# United States Patent

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[54] **RAILROAD FLAT CAR FOR TRANSPORTING CONTAINERS AND HIGHWAY TRAILERS**
**4 Claims, 12 Drawing Figs.**


[52] **U.S. Cl.** ..... **105/368,** 105/366, 248/119
[51] **Int. Cl.** ..... **B61d 45/00,** B65j 1/22
[50] **Field of Search** ..... 105/366.8, 368 (B), 368 (S); 248/119, 119 (S); 105/366, 368



[56] **References Cited**

UNITED STATES PATENTS

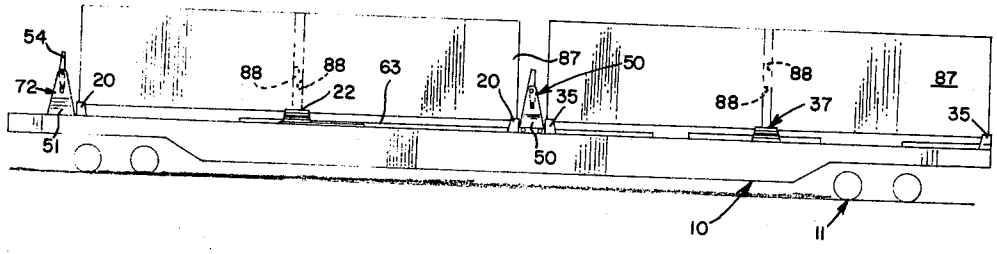
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|---|---|---|---|
| 2,845,878 | 8/1958 | Gutridge | 105/368(S) |
| 2,846,172 | 8/1958 | Gutridge et al. | 105/368(S) |
| 2,903,267 | 9/1959 | Nelson | 105/368(S) |
| 3,158,106 | 11/1964 | Clejan | 105/366(.8) |
| 3,296,981 | 1/1967 | Bergstrand | 105/366(.8) |
| 3,391,654 | 7/1968 | Grob et al. | 105/366(.8) |
| 3,401,648 | 9/1968 | Gutridge | 105/368(S) |
| 3,417,712 | 12/1968 | Pulcrano et al. | 105/366(.6) |
| 3,431,868 | 3/1969 | Cordani et al. | 105/366(.8) |



