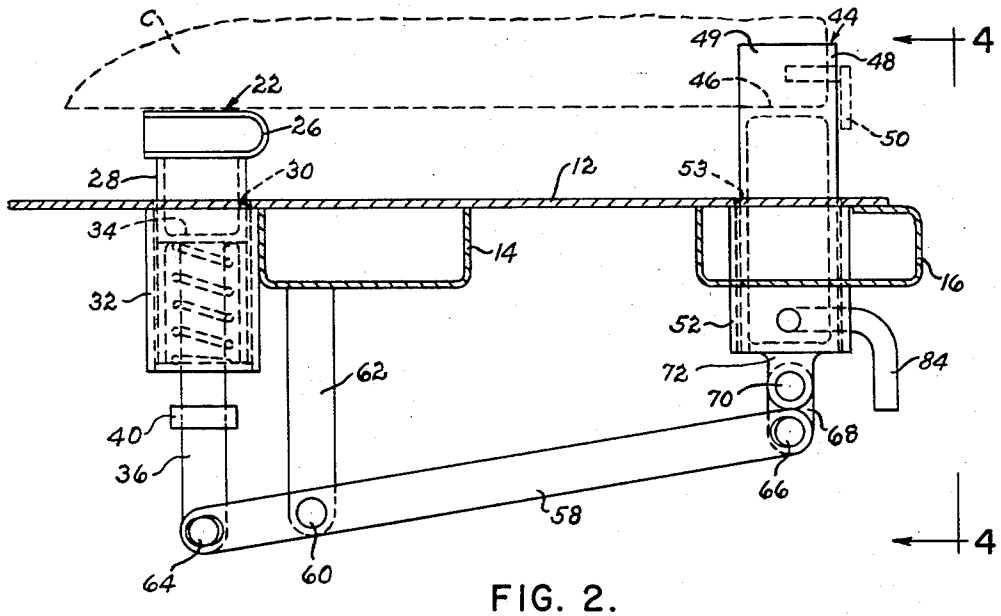


FIG. 2.

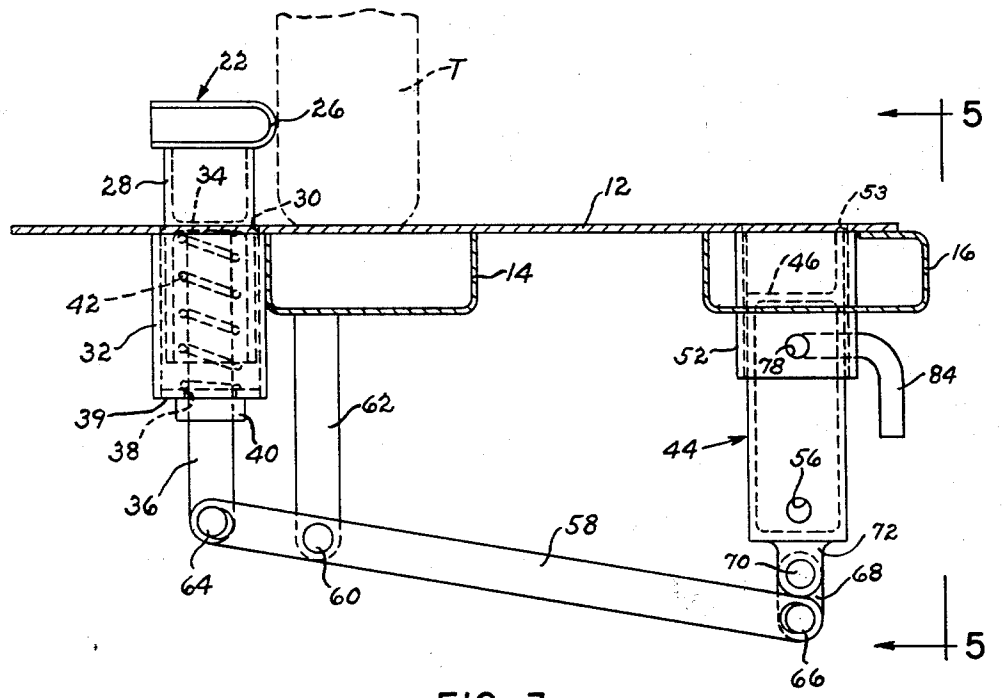


FIG. 3.

