

June 18, 1940.

A. F. DOOLEY ET AL

2,204,667

TRANSPORTATION MEANS

Filed Oct. 10, 1935

3 Sheets-Sheet 1

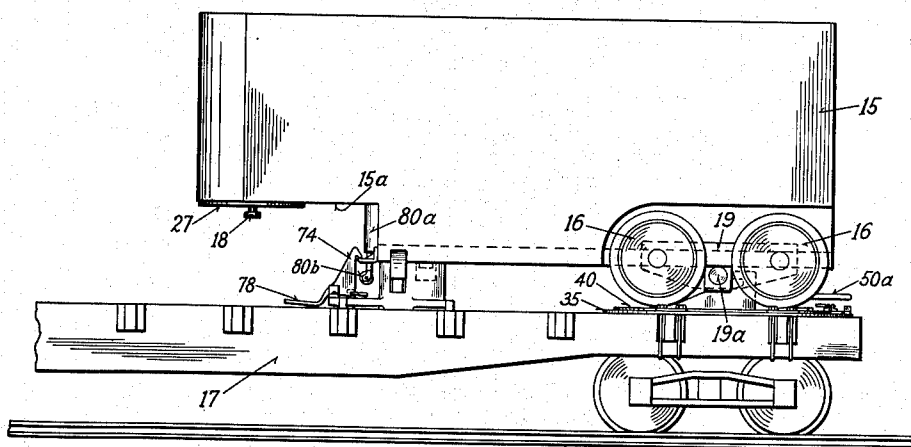


Fig. 1

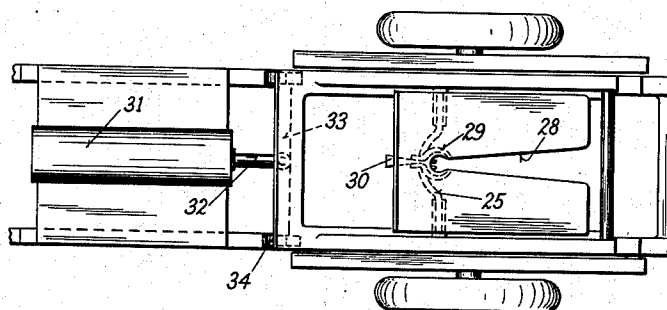


Fig. 2

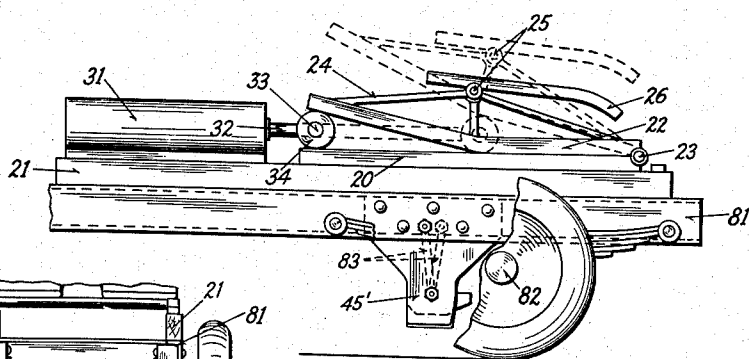


Fig. 3

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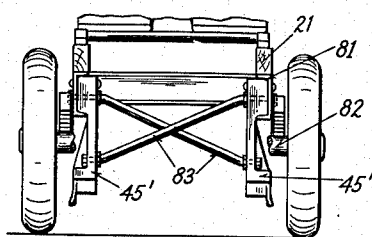