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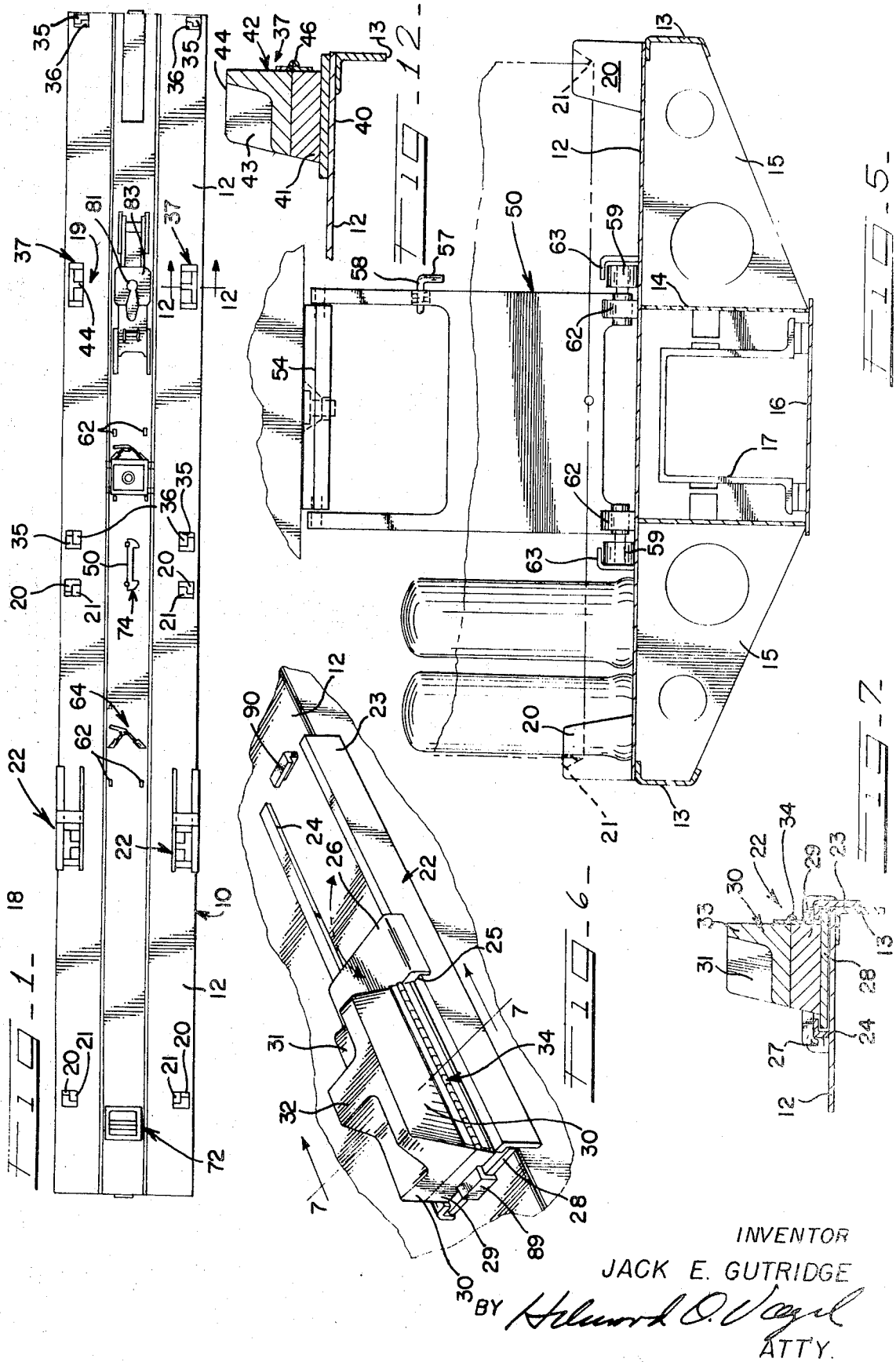


**ABSTRACT:** A railroad flat deck car for transporting both containers and highway trailers, including a plurality of sets of container brackets positioned to support a pair of relatively large containers on said car, said brackets also being movable into position to support a greater number of containers of lesser size. The flat deck also includes at least three trailer hitches, one of said hitches being stationary, another being movable lengthwise on the deck to a plurality of positions whereby both said trailer hitches anchor to the deck a pair of relatively long trailers, and the third trailer hitch being of the conventional collapsible type which, in the erect position, and with the other two hitches, supports a plurality of trailers of lesser length on said deck.

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3 Sheets-Sheet 1



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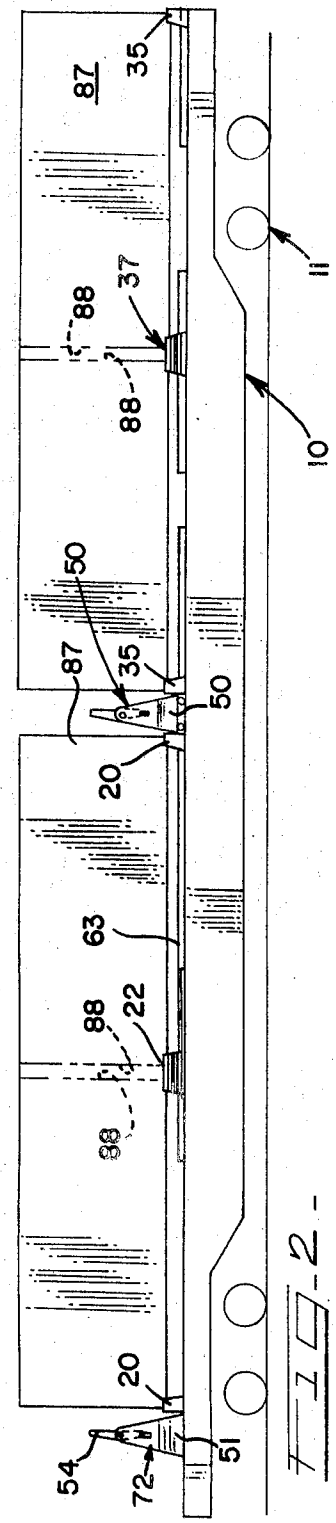