MEANS TO SUPPORT CONTAINERS ON RAILWAY FLAT CARS

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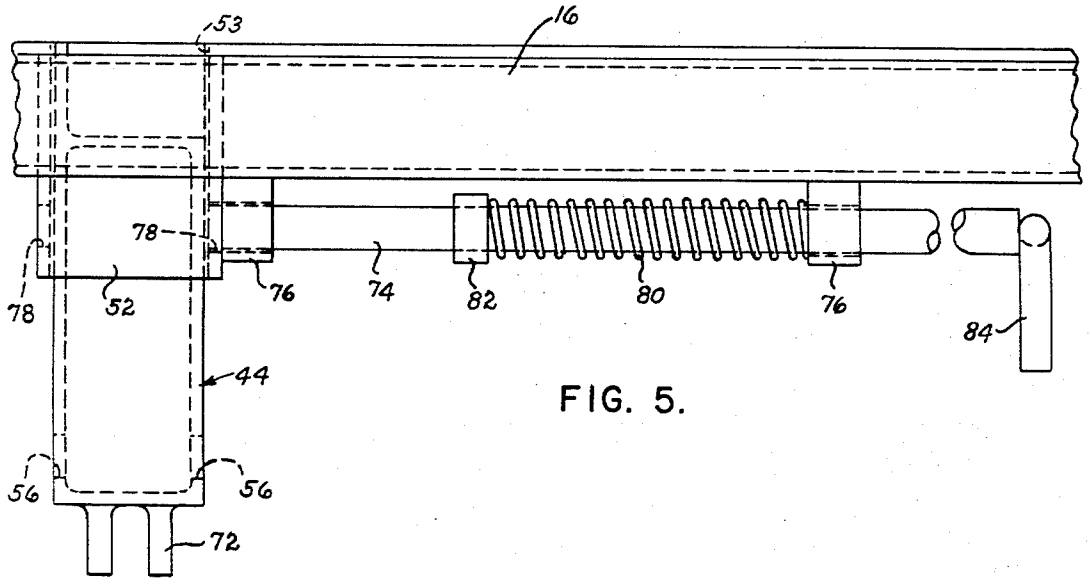


FIG. 5.

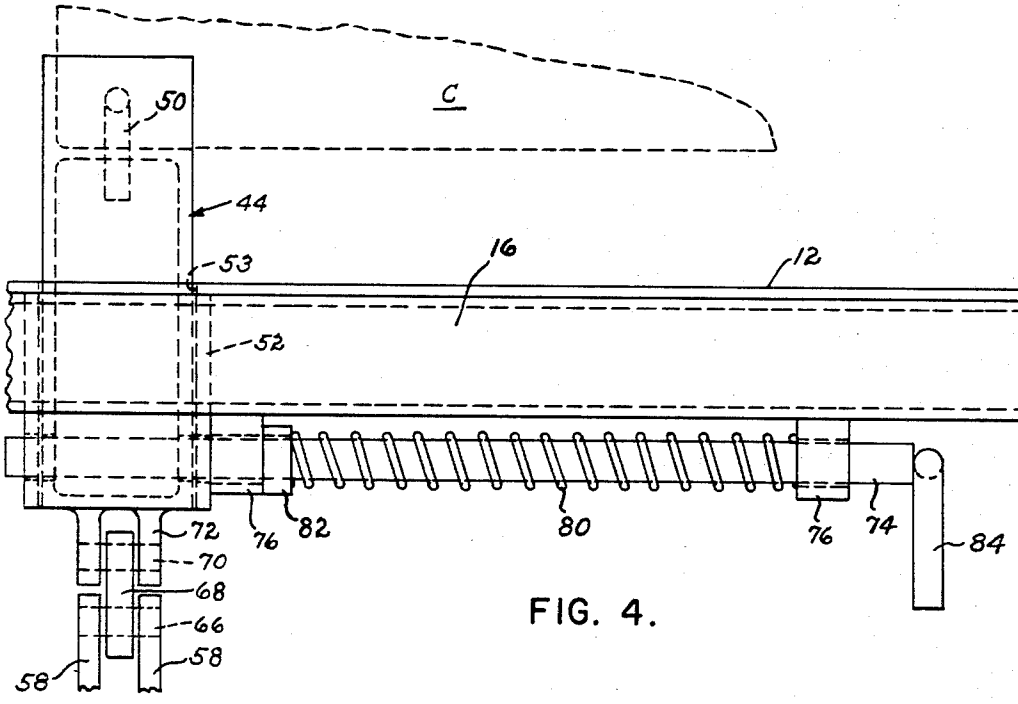


FIG. 4.