Fig. 4

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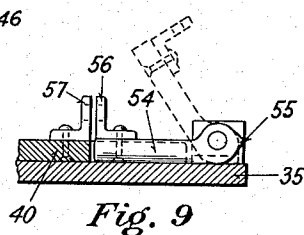
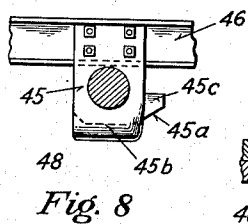
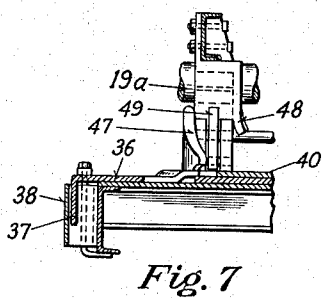
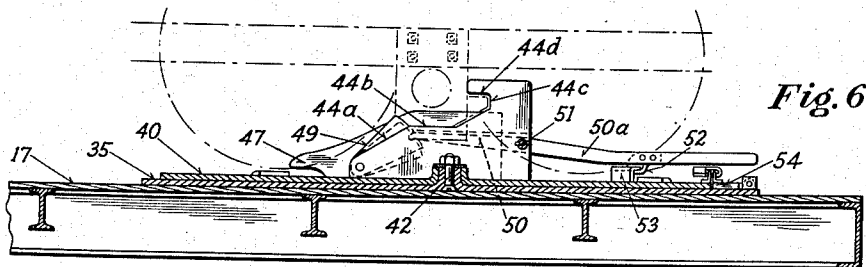
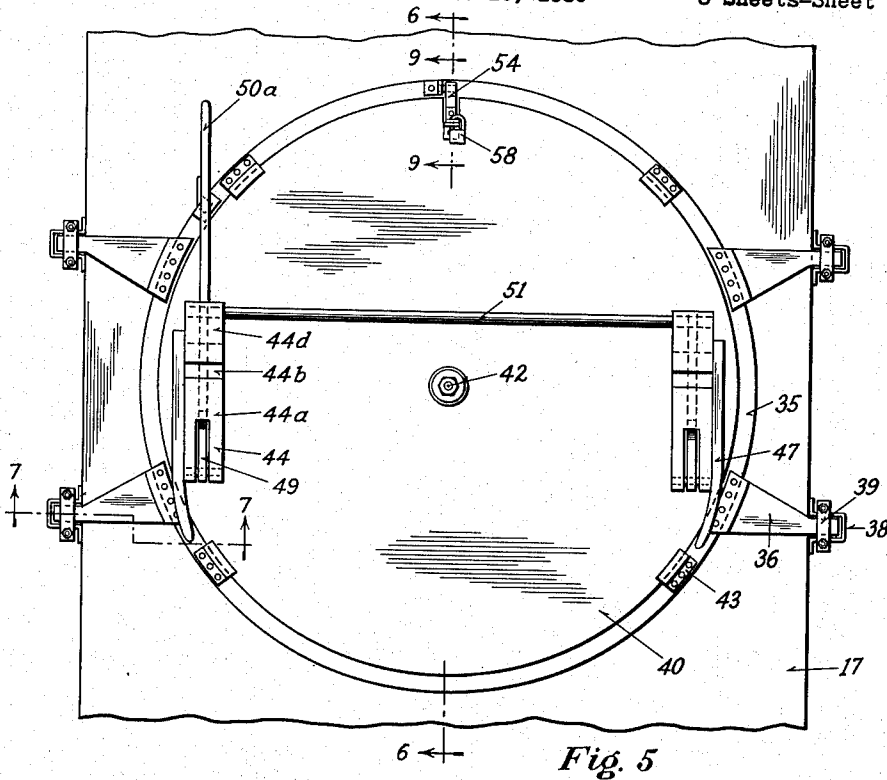
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### TRANSPORTATION MEANS

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3 Sheets-Sheet 2



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2,204,667

TRANSPORTATION MEANS

Filed Oct. 10, 1935

3 Sheets-Sheet 3

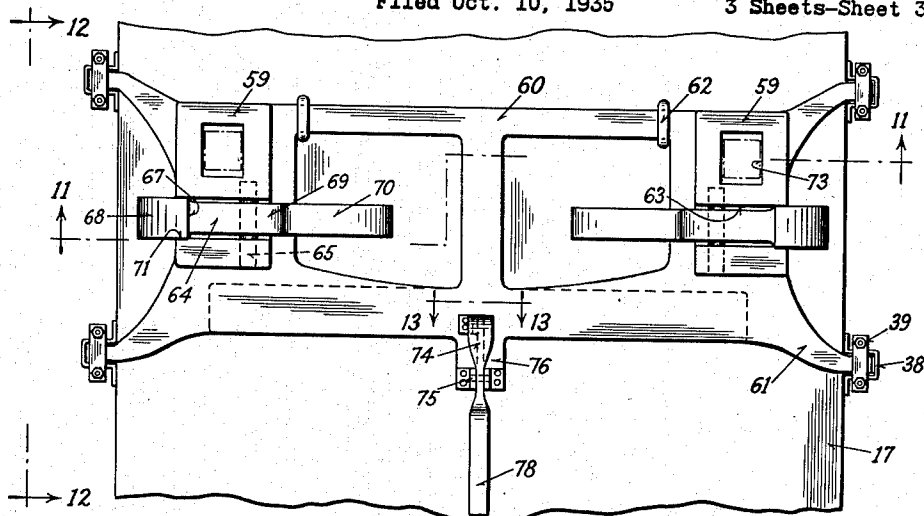


Fig. 10

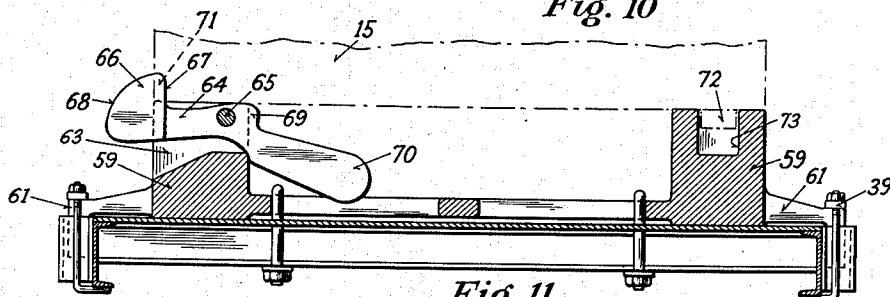


Fig. 11

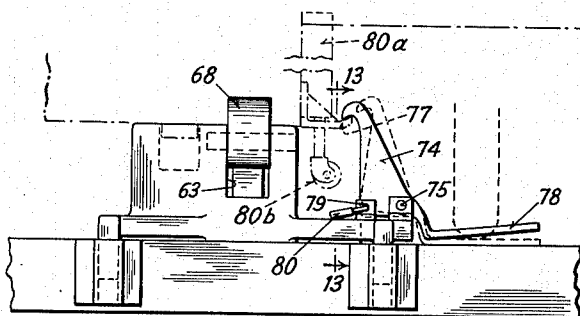


Fig. 12

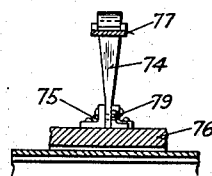


Fig. 13

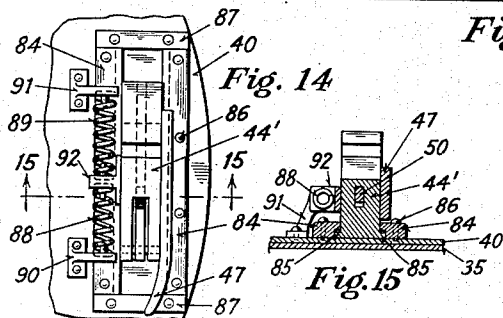


Fig. 14

Fig. 15

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## UNITED STATES PATENT OFFICE