FIG-2-

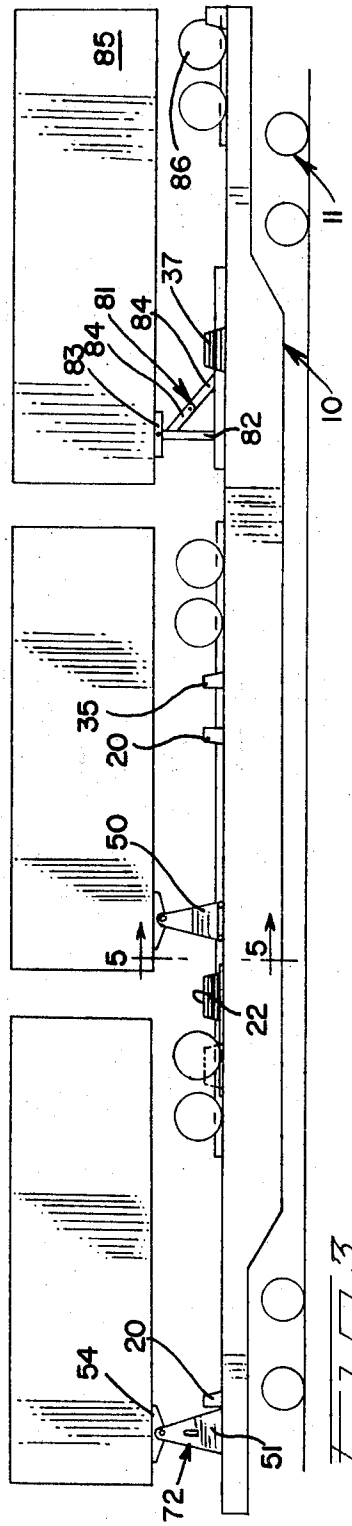



FIG-3-

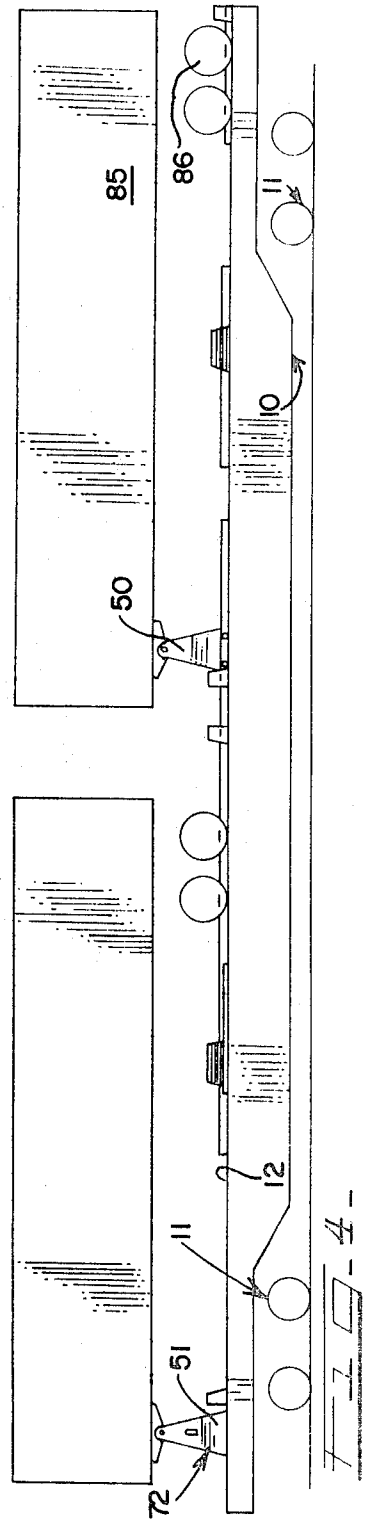