MEANS TO SUPPORT CONTAINERS ON RAILWAY FLAT CARS

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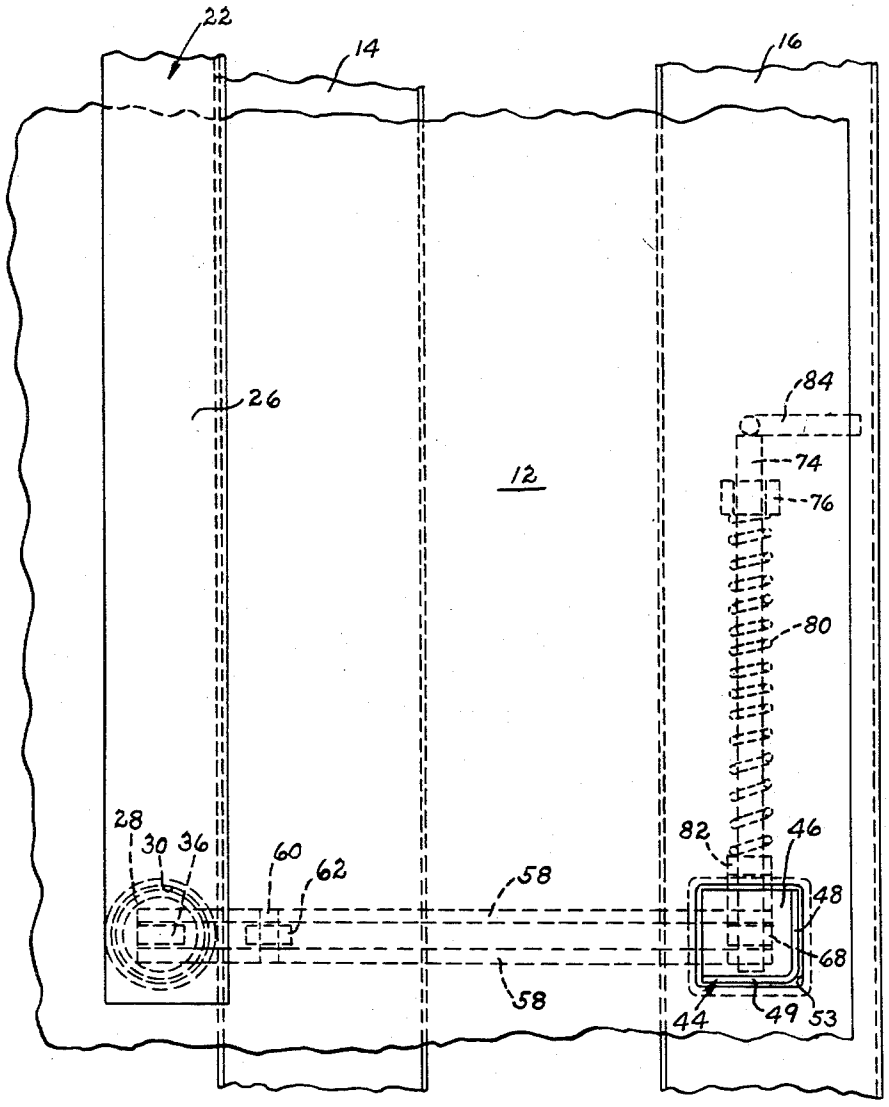


FIG. 6.

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MEANS TO SUPPORT CONTAINERS ON RAILWAY FLAT CARS

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Filed Jan. 25, 1967, Ser. No. 611,757
5 Claims. (Cl. 105—368)

ABSTRACT OF THE DISCLOSURE

A container support on the deck of a railway flat car mounted for movement between a container support position extending above the railway car deck and a lowered retracted position, and means actuated by the weight of the container as the container is lowered onto the railway car to effect an upward movement of the container support into a raised container support position above the deck. The container support returns by gravity to its lowered retracted position when the container is removed from the railway car.

Background and description of invention

It is desirable that containers be supported on the flat car at a height above the deck so that lifting arms of overhead cranes or the like may be easily positioned beneath the containers for loading and unloading operations. Therefore, the container supports when supporting a container normally project above the deck a substantial height, such as around eight (8) or nine (9) inches. When the flat car is employed for the transit of trailers or wheeled vehicles, the container support is adapted to be moved to a retracted position not obstructing the railway car deck or interfering with the trailers.