2,204,667

## TRANSPORTATION MEANS

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Application October 10, 1935, Serial No. 44,318

12 Claims. (Cl. 105—159)

This invention relates to apparatus for the transportation of merchandise and containers therefor, and more particularly to means for loading and securing road vehicles such as automotive equipment on railway cars for transportation thereon and for removing said vehicles from said cars.

One of the objects of the present invention is to provide novel apparatus whereby merchandise and containers therefor may be transported, particularly over long distances, at minimum expense and with a minimum of handling, said apparatus being so constructed as to be inexpensive, durable and reliable and adapted to be readily installed on and removed from standard highway and railway equipment.

In the transportation of merchandise by railways, the usual practice has been to load the same onto a road vehicle for conveyance to a railway station where the merchandise is again handled in transferring the load to a railway car. At the destination, the same loading and unloading operations are repeated in the reverse order. These operations require the employment of personnel which is unnecessary when the same goods are transported from source to destination by motor vehicles, and materially enhance the cost of rail transportation. Additionally, repeated handling of merchandise invariably results in injury to and loss of the same, as well as in loss of time in the transportation thereof.

It is accordingly an object of the present invention to provide novel means whereby the above noted disadvantages in and objections to the present modes of transportation are overcome.

Another object of this invention is to provide novel means whereby a road vehicle, such as a trailer, may be readily loaded on and removed from a railway car by a single man with utmost ease and rapidity.

It has been proposed heretofore to transport trailers and like vehicles on railway cars, but such proposals have involved the provision of complicated mechanisms, specially made railway rolling stock, and specially equipped loading platforms. Additionally, apparatus heretofore provided for securing vehicles of this nature on railway cars has not been practical and reliable and has not been such as to insure the safe transportation of goods and equipment.

Accordingly, another object is to provide novel apparatus for supporting and securing road vehicles, such as automotive equipment, on railway

cars in such manner as to insure the safety of personnel and the safe transportation of equipment and merchandise.

A further object is to provide novel apparatus whereby motor vehicles, trailers and the like which are now in use, as well as specially built vehicles, may be inexpensively and quickly equipped for transportation on existing railway cars that are in turn equipped with novel securing and supporting means which may be readily attached to and removed from the cars without altering or damaging said cars in any way whatsoever.

A still further object is to provide simple and inexpensive apparatus for loading and securing individual containers on railway cars, said apparatus being also rugged and dependable.

Another object is to provide a novel method of loading and securing motor vehicles, trailers and the like on railway rolling stock.

Still another object is to provide a novel fifth wheel construction on a motor tractor whereby a trailer may be elevated independently of the movement of said tractor.

The above and other objects and novel features will more fully appear from the following detail description when taken in connection with the accompanying drawings. It is to be expressly understood, however, that the drawings are for the purpose of illustration only and are not designed as a definition of the limits of the invention, reference being primarily had for this purpose to the appended claims.

In the drawings, wherein like reference characters refer to like parts throughout the several views,

Fig. 1 is a side elevation, with parts broken away, showing a trailer supported on a railroad flat car;

Fig. 2 is a plan view, with parts broken away, of a motor tractor which may be used for moving the trailer of Fig. 1 on and off the flat car;

Fig. 3 is a side elevation of the tractor and novel elevating fifth wheel mechanism of Fig. 2;

Fig. 4 is a partial rear view, with parts broken away, of the tractor of Fig. 3, showing one form of adapter which may be used on spring supported motor vehicles or trailers in accordance with the invention;

Fig. 5 is a top plan, with parts broken away, of one form of turntable which may be employed in carrying out the present invention;

Fig. 6 is a side elevation, partly in section, taken on line 6—6 of Fig. 5;

Fig. 7 is a detail view, partly in section and

with parts broken away, taken substantially on line 7—7 of Fig. 5 when a vehicle is mounted on the turntable;

Fig. 8 is a detail view, with parts broken away, of an adapter mounted on one type of trailer now in common use;

Fig. 9 is a detail view, taken substantially on line 9—9 of Fig. 5;

Fig. 10 is a top plan of one form of front support for a trailer which may be employed in practicing the invention;

Fig. 11 is an end view, partly in section, taken on line 11—11 of Fig. 10;

Fig. 12 is a side view of the apparatus of Fig. 10 with a phantom showing of portions of a trailer;

Fig. 13 is a detail view taken on line 13—13 of Fig. 12;

Fig. 14 is a partial plan view, with parts broken away, of a modified form of turntable which may be employed; and

Fig. 15 is a sectional view taken on line 15—15 of Fig. 14.