FIG-4-

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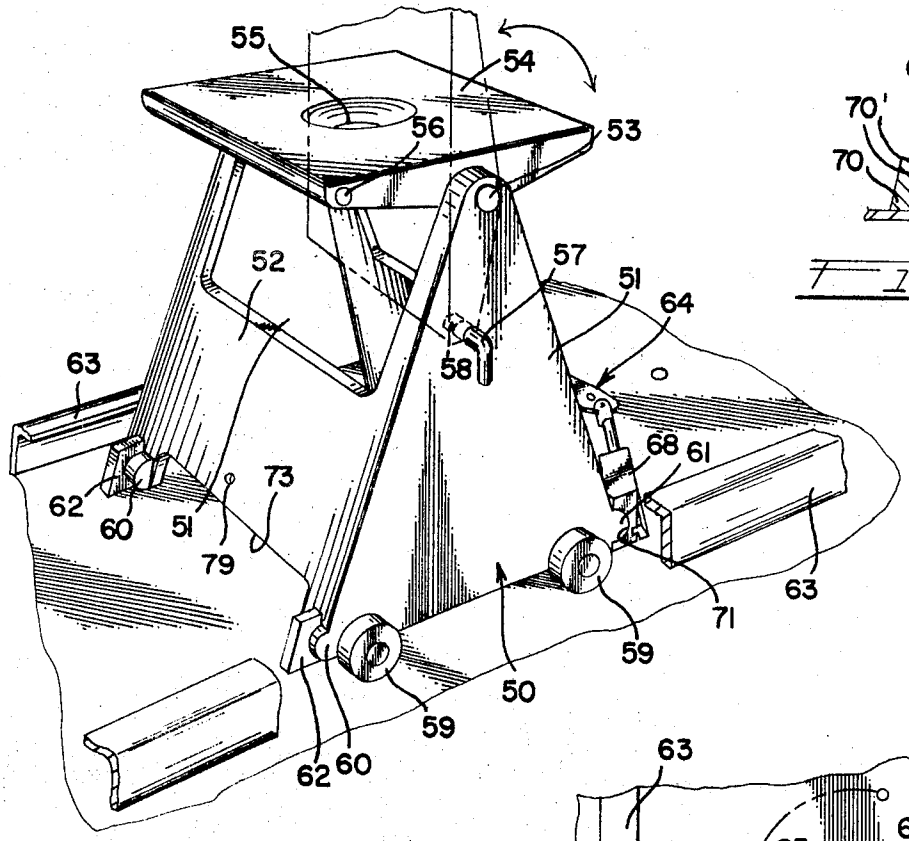