Heretofore, corner supports or pedestals for containers on railway flat cars have been mounted for manual movement between retracted and raised positions thereby to permit the flat car to be employed for the transit of trailers without interfering with the movement of the trailers. The manual movement of the container supports between operable and inoperable positions relative to the container support position is time consuming and costly as well as requiring manual labor. Many of the prior art container supports have been pivoted manually to retracted inoperable positions beneath the side sills of the flat car or within openings below the deck of the car for the transit of trailers. Then, when containers are again transported, the supports are pivoted manually onto the deck for supporting the containers.

The present invention comprises a container support which does not require any manual movement of the support when moved between raised operable container support position above the deck and lowered inoperable retracted position not obstructing the deck. The container support is raised to operative position by the weight of the container being lowered onto the deck and is moved by gravity to retracted inoperative position when the container is removed. When the container support is in retracted lowered position, the flat car may be employed for the transit of trailers and the like without interfering with such roadway vehicles. In the event guide rails are employed for centering roadway vehicles on the deck of the car, at least a portion of the guide rails may be depressible upon the lowering of a container thereon to effect raising of the container support into container support position above the deck.

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,

FIGURES 1 and 1A are a composite plan of a railway flat car employing the present invention and adapted to transport either a pair of containers or a pair of trailers;

FIGURE 2 is a transverse section taken generally along line 2—2 of FIGURE 1 and showing the present invention in a raised container support position;

FIGURE 3 is a section similar to FIGURE 2 but showing the container support in a retracted position and the adjacent depressible guide rail in a projected position for guiding the tires of a roadway vehicle;

FIGURE 4 is a side elevation looking generally along line 4—4 of FIGURE 2 with the container support in a raised operable position supporting a container thereon;

FIGURE 5 is a side elevation look generally along line 5—5 of FIGURE 3 with the container support in a lowered retracted position; and

FIGURE 6 is an enlarged fragment of FIGURE 1 illustrating the present invention in plan.

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 generally indicated **10** and includes a deck **12**. Stringers **14** extend beneath deck **12** and an outer side sill **16** is secured beneath deck **12** on each side thereof to form a relatively smooth deck surface thereat. This arrangement permits laterally movable lift arms of cranes or the like to load and unload containers or the like without obstruction from the side sills.

Collapsible hitches indicated generally at **18** are positioned on deck **12** and are adapted to be moved to an erect raised position for the transport of trailers. Hitches **18** secure the kingpin of trailers and may be of the type shown in Patent No. 3,262,402 dated July 26, 1966, the entire disclosure of which is incorporated by this reference.

Railway flat car **10** may be adapted to transport various numbers of containers C and the containers may be of varying lengths. For purposes of illustration, two containers C of a length of around forty (40) feet as indicated in broken lines in FIGURES 1, 1A, 2 and 4 have been selected for flat car **10** which has a length of eighty-nine (89) feet. To guide the tires T of roadway vehicles, such as tractors and trailers, a center guide rail structure has been provided and includes fixed end sections **20**, vertically depressible sections **22**, and fixed intermediate sections **24**. When flat car **10** is employed in the transit of trailers, hitches **18** are in erect position for securing the kingpins of the trailers and the guide rail structure guides and centers the trailers on deck **12** of railway flat car **10**.

When flat car **10** is employed for the transit of containers C, the containers are lowered by cranes or the like onto guide rail sections **22** which are generally the length of the containers. Each guide rail section **22** comprises an upper guide rail **26** having a plurality of tubular supports **28** secured to the underside thereof. Suitable openings **30** in deck **12** receive tubular supports **28** and permit guide rail **26** to be depressed by the weight of a container thereon. A tubular housing **32** is secured to the underside of deck **12** beneath each opening **30** and receives an associated support **28** in telescoping relation. Secured by welding to an intermediate web **34** of each support **28** is a rod **36**. Opening **38** in a bottom web **39** of the associated tubular housing **32** receives rod **36**, and a collar **40** secured to rod **36** limits the upward movement of support **28** and associated guide rail **26**. To urge guide rail **26** continuously upwardly, a spring **42** about rod **36** is compressed between bottom **39** of housing **32** and web **34** of support **28**. To limit the downward move-

ment of guide rail 26, the lower end of support 28 bottoms on lower web 39.