A single embodiment of the invention is shown in the drawings, by way of example, in a form suitable for loading and securing a motor vehicle trailer supported by wheels at only one end, on a railway flat car. As shown in Fig. 1, a trailer comprising a body portion 15, normally supported at the rear by two longitudinally spaced pairs of wheels 16, is mounted on a railway flat car 17 for transportation. The forward end of body 15 has an inset 15a at the bottom thereof and is adapted to extend over the rear portion of a motor tractor, the term "tractor" being used herein to include any mobile power device for moving a trailer such, for example, as the one illustrated in Fig. 2. A draw pin 18 is provided on said body for attachment to what is commonly called the fifth wheel on the tractor, whereby the latter may transport the trailer along a highway.

The over-all height of the railway car and trailer is, of course, limited by the minimum headroom under overhead bridges and tunnels along the railroad. It is desirable, therefore, to support the trailer as near to the ground or railway car floor as is compatible with safe movement of the same on a highway in order that a maximum load may be carried. It is also desirable to mount the body of the trailer or other vehicle as low as practicable for the purpose of lowering the center of gravity of the load to thus minimize any swaying or upsetting moments. In the form of trailer illustrated, this result is attained by mounting the wheels 16 on each side of the trailer on a rocking beam 19. Body 15 rests on a chassis frame which is in turn secured to and supported by a trunnion tube or axle 19a which is journaled in beams 19 at points below the axles of wheels 16. Such construction is common on trailers now in use and is accordingly not shown and described in detail. Another advantage in employing said rocking beam construction lies in the fact that spring suspension which would facilitate swaying motion of the body is dispensed with, thereby rendering it practicable to attach adapters, hereinafter described, to trunnion tube 19a.

As noted above, trailer 15 is adapted to be connected to and drawn along a highway and on and off car 17 by a motor tractor through the medium of draw pin 18 coacting with a fifth wheel on the chassis of said tractor. A novel fifth wheel construction whereby the forward end of

body 15 may be lifted clear of supporting and locking means therefor to be hereinafter described is illustrated (Figs. 2 and 3) as comprising a bed plate 20 securely mounted on or constituting a part of the chassis 21 of a motor tractor, only the rear portion of the latter being shown. A second plate 22 is pivotally secured at the after edge thereof to plate 20 by any suitable means, such as pins 23, and has a pair of laterally spaced bearing brackets 24 formed integrally therewith which have high points adjacent the center of said plate 22 for rotatably supporting a cross-shaft 25. Mounted on said shaft for pivotal movement therewith is a platform plate 26 which is adapted to make direct contact with a plate 27 secured to the bottom of trailer body 15 and surrounding draw pin 18.

Platform 26 is eccentrically mounted on shaft 25 so as to assume a position inclining away from body 15 when truck 21 is backed underneath the same and is provided with a slot 28 that gradually decreases in width to guide draw pin 18 into some suitable gripping device such as crab claws 29. The latter are adapted to be held in closed position about pin 18 by means of a wedge 30 to thereby pivotally connect the trailer to the tractor. It will be noted that by the cooperation of plate 27 with the inclined platform 26 the forward end of trailer 15 will be raised several inches when the tractor is backed into connecting position. For the purpose of raising the trailer a greater amount than it is feasible to do in the above manner, plate 22 is constructed with the forward end thereof bending upwardly away from bed plate 20, and suitable means such as a fluid pressure motor are provided for pivoting plate 22 about pins 23 to thereby raise the entire fifth wheel structure and hence body 15.

In the embodiment illustrated, the fluid pressure motor employed comprises a fluid pressure cylinder 31 in which a piston carrying a piston rod 32 is adapted to be reciprocated. A cross bar 33 is pivotally secured to the outer end of rod 32 and has a roller 34 mounted on each end thereof to engage the top and bottom of plates 20 and 22, respectively. Thus, as rod 32 and rollers 34 are moved to the right (Fig. 3) by fluid pressure in cylinder 31, plates 22 and 26 will be raised to any desired point between the full and dotted line positions thereof. Motor 31, 32 may be connected to a suitable fluid pressure pump (not shown) adapted to be actuated by the tractor motor, such pumps being now in common use on motor driven vehicles.

The invention also comprehends novel apparatus for safely securing vehicles and containers such as trailer 15 on a railway car 17, which means are so constructed as to be readily and detachably mounted on standard railway cars without interfering with the utility of said cars for other purposes and to permit easy and quick loading of the trailer onto said cars from any point on a platform (not shown) of substantially the same height as and located at either side of car 17. In lieu of a platform, the railway tracks may be sunk below the surface of the ground so that the railway car floor and the ground will be on the same level, thereby affording a large space for operating the motor vehicle. In one embodiment illustrated, the novel means for securing the rear end of the trailer to the car comprise a circular bed plate 35 (Figs. 5 to 7) adapted to lie flat on car 17 and be secured thereto by a plurality of arms 36 having downwardly projecting portions 37 at the outer

ends thereof extending into stake pockets 38 on the side of said car and held in position by means of suitable clamps 39. Arms 36 may be adjustably secured to plate 35, if desired, in order that the turntable may be secured in any suitable position on car 17 relative to stake pockets 38.