FIG. 8

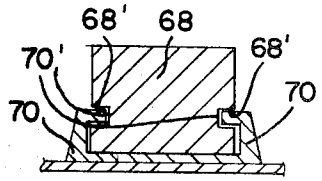



FIG. 11

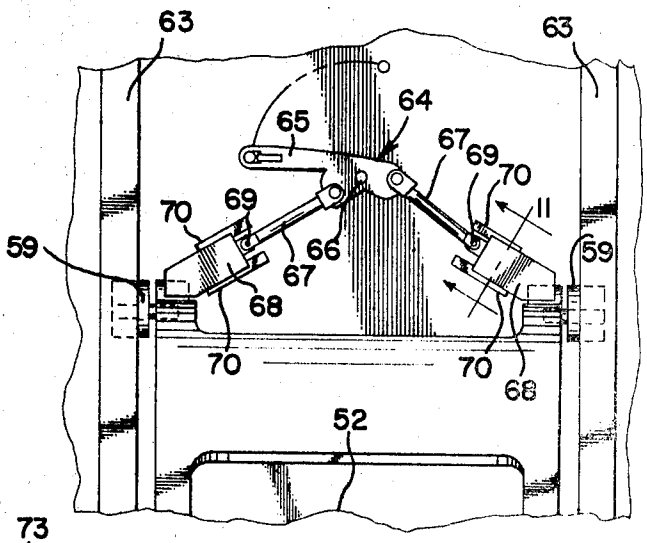



FIG. 9

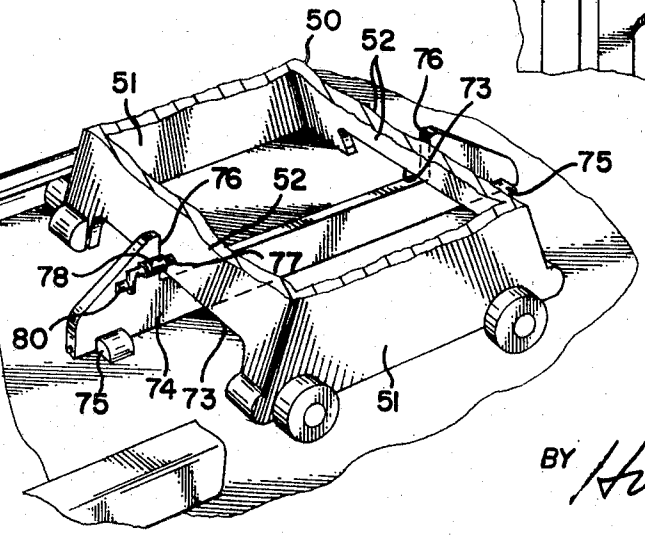



FIG. 10

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# RAILROAD FLAT CAR FOR TRANSPORTING CONTAINERS AND HIGHWAY TRAILERS

## BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to the art of flatcars which are adapted to interchangeably transport containers and highway trailers. The containers are supported by bracketing arrangements to suitably hold the containers on the flatcar and when it is desired to transport highway trailers having wheel suspensions, trailer hitches on the deck of the car are placed in position to engage the kingpins of the trailers to suitably anchor them on the flat car.

2. Description of the Prior Art

An example of the prior art is disclosed in the flatcar arrangement of the J. E. Gutridge U.S. Pat. No. 3,163,129 of Dec. 29, 1964 . In this patent suitable conical brackets are provided to engage containers and to retain the same on a cushioned rack arrangement slidably supported on the deck of the flatcar. The flatcar deck is also provided with suitable guideways supporting the wheel chassis of highway trailers which in turn are held on the deck by suitable trailer hitches.

## SUMMARY

The present invention has to do with a type of railway car suitable for container and highway trailer transport. The particular bracketing and trailer hitch arrangement forming the gist of the invention permits containers and trailers of various sizes to be readily accommodated and supported on the flat deck of the car.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a railway car having suitable container and trailer supporting arrangements;

FIG. 2 is a side elevational view of the railway car shown in FIG. 1 having positioned thereon a plurality of containers;

FIG. 3 is a side elevational view showing a railroad flatcar supporting three highway trailers;

FIG. 4 is a side elevational view of the railway car shown in FIG. 3 supporting two highway trailers of greater length;

FIG. 5 is an enlarged partial transverse sectional view illustrating a movable hitch and its stops;

FIG. 6 is a perspective view of an intermediate bracket arrangement;

FIG. 7 is a cross-sectional view taken along the line 7–7 of FIG. 6;

FIG. 8 is a perspective view of a portion of a flatcar containing a movable trailer hitch;

FIG. 9 is a plan view showing a portion of a movable trailer hitch with a clamping arrangement;

FIG. 10 is a perspective view of a portion of a movable stand and a bracket arrangement therefor;

FIG. 11 is a cross-sectional view taken substantially along the line 11–11 of FIG. 9; and

FIG. 12 is a cross-sectional view taken substantially along the line 12–12 of FIG. 1.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

A railroad flatcar, as shown in FIG. 1, is designated 10 and includes conventional wheeled trucks 11 and a flat deck 12. As shown in FIG. 5, the flat deck 12 has on opposite sides thereof downwardly projecting longitudinally extending side sills 13 and is supported on a center sill 14. Crossbearer supports 15 are suitably connected to the side sills 13 and the center sill 14. The center sill 14 also includes a bottom plate 16 on which a sliding sill 17 is positioned. The sliding sill 17 may be suitably connected to a cushioning arrangement (not shown) which protects the car and its lading against impact forces on the couplers (not shown) which are conventionally positioned at opposite ends of the center sill 14. The present flatcar 10 may also include alternately, of course, end of car cushioning means instead of the sliding sill arrangement disclosed.



