MEANS FOR LOADING RAILROAD CARS

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The present invention relates to means for loading railroad cars. It is, accordingly, an object of the present invention to provide novel means whereby self-propelled and like vehicles can be quickly and economically loaded on railroad cars.

Another object of the invention is to provide means whereby such vehicles may be loaded and discharged primarily under their own power.

Still another object of the invention is the provision of means for side loading of railroad cars wherein the vehicles can be loaded or unloaded without detachment from the train.

A further object of the invention is to provide apparatus whereby automobiles and the like can be loaded and discharged quickly on means carried entirely by the freight car.

Still another object of the invention is to provide means for loading vehicles on railroad cars wherein the loading and discharge can be made from or onto any desirable ground level location.

A still further object of the invention is to provide means for loading vehicles on railroad cars wherein the occupants of the vehicle can be loaded and transported with the vehicle.

Other objects and advantages of the invention will become apparent as the description progresses. In the accompanying drawings which illustrate examples of the varying forms in which the invention is susceptible:

Figure 2 is a side elevation view of a plural deck railroad car adapted for the loading means of the invention;

Figure 3 is a horizontal section taken on line 3—3 of Figure 2;

Figure 4 is an enlarged transverse section taken on line 4—4 of Figure 3;

Figure 5 is a perspective view of a rack upon which the loaded vehicles are transferred into the car;

Figure 6 is an enlarged fragmentary view of a connection between sections of the loading apparatus;

Figure 7 is a section taken on line 7—7 of Figure 6;

Figure 8 is a side elevation of the car with the loading apparatus arranged to discharge the vehicles loaded as shown in the figures indicated above, and

Figure 9 is a modification showing the novel loading means operatively associated with a single deck railroad car.

Referring to the drawings wherein like characters of reference designate corresponding parts throughout the views, 15 indicates a double-deck railroad car having walkways 16 and 17 along one side and at the ends with a door opening 18 at each end affording communication with adjacent cars of the train. One outer side wall 19 of car 15 is advantageously provided with a pair of spaced apart loading door openings 20 at the top and bottom decks 21 and 22.

Associated with side 19 of the car, as by connection through hinges 23 with the decks, are panels 26 adapted to function as closing and as loading members. When swung to its upward vertical position each panel 26 is designed to closely fit and close the loading doorway opening 20 at the bottom of which it is mounted, as shown in Figure 1. These panels are also operative to be swung outward to approximately horizontal positions so as to provide runway supports for the load units.

When in open position each of the panels 26 is adapted to serve as a runway support for the vehicles and it is desirable that the load be laterally transferable from the panel onto the deck with which the panel is connected. While such transfer may be effected in various ways and any known means may be employed without departing from the broad aspects of the invention, the illustrated example embodies the provision of four channels or grooves 27 arranged transversely in the upper and inner face of the panel and disposed to align with corresponding channels 28 in the deck within each loading door opening, the outer ends of the channels on the panel and the inner ends of those on the deck being closed to limit movement thereon. Guided by the channels and movable thereon by friction reducing means is a carriage member or rack 29 comprising a pair of trackways 30 advantageously trough-shaped to guiding the wheels of a vehicle. To each pair of trackways are fastened a plurality of cross bars 31 disposed to assume positions respectively placed to the respective trackways 27 and 28. In the underside of each cross bar 31 are formed a plurality of concavities 32, each of which provides a seat for the upper part of a ball 33. The balls 33 are fitted to roll in channels 27 and 28.

As shown in Figures 2 and 3, an arrangement for loading vehicles such as self-propelled passenger automobiles, embodies disposing the closing panels of the left end lower deck loading doorway and the panels of the right end and upper doorway in open outwardly projecting positions. A panel 40 provides connection between the door panels 26. This connecting section embodies a pair of trackways 41 held in transversely spaced relation by a plurality of transverse bars 42. At one end of each trackway 41 is attached, as by welding, an angularly bent fastening hook 43 having its outer end formed to engage a socket 44 in the door panel while supporting trackway 41 in running relation with trackway 30. At the opposite end of each trackway 41 is a hook 45 engageable with a socket 44 in the lower end loading panel to align the lower ends of the connecting trackways with rack on the bottom deck panel. The vehicle is rolled onto the bottom deck panel or preferably onto the track thereon through the medium of a lead panel 46 essentially corresponding to panel 40 with the hooks 43 at one end to engage the lower panel 26 and the other ends of the trackways curved to facilitate the run up from an approximately track level station.

The lower deck swing panels can be readily supported in laterally projecting loading positions by props 50 which may advantageously be adjustable jacks. The upper-level horizontal panels are supported by chains 51 and, where circumstances require, by jacks or like props.