In order that the forward end of the trailer may be readily swung into position after the rear of the same is on car 17, a turntable comprising a circular platform plate 40 is rotatably secured to bed plate 35 by means of bolt 42 extending through the hubs of said plates. Turntable plate 40 may, if desired, be eccentrically mounted on pivot 42, but the latter is preferably centrally located and said plate is held against any tipping forces and in close sliding engagement with bed plate 35 by means of a plurality of brackets 43. Mounted on or formed integrally with plate 40 are a pair of parallel tracks or supporting members 44, the distance between the outer sides of said tracks being such that the wheels of any vehicle desired to be transported on car 17 will straddle said tracks. Each of the tracks or ramps 44 has an inclined surface 44a at the forward end thereof, a central horizontal surface 44b, and a notch 44c formed by an overhanging, forwardly extending lip 44d at the after end thereof.

In order to prevent scuffing of the tires in the process of loading the trailer onto the car and to prevent any swaying motion while en route as a result of the resiliency of said tires, it is desirable to support the trailer by means other than said tires while the trailer is in transit. Means are accordingly provided on the body or chassis of trailer 15 for cooperating with tracks 44 to raise wheels 16 clear of car 17 and hold the trailer against movement in any direction relative to the turntable. Such means, as shown, are constituted by adapter blocks 45 securely attached to and extending downwardly from the trailer chassis, such as from channel beams 46, and preferably surrounding trunnion tube 19a. The lower faces of blocks 45 have an inclined surface 45a and a horizontal surface 45b adapted to cooperate with surfaces 44a and 44b, respectively, of track 44. The after end of said blocks terminate in lips 45c which are adapted to mesh with notches 44c (Fig. 6) and thereby hold the trailer body against any tipping or upward movement and against rearward movement. It will, of course, be understood that blocks 45 and ramps 44 may be so proportioned that when the same are interlocked for securing vehicle 15 in position, the body may be raised only enough to take part of the weight off the tires, or, if desired, said blocks and ramp may serve only as securing means.

For the purpose of properly aligning tracks 44 and blocks 45 as the vehicle is backed onto the turntable and for holding the after end of said vehicle against lateral movement on car 17 while in transit, suitable guiding and aligning means are provided on said tracks and blocks. Such means as illustrated comprise guide members 47 secured to or formed integrally with the outer sides of tracks 44. Said members extend forwardly beyond the edge of plate 40 and curve inwardly so that when the same are engaged by the trailer wheels 16, the turntable will be turned into alignment and the trailer will be guided to its proper position. Flange member 47 also extends upwardly and flares outwardly from surfaces 44a and 44b, thereby serving to guide blocks 45 into proper engagement with tracks 45 and in

addition hold the trailer against lateral movement. For this same purpose, some outwardly flaring curved flanges 48 may be extended downwardly from the inner sides of blocks 45 in the manner best illustrated in Fig. 7.

To prevent forward movement of the trailer relative to the turntable after blocks 45 are in mesh with tracks or supporting members 44, suitable locking means are provided, one form of which comprises locking members 49 pivotally mounted in slots which are centrally located in tracks 44. The free ends of members 49 are arcuate and when the same are in raised position as seen in Fig. 6, said members engage similar curved surfaces at the forward lower corners of blocks 45. Locking members 49 may be normally held in operative position by suitable resilient means or, in the form shown, by gravity through the medium of levers 50 which extend through openings in ramp blocks 44 and project into slots in said locking members. Levers 50 are keyed to a common shaft 51 and one of said levers is provided with a long handle portion 50a which is sufficiently long and heavy to normally hold members 49 in raised or locking position. Thus, when the trailer is backed onto the turntable, members 49 are automatically depressed by engagement with blocks 45 and are automatically moved to operative position as soon as said blocks are in proper mesh with supports 44.

Secured to handle 50a is a small catch 52 which engages an angle bracket 53 on plate 35 when the turntable is in a fore and aft or transit position on the car (Fig. 5). Locking means are thus provided which render it impossible to raise handle 50a and thereby release locks 49 when a trailer is in transit on a railway car.

Gravity controlled locking means for holding turntable 40, 44 in a fore and aft or transit position are also shown (Fig. 9) as comprising a lock bolt 54 pivotally mounted on bed plate 35 and adapted to extend into a radial slot in plate 40. To insure bolt 54 falling toward locked position whenever the same is released, the pivoted end thereof is provided with a projecting portion 55 which engages plate 35 and prevents said bolt being raised beyond a vertical position. If desired, suitable resilient means may be provided for normally maintaining bolt 54 in locking position. A pair of angle brackets 56 and 57, having aligned eyes therein, may be secured to bolt 54 and plate 40, respectively, to accommodate a lock 58 such as, for example, a padlock for positively holding said bolt in locking position.

After the rear of the trailer has been backed onto turntable 40, 44 and locked in position, the forward end thereof is swung into position by a tractor or by other suitable means to hereafter appear, the rear of the trailer being supported by and pivoting with the turntable. In order to permit the use of the tractor in a normal manner for positioning the front end of the trailer and thereby reduce the time required for loading as well as eliminate the necessity for specially designed loading equipment, novel means are provided for supporting and securing said front end on the car, which means will not interfere with the necessary movements of the tractor. As shown, such means comprise a pair of supporting blocks 59 joined by webs 60 and secured to car 17 by means of arms 61, which extend into stake pockets 38 and are made secure by clamps 39. Arms 61 may be made adjustable and U-bolts 62, which extend through the floor

of car 17 and encompass web 60, may be employed as securing means, if desired.