Referring now particularly to FIG. 1, a set of container brackets 18 is provided on the deck 12 on the left side thereof and a second set of container brackets 19 is provided on the right side thereof. The set of container brackets 18 comprises two pairs of stationary brackets 20 having pockets 21, each pair of the set being longitudinally in alignment and being adapted to engage and support the corners of a large container, as best shown in FIG. 2. The set 18 also includes a pair of movable intermediate brackets generally designated at 22 and being more clearly shown in FIGS. 6 and 7. The intermediate brackets 22 each comprise a track angle 23 suitably connected to the side sill 13, as best shown in FIG. 7. A track angle 24 is laterally spaced and suitably connected to the deck 12 in parallel relation with respect to the track angle 23. The track angle 23, as shown in FIG. 6, is provided with an aperture 25 and the track angle 24 is also suitably apertured (not shown) to receive a hinged stop 26. The stop 26 is pivotally supported by means of a pivot bracket 27 to the deck 12. A base plate 28 is slidably disposed in the track angles 23 and 24 and has supported thereon a lower bracket portion 29. An upper bracket portion is designated 30 and includes longitudinally spaced pockets 31 which are formed by means of a center abutment 32 and a longitudinally extending abutment 33, said abutments being disposed in T-shaped fashion. A hinge 34, connecting bracket portion 30 to bracket portion 29, permits each upper bracket portion 30 to be swung in clockwise fashion from the position shown in FIG. 7 to an out-of- the-way position.

The set of container brackets 19 includes two pairs of stationary brackets 35, the arrangement being best shown in FIG. 1. The brackets 35 include pockets 36 which are adapted, as shown in FIG. 2, to support the four corners of a relatively large container. A pair of intermediate brackets 37 are positioned substantially at the midpoint between the pairs of brackets 35 as best shown in FIG. 1. Each intermediate bracket 37 includes a base plate 40 which is rigidly secured to the deck 12. The base plate 40 has rigidly connected thereto a lower bracket portion 41. An upper bracket portion 42 includes longitudinally spaced pockets 43 provided by a central abutment 44 connected to a longitudinal abutment 45 in T-shaped relation. The upper bracket portion 42 is suitably connected to the lower bracket portion 41 by means of a hinge 46 permitting the upper bracket portion 42 to be hinged in a clockwise manner from the position shown in FIG. 12 to an out-of-the-way position.

As best shown in FIGS. 1, 2, 3, and 4, a movable hitch is designated 50 and includes laterally spaced triangular shaped side walls 51 suitably connected by end walls 52. Hinge pins 53 at the upper ends of the sidewalls 51 pivotally support a top plate 54 having a kingpin receiving opening 55. The opening 55 also is provided with suitable clamping mechanism (not shown) which is conventional in the art for securely locking the kingpin of a trailer in the kingpin receiving opening 55.

As best shown in FIG. 8, a lock opening 56 is provided in the top plate 54 and a lever 57 includes a pin 58 slidably supported on one of the side walls 51 and which is adapted to be engaged within the opening 56 for maintaining the top plate 54 in a vertical nonuse position, as best shown in FIG. 2. The movable hitch 50 is suitably supported on wheels 59 and is guided by means of longitudinally extending guide angles 63. The four lower portions of the side walls 51, as best shown in FIG. 8, are provided with semicircular abutments 60 and 61. As best shown in FIG. 1, two pairs of stops 62 are positioned in longitudinally spaced relation and the hitch 51 is moved between the said stops 62 from one position to another. The abutments 60 and 61 suitably engage the stops 62 for limiting the longitudinal travel of the trailer hitch 51. A pair of clamping mechanisms 64 are also shown in FIG. 1 and each includes a hand lever 65 suitably pivoted to the deck, as indicated at 66 and having links 67 pivotally connected thereto. The links 67