Beneath each lower corner of container C is a corner support or pedestal indicated generally 44 adapted to receive and support the lower corner of the container. Each pedestal 44 includes a seat 46 having sides 48, 49 extending upwardly therefrom to restrict horizontal movement of container C. A retaining pin 50 may be inserted through suitable openings in side 48 and the adjacent container side to secure the container against vertical movement. A sleeve or housing 52 for each pedestal 44 is secured beneath an associated opening 53 in deck 12 and receives the associated pedestal 44 in sliding relation. Openings 56 are provided in pedestal 44 to retain pedestal 44 in raised position as will be explained further.

Each tubular support 28 adjacent a corner support 44 is operatively connected thereto as indicated in FIGURES 2 and 3. Spaced levers or links 58 are pivotally connected at 60 to a support hanger 62 secured to stringer 14. Pivotally connected at 64 adjacent one end of levers 58 is rod 36. Pivotally connected at 66 adjacent the other end of levers 58 is a link 68 connected at pivot 70 to a clevis 72 on the lower end of each support 44.

To retain corner support 44 in a raised container supporting position, a locking rod 74 is mounted for sliding movement in sleeves 76 secured to the underside of adjacent side sill 16. Openings 78 in sleeve 52 are axially aligned with the openings formed by sleeves 76. A coil spring 80 about rod 74 is compressed between a collar 82 secured to rod 74 and a sleeve 76 to continuously urge rod 74 toward the locked position shown in FIGURE 4 in which openings 56 are aligned with openings 78 and permit movement of rod 74 to the position of FIGURE 4. A handle 84 on an end of rod 74 may be gripped to withdraw rod 74 from openings 56 to permit retraction of the associated container support 44.

Container supports 44 are moved from the retracted postion of FIGURE 3 to the raised container support position of FIGURE 2 by the weight of container C on the associated depressible guide rail sections 22. The weight of container C on guide rails 26 move guide rail sections 22 downwardly and actuates levers 58 to move container supports 44 upwardly into supporting contact with the container. Upon raising of container supports 44, locking rods 74 move under bias of springs 80 to the locked position of FIGURE 4. Retaining pins 50 may be inserted to hold container C in position.

Upon removal of container C by an overhead crane or the like, pins 74 may be manually withdrawn from openings 56 in container supports 44 and supports 44 will retract to the position of FIGURE 3 by gravity. Guide rail sections 22 will be raised upon the lowering of container supports 44.

In the position of FIGURE 3, container supports 44 do not obstruct the deck and do not interfere with wheeled vehicles moving along the deck 12 of the railway car. The only manual operation required in the movement of container supports 44 between a raised position in which the flat car is adapted to carry container and a lowered position in which the flat car is adapted to transport trailers is the withdrawal of locking rods 74 to permit supports 44 to move by gravity to retracted position.

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

As various changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. In a railway flat car having a deck adapted to carry a container thereon, a corner support for each lower corner of the container, means mounting each corner support for movement between a raised container support position in which the corner support extends above the deck to support the container and a lowered retracted stored position in which the support does not extend substantially above the deck, a pair of spaced rails extending longitudinally of the deck and projecting above the deck, means mounting at least a portion of each rail for generally vertical downward movement relative to the deck upon the positioning of a container thereon, and linkage means beneath the deck operatively connecting the movable portions of the rails to said corner supports for raising the corner supports to raised support position when the movable rail portions are depressed from the weight of the container.

2. In a railway flat car as set forth in claim 1, releasable locking means to lock each corner support in raised position immediately after being raised, manual means to unlock said locking means with said corner supports moving by gravity to retracted stored position upon unlocking of said locking means.

3. A railway flat car adapted to transport, selectively, either a trailer or a container, and comprising, a supporting deck, a pair of spaced generally parallel guide rails extending longitudinally of the deck and projecting above the deck to guide and position the wheels of a trailer or the like moving along the deck, means mounting at least a portion of each guide rail for generally vertical downward movement relative to the deck upon the positioning of a container on the movable portion of each guide rail, a container support on the deck spaced from the guide rails, means mounting the container support for generally vertical movement relative to the deck, and means operatively connecting the container support with an associated movable guide rail portion to effect an upward movement of the container support into supporting relation with the superjacent container upon a downward movement of the associated movable guide rail portion from the weight of the container thereon.

4. A railway flat car as set forth in claim 3 wherein said means operatively connecting the container support with an associated movable guide rail portion comprises a linkage beneath the deck of the railway car.

5. A railway flat car as set forth in claim 3 wherein resilient means continuously urge said movable guide rail portion upwardly.

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DRAYTON E. HOFFMAN, *Primary Examiner.*