Novel locking means which are rendered operative by the weight of the vehicle and which are incapable of being released while said vehicle is in loaded position on the car are provided in combination with supporting blocks 59 for holding the forward end of body 15 against movement while the same is in transit. In the illustrated embodiment, each of the blocks 59 is provided with a slot 63 in which a locking pawl or member 64 is pivotally mounted on a pin 65. The outer end of pawl 64 (Fig. 11) has an upwardly projecting portion 66, said portion having a substantially vertical wall 67 adapted to engage the side of trailer body 15 and a curved or cam surface 68 adapted to be engaged by the lower corner of body 15 as the front end thereof is swung into position to thereby depress the outer end of member 64. To insure that the outer end of member 64 will be moved to raised or locking position when body 15 is resting on blocks 59, said member is provided with a nib 69 which extends above the upper surface of said blocks whenever the outer end 66 of member 64 is depressed. Thus, when body 15 is lowered into engagement with nib 69, the weight thereof is effective to pivot member 64 to locking position. For additional assurance, a weighted portion 70 may be provided on the inner end of member 64 to hold the same in locked position by gravity or a suitable spring may be provided for this purpose. If desired, the raised portion 66 of pawl 64 may be caused to extend into a recess 71 in the side of body 15 to thereby hold the latter against longitudinal, as well as lateral, movement.

In addition to the foregoing locking means, any moving or shifting of the forward end of the vehicle or container may be prevented by the provision of a pair of lugs 72 mounted on and projecting downwardly from the bottom of body 15 and adapted to project into recesses 73 in blocks 59. If desired, upwardly projecting lugs 45 complementary to recesses formed in body 15 may be provided on blocks 59.

Gravity or spring controlled locking means may also be provided for holding the front end of the trailer against upward movement. One suitable form of such means includes a pawl 74 pivotally mounted at 75 on a forwardly extending portion 76 of web 60. Said pawl is provided with a hooked portion at the upper end thereof which is adapted to engage a bracket 77 secured to body 15. Preferably, the weight of pawl 74 is so distributed with respect to pivot 75 that it normally assumes an operative or locking position, as indicated by full lines in Fig. 12. The outer edge of bracket 77 is curved upwardly to insure a good grip by pawl 74 and to cooperate with the curved upper end of said pawl for moving the latter to the dotted line position (Fig. 12) when the trailer is lowered into position on blocks 59 thereby rendering the locking operation of pawl 74 automatic. If desired, an arm 78 may be secured to said pawl adjacent the floor of car 17 for engagement by the rear wheels of the tractor so that said pawl may be thus automatically disengaged from catch 77 when the trailer is being removed from car 17. A bracket 79 on web 60, having an eye adapted to register with an eye in pawl 74 when the latter is in latched position may be provided for the accommodation of a lock 80, if desired. Locks similar to lock 74, 77 may also be employed at the side of body 15.

A novel method of loading trailer 15 on railway flat car 17 comprehended by this invention consists in drawing the former onto a loading platform (not shown) adjacent either side of said car by means of a tractor 21, the trailer being pivotally connected thereby by means of draw pin 18 and crab claws 29. Turntable 40, 44 is turned to a suitable angular position relative to the center line of car 17 and the trailer backed toward the same. Guiding flanges 47 and 48 insure proper alignment and full width engagement of blocks 45 with ramps 44. Blocks 45 first engage locking members 49, depressing the same, and thereafter engage tracks or ramps 44. After inclined surfaces 44a and 45a engage, continued backward movement of the trailer toward the turntable results in said trailer being lifted by the motive power of the tractor, thereby transferring the support of the load from wheels 16 to supporting members 44. Wheels 16 need only be raised sufficiently to relieve the same of the load, a small fraction of an inch being sufficient or, as pointed out above, said wheels may remain in contact with the turntable. Further backward movement of the trailer brings lip 45c into mesh with notch 44c, whereupon members 49 are automatically moved by gravity to locking position. It will be noted that blocks 45 may be dispensed with, if desired, and trunnion or axle 19a caused to directly engage tracks 44 and fit into a suitably shaped notch 44c therein.

The rear of the trailer being thus locked in position on turntable 40, 44, the front wheels of the tractor are cramped and the forward end of said trailer swung to a position over supporting blocks 59 by backing movement of said tractor. It may, however, be found desirable to cramp the wheels of the tractor and start it turning as soon as body 15 is supported by the turntable, i. e., somewhat before blocks 45 mesh completely with members 44, it being understood that plate 40 may be wide enough to accommodate the wheels of the vehicle. Preferably, the portions 66 of pawls 64 extend above the bottom of the trailer body when the front end of the latter is supported by the tractor. When this is the case, the trailer body engages cam surface 68 of the pawl on the near side and depresses the same until said body is swung to a position vertically above its normal in transit position, i. e., into engagement with surface 67 of the pawl 64 on the far side of the support. Both of the pawls 64 are then held in raised position by weights 70 and serve as means for indicating the proper lateral position of the trailer body as well as means to guide lugs 72 into recesses 73.

After the front of body 15 is positioned between pawls 64, 66, crab claws 29 are released by withdrawing wedge 30 and the tractor is slowly driven from beneath the trailer. Plate 27 slides down inclined plate 26 and the trailer body is gradually and easily lowered into position on blocks 59 as the tractor moves away. As body 15 moves downwardly, pawl 74 and bracket 77 cooperate as above noted to automatically lock said body against vertical movement and the weight of the body on nibs 69 positively holds pawls 64 in locking position.