are also slidably connected to a pair of sliding blocks 68 by means of a pivot arrangement 69. The sliding blocks 68, as best shown in FIG. 11, are movable in guides 70 having inwardly extending flanges 68' suitably disposed in apertures 70' provided on opposite sides of the blocks 68. The end of each sliding block 68 is provided with an arcuate recess 71 which, as best shown in FIG. 8, is adapted to engage the abutments 61 for suitably locking the movable hitch 50 in position against the stops 62. In FIG. 8, the movable hitch 50 is positioned against the stop 62 and when the hitch 50 is moved to the right, the abutments 61 engage the stops 62, and the blocks 68 of the other clamping mechanism 64 then are in engagement with the abutments 60.

As shown in FIGS. 1 through 4, the deck 12 is provided with a stationary trailer hitch 72. This trailer hitch 72 is substantially similar to the trailer hitch 50 and includes a similar top plate 54. However, the trailer hitch 72 may be suitably bolted or welded to the deck 12 of the car 10 and would not include the wheels 59.

As best shown in FIG. 10, the walls 52 are also provided with cutout portions 73 and a U-shaped bracket is shown at 74. The bracket 74 is suitably hinged by means of hinge brackets 75 to the deck 12 and may be moved from a flat position on the deck 12 to the position shown in FIG. 10 wherein stops 76 engage the walls 52 to retain the movable hitch 50 in position shown in FIG. 2 between containers supported on the car in lengthwise spaced relation. A slide bolt 77 is slidable in a bracket 78 supported on the U-shaped bracket 74 and may be engageable with an opening 79, best shown in FIG. 8, provided in one of the end walls 52. A stop 80 in one position of the slide bolt 77 locks the bolt in the opening 79.

Referring now particularly to FIG. 3, a collapsible hitch designated 81 is positioned in an erect operative position in supporting arrangement with one of the trailers which are generally designated 85 and include wheel suspensions 86. The collapsible hitch 81 may be of a type shown in the H. S. Wille et al. U.S. Pat. No. 3,358,955, patented Dec. 19, 1967. This type of hitch is described in said patent and details of its operation are amply disclosed and need not be further elaborated upon in this description. Similar conventional collapsible hitches, well known in the art, may be utilized in the particular arrangement disclosed in FIG. 3 which need not be of the type disclosed in the aforementioned patent. The collapsible hitch 81 generally includes vertical struts 82 pivotally supporting a top plate 83, said vertical struts being supported in an upright position by means of folding struts 84 which may be hingedly moved to collapse the stand to an ondeck nonoperative position.

## THE OPERATION

In FIG. 2 the car 10 is provided for container operation and two large containers 87 are suitably supported on the brackets 20 and 35, with the four corners of each container thus being firmly secured. During this arrangement the intermediate bracket arrangements 22 and 37 are hinged to an out-of-the-way or non-use position. In the present industry, containers of this type are generally 40 ft. long, and if 20-ft. containers are desired to be transported, these being indicated by the reference character 88 in the dotted lines of FIG. 2, four containers can thus be supported. FIG. 2 shows the container 88 at the left end of the car 10 having opposite corners supported on the brackets 20. The other corners of said container are supported on the intermediate brackets 22 which also support the end corners of the second 20-ft. container. The other end of the second container. The other end of the second container is supported by the other brackets 20. The third container 88 is similarly supported on brackets 35 and intermediate brackets 37 and the fourth container is, of course, also supported on the intermediate bracket 37 and the brackets 35 at the far right of the railroad car. In container operation the stationary hitch 72 has its top plate 54 disposed in an out-of-the-way position as indicated in FIG. 2. The collapsible hitch 81 is in a collapsed ondeck or out-of-the-way position, and the movable hitch 50 has been positioned between the adjacent brackets 20 and 35 and is locked in this position by means of the bracket 74, as best shown in FIG. 10.