Thus, a plurality of wheeled vehicles, such as the automobiles shown, can be rapidly and conveniently loaded on a two-deck railroad car by disposing a lower panel 26 at one end and an upper panel 26 at the opposite end in horizontal loading positions and arranging the lead and connecting panels as illustrated at Figures 2 and 3. The first load vehicle is driven up the ramp forming lead section 46, over the track 26 on the bottom of the panel, up the inclined connecting panel 40 and onto the track of upper open panel 26. The latter track with the vehicle placed thereon is swung to the deck and the vehicle is driven or moved manually in an arc off the carrier over the intermediate part of the deck to a position at the opposite end. Additional vehicles can then similarly be driven to occupy intermediate and forward end positions to fully load the upper deck. Further vehicles from the same or other loading stations or positions are loaded on the lower deck by moving them successively from the lower open panel and driving them foremost forwardly in the car. The ramp sections 40 and 46 can be readily placed in the car and hung on the walls thereof or pivotally attached to the panels 26 and swung against the panels when the latter are not in use.

The unloading of the vehicles, as shown at Figure 8, can be effected in such manner that they can be driven forward over the side runway sections by arranging the
3 door panels reversed from that shown at Figure 2, that is, by disposing the upper left and lower right panels 26 in runway positions to discharge first the vehicles at the position opposite the upper left panel and the others on this deck in succession movement to this position. The vehicles of the lower deck are forwardly discharged from the lower right end open panel.

As shown in Figure 9, a single deck railroad car, indicated at 60, can be advantageously loaded by employing the runway apparatus in connection with a center door loading structure, the unloading if desired being made forwardly from the opposite end of panel 26.

It is to be noted that the system can be installed upon railroad cars of conventional and varying construction without great expense and that the transverse conveyance through the loading doorway may be effected manually or by other suitable means.

In addition to the shipment of new automobiles, trucks and tractors the loading means of the invention is conducive to the transportation of vehicles and their occupants on extended trips wherein railroad transport is desirable because of poor or congested roads, fatigue of the driver, etc.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited to that which is shown in the drawings and described in the specification but only as indicated in the appended claims.

What is claimed is:

1. In means for loading cars having loading openings in a side thereof, a plurality of sections connected with and extending outwardly of the loading side of the car so that wheeled vehicles can be moved on said sections in a direction parallel with the loading side of the car to varying levels.

2. Means as described in claim 1 wherein certain of said sections are operative to close the loading openings of cars.

3. In means for loading self-propelled vehicles on railroad cars having multiple decks and openings in a wall thereof for loading onto the decks, a plurality of panels supported to project from said side wall so that vehicles can be driven thereon parallel with the side wall to position for transfer onto the decks through said openings.

4. Means as defined in claim 3 wherein said panels are constructed for arrangement so that the vehicles can be moved forward for loading and for unloading.

5. Means as defined in claim 3 wherein certain of said panels can be arranged to close the loading openings when not used for loading.

6. Means as defined in claim 3, wherein certain of said panels are detachable when not used for loading or unloading.

7. In loading means of the character described, a body having openings, panels for closing said openings and operative to positions providing runways, and panels extending parallel with a side of the body for providing inclined runways connecting with said closing panels.

8. In means for loading self-propelled vehicles on railroad cars having loading openings in a side wall thereof, a plurality of panels operative to close said openings and to provide runways laterally of said openings, means upon which the vehicles can be moved sidewise on said panels and into the railroad car, and panels extending parallel with a side of the body operative to assume inclined positions in readiness with said horizontally projecting closing panels whereby vehicles can be driven on said panels to positions for movement into the railroad car.

9. Means for loading self-propelled vehicles on multiple deck railroad cars, said car having two loading openings in a wall thereof for each deck, a panel operative to close each of said loading openings and to assume a vehicle runway position projecting horizontally of the bottom of the opening, a panel extending parallel with a side of the body operative for connection with said closing panels to provide a vehicle runway between said closing panels, and means on said closing panels and car for moving a vehicle sidewise of said closing panels and the decks of the car.

10. In loading means for a plural deck car having side openings for sidewise loading and discharge of automobiles, panels connected with the car operative to close said openings and to assume a horizontally projecting runway position, a section removable engageable with two of said laterally projecting panels extending parallel with a side of the body to provide an automobile runway between the same, and means including a carriage for shifting an automobile from the laterally extending panels into the car.

11. Loading means as defined in claim 10 wherein said lateral shifting means comprises a carriage mounted on friction reducing means for moving an automobile into and out of the car.

12. Loading means as defined in claim 10 wherein said first panels are hingedly connected to the car.

13. Loading means as defined in claim 10 wherein said removable section is detachably connected with said panels so that the automobiles can be driven onto the carriage of the panels.

14. In means for loading vehicles on a railroad car, longitudinally spaced means mounted to extend outwardly from a side of the car at different levels, and means connected to said spaced means to form horizontal and inclined runways associated with the car at a vehicle receiving level for the movement thereon of vehicles in a direction longitudinally of the car for loading and unloading spaced levels on the car.

15. In means for loading vehicles on a carrying car, a plurality of spaced horizontal members connected with a side of said car to assume positions extending from vehicle receiving levels, an inclined section connecting said spaced horizontal members, and an inclined section connecting ground level with one of said horizontal members so as to provide runways for the movement of vehicles in a direction parallel with the direction of movement of the car for loading from ground level to one or more vertically spaced levels of the car.

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