In removing the trailer from car 17, tractor 21 is backed under the forward end thereof from a platform at the side of the car, the rear tractor wheels engaging arm 78 to move pawl 74 out of engagement with bracket 77. The cooperation of plates 26 and 27, as the tractor backs under body 15, is effective to lift the trailer body several

inches, and crab claws 29 move into engagement with draw pin 18. If the normal height of the platform 26 is not sufficient to raise lugs 72 clear of blocks 59, hydraulic ram 31, 32 may be employed to raise the trailer body to the desired height, in the manner heretofore pointed out. When lugs 72 are clear of recesses 73, the pawl 64 is depressed and the outer end of the tractor driven forward onto the platform to swing body 15 with turntable 40, 44 so that said body will be directed off car 17. Handle 50a is then raised to depress locks 49 and release blocks 45 for forward movement, whereupon the trailer may be drawn off the turntable and onto the highway for transportation by the tractor to its ultimate destination.

If desired, turntable 40, 44 and supporting block 59 may be readily and quickly removed from car 17 by removing clamps 38 and 62 to thereby render said car available for other uses in its original condition.

If desired, the forward end of the trailer may be swung from the loading platform onto car 17 and vice versa on a pair of extensible and retractable props 80a secured to body 15 in any suitable manner and having castors 80b on the bottoms thereof. Props 80a are preferably of the hydraulic type, and any suitable pump means, such as a hand pump (not shown), may be provided for actuating the same to raise and lower body 15. Other suitable means such as a cable and snatch blocks, a draw or push bar used in conjunction with a tractor, a dolly or a mobile jack may also be employed for swinging the one end of a vehicle on and off car 17 while the other end is supported by turntable 40.

When spring suspended vehicles are equipped for loading the same on railway cars in accordance with the present invention, it is desirable to support the load on the turntable independently of the vehicle springs in order to minimize swaying tendencies and to insure the support of the vehicle on an even keel. Accordingly, as shown in Figs. 3 and 4, adapter blocks 45' may be secured to the vehicle chassis, such as to channel beams 81, either ahead of or behind axle 82. The lower portions of blocks 45' are constructed in the same manner as the lower portion of blocks 45 for cooperation with ramps 44 and extend below the vehicle axle. Guys such as rods 83 may be provided for rigidly securing blocks 45' in position.

In a spring suspended vehicle, the chassis and hence the lower ends of blocks 45' will, by reason of the flexing of the vehicle springs under load, be held closer to the ground when said vehicle is loaded than when the same is empty. To correct for this variable height which is dependent on the vehicle load and to thus insure engagement of adapters 45' with inclined surfaces 44a and hence a lifting of the vehicle irrespective of its load condition, said inclined surfaces are extended to a point quite near the surface of turntable plate 40. It will also be noted that since blocks 45' are secured to the vehicle body and support the same independently of the vehicle springs, the body of said vehicle will always be maintained on an even keel when the same is supported on ramps 44 even though said body is carrying a heavier load on one side than on the other.

In the operation of loading a self-contained motor vehicle, as distinguished from a trailer which is adapted to be transported by means of a detachable tractor, said vehicle is backed under

its own or other power onto turntable 40, 44 in the same manner as a trailer, and is automatically locked in position thereon as above described. Thereafter, the forward end of the vehicle may be swung onto the railway car by any suitable means such as a dolly or a mobile jack.

In the normal operation of a railway train, the cars are subjected to severe shocks, particularly in starting and stopping, thereby causing a shifting of loose merchandise and placing great strains on the securing means for other merchandise. This often results in the mutilation of or injury to both merchandise and equipment. In order to minimize said shifting and prevent injury to merchandise and vehicles being transported in accordance with this invention, the novel supporting and securing means above described may be provided with shock absorbing means whereby the entire vehicle is permitted to move under the control of yielding means, such as spring buffers. One form of turntable employing such means is illustrated in Figs. 14 and 15, wherein ramp 44', similar in construction to ramps 44, above described, is slidably mounted for fore and aft movement on plate 40 by means of angle bars 84 which extend over flanges 85 on each side of said ramp and are secured to plate 40 by any suitable means, such as rivets 86. Said longitudinal sliding movement of ramp 44' is limited by suitable blocks 87 also riveted to plate 40 adjacent the ends of bars 84.

In the form shown, the shock absorber means associated with ramp 44' comprises a pair of springs 88 and 89 interposed between lugs 90 and 91, respectively, which are secured to plate 40, and a lug 92 secured to or formed integrally with said ramp. Said springs are normally balanced and tend to hold ramp 44' in a central position, springs 88 serving to gradually absorb and dissipate any shock tending to shift the vehicle or merchandise therein in a forward direction, and spring 89 serving to dissipate the force of a shock acting in the other direction.

When the turntable of Fig. 14 is employed, it will be noted that recesses 73 in the front support blocks 49 must be elongated to permit the necessary longitudinal movement of body 15 together with turntable 40, 44' when the same are subjected to sudden shocks. Likewise, the vertical wall portion 67 of pawls 64 must be flush with the side walls of body 15 in lieu of projecting into recesses 71, and hold-down locks 74, 77 must be placed at the side of the vehicle instead of being centrally located, as shown in Fig. 12.

The engaging surfaces of body 15 and blocks 59 may have relatively high coefficients of friction in order that the weight of the vehicle on said blocks will frictionally resist any longitudinal movement thereof and hence operate as shock absorbing means and as means for damping the action of springs 88 and 89 after a shock has been experienced. Shock absorbing means may also be employed in conjunction with front supports 59, if desired, such as by providing suitable buffer springs in recesses 73 in front of and behind lugs 72 when said recesses are elongated, as above noted.