In FIG. 3 the railway car 10 is shown in use for supporting three trailers 85, each trailer having, of course, a conventional kingpin, as best shown in FIG. 5, which is suitably clamped to the top plates 54 of the stationary trailer hitch 72 and movable trailer hitch 50. The third trailer is shown supported by the collapsible hitch 81 which has now been moved to an erect position and the kingpin of the third trailer is suitably engaged in conventional locking means (not shown) in the top plate 83. As shown in FIG. 3, the upper bracket portions 30 of the intermediate brackets 22 have been moved out of the way of the trailer suspension 86 of the leftmost trailer. Such lengthwise movement is limited by stops 89 and 90, shown in FIG. 6. The stop 26 is hinged out of the way to permit lengthwise movement and is returned into the aperture 25 to lock the assembly, including the bracket 30, in two positions.

In FIG. 4 the railroad flatcar is utilized for supporting two of the longer trailers 85, each being 40 ft. in length, one of the trailers 85 being supported on the stationary hitch 72, the other being supported on the movable trailer hitch 50. In this position the movable trailer hitch 50 is moved against stops 62 located at the right side of the car and the right-hand clamping mechanism 64 is utilized to lock the movable hitch 50 in position. In the position shown in FIG. 3 the movable hitch 50 is locked against the stops 62 with the clamping mechanism 64 on the left-hand side being in clamping relation to maintain the hitch in position.

Thus, it is believed that the invention has been clearly described and the arrangement is such that versatility of trailer and container transport is accomplished. The railroad car thus is easily adapted for large and smaller containers and highway trailers to that an effective interchangeable arrangement is provided. Adaptation of the container brackets and the hitches can be quickly accomplished depending upon the type of operation desired.

I claim:

1. In a railroad car having a flat deck for transporting containers and highway trailers:

first and second sets of container brackets disposed on said deck to support two containers of certain relatively long overall length in longitudinally spaced end-to-end relation;

each set including bracket members relatively transversely and longitudinally spaced and supported on said deck to engage the lower four corners of each container;

first and second pairs of intermediate container bracket members on said deck, a pair being located between the longitudinally spaced bracket members of each set, each intermediate bracket member including two longitudinally spaced container-engaging seats, the seats of each pair being adapted to support the adjacent four corners of two end-to-end positioned containers of lesser overall length which are supported on the other two bracket members of each set;

an arrangement for mounting trailers on said car comprising:

a stationary hitch fixed at one end of the deck for supporting one end of a trailer of any length;

a collapsible hitch fixed on the deck inwardly from the other end thereof for supporting the front end of a trailer of relatively short length;

a movable hitch mounted on the deck intermediate said stationary and collapsible hitches for movement longitudinally of the deck between an inoperative position between adjacent container brackets of the first and second sets and a first operative position nearer to the stationary hitch for supporting the front end of another trailer of relatively short length and a second operative position nearer to the collapsible hitch in collapsed condition for supporting a second relatively long trailer.

2 The invention in accordance with claim 1, in which said stationary hitch includes a top plate pivoted for movement between a horizontal operative position for receiving the kingpin of a trailer and a vertical inoperative position providing clearance for the end portion of a container.

3. The invention in accordance with claim 1, in which said movable hitch includes a top plate pivoted for movement between a horizontal operative position for receiving the kingpin of a trailer and a vertical inoperative position between the adjacent ends of two longitudinally spaced containers.

4. The invention in accordance with claim 1, in which:

said stationary hitch includes a top plate pivoted for movement between a horizontal operative position for receiving the kingpin of a trailer and a vertical inoperative position providing clearance for the end portion of a container; and

said movable hitch includes a top plate pivoted for movement between a horizontal operative position for receiving the kingpin of a trailer and a vertical inoperative position between the adjacent ends of two longitudinally spaced containers.