There is thus provided simple and practical means and method of quickly loading and securing merchandise containers, and more particularly mobile containers, such as motor vehicles, trailers, and the like, on railway cars for quick and safe transportation thereon, said means being such that by the use of inexpensive adapters, all automotive equipment of suitable size which is

now in use may be loaded and transported on existing railway equipment. A more economical mode of transportation is thus rendered feasible whereby the merchandise is subjected to minimum handling and the possibilities of injury to merchandise and equipment are greatly reduced.

Although only a single embodiment of the invention has been illustrated and described in detail, it is to be expressly understood that the same is not limited thereto but that various changes may be made in the design and arrangement of parts illustrated, as will now be apparent to those skilled in the art, without departing from the spirit and scope of the invention. For example, in some types of motor vehicles and trailers, adapter blocks 45 may be secured directly to the axle housings, or said adapters may be dispensed with and the axle housings themselves be caused to directly contact and slide onto ramps 20 44. For a definition of the limits of the invention, reference will be had primarily to the appended claims.

What is claimed is:

1. In apparatus for supporting a road vehicle 25 on a railway car, a turntable mounted on the latter, means on said turntable for supporting one end of said vehicle, whereby the other end of said vehicle may be moved in an arc about the pivot of said turntable while supported independently thereof, means mounted on said car 30 for supporting said other end of said vehicle independently of said turntable, and means co-acting with said last-named means for holding said other end of said vehicle against movement in at least one direction.

2. In apparatus for supporting a road vehicle on a railway car, a turntable mounted on the latter, means on said turntable for supporting one end of said vehicle, means mounted on said car for supporting the other end of said vehicle 40 independently of said turntable, and means held in operative position by the weight of said vehicle for holding the latter against movement in at least one direction on said supporting means.

3. In apparatus for supporting a road vehicle 45 on a railway car, a turntable mounted on the latter, means on said turntable for supporting one end of said vehicle, whereby the other end of said vehicle may be moved in an arc about the pivot of said turntable while supported independently thereof, means mounted on said car for supporting said other end of said vehicle independently of said turntable, means coacting with said last-named means for holding said other end of said vehicle against movement in a 55 horizontal plane, and locking means for holding said vehicle against vertical movement.

4. The combination with a vehicle normally supported by wheels at one end, of a turntable comprising means for supporting said end of the vehicle, whereby the other end of said vehicle 60 may be moved about the pivot of said turntable while supported independently thereof, and means for supporting said other end of said vehicle, including means engaging the vehicle for holding the same against movement with said 65 turntable.

5. In apparatus for transporting a vehicle on a railway car, means for supporting the forward end of said vehicle independently of any wheels 70 mounted thereon, and locking means adapted to cooperate with the vehicle body for holding said vehicle against substantial movement in at least one direction on said supporting means, said

locking means being held in locking position by the weight of said vehicle.

6. In apparatus for supporting a road vehicle on a railway car, rotatable means for supporting one end of said vehicle independently of the wheels thereon, releasable locking means for holding said vehicle on said supporting means, and means for rendering said locking means non-releasable when said first-named means is in a predetermined position.

7. In apparatus for transporting a road vehicle on a railway car, rotatable means, means on said rotatable means for supporting one end of said vehicle independently of the wheels on the latter, stationary supporting means for the other end of said vehicle mounted on the car, and means 15 coacting with said stationary means for holding the vehicle against movement relative thereto.

8. In apparatus for transporting a road vehicle on a railway car, rotatable means for supporting one end of said vehicle independently of the wheels on the latter, stationary supporting means for the other end of said vehicle, and locking means mounted on said stationary supporting means and rendered non-releasable by the weight 25 of the vehicle for holding the latter against movement on said stationary supporting means.

9. In apparatus for transporting a road vehicle on a railway car, a turntable on said car, means on said turntable for supporting one end of said vehicle, means stationarily mounted on said car for supporting the other end of said vehicle, and yielding means resisting movement of said vehicle relative to said turntable.

10. A method of loading a motor vehicle trailer on a railway flat car which consists in pivotally connecting one end of said trailer to a motor driven tractor, backing the other end of the trailer onto said car from the side of the latter by means of the motive power of said tractor, 40 lifting said other end of the trailer upon a rotatable support by means of said motive power and the co-action of a part of the trailer with inclined plane means on said rotatable support, swinging said first-named end about the pivot of said rotatable support by the backing movement of said tractor, disconnecting said tractor and trailer, and driving the tractor from beneath said first-named end of the trailer to lower the latter onto a support therefor on the car.

11. A method of loading a motor vehicle trailer on a railway flat car which consists in pivotally connecting one end of said trailer to a motor driven tractor, backing the other end of the trailer onto said car from the side of the latter by means of the motive power of said tractor, 55 lifting said other end of the trailer upon a rotatable support by means of said motive power, swinging said first-named end of the trailer about the pivot of said rotatable support, and lowering said first-named end upon a support therefor on the car.

12. A method of loading a trailer on a railway car which consists in backing the rear end of the trailer onto said car from the side of the latter by means of detachable power means, lifting said rear end upon a rotatable support by means of the motive power of said power means, and swinging the front end of the trailer about the pivot of said rotatable support and onto a support 70 therefor on the car.

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