

Aug. 23, 1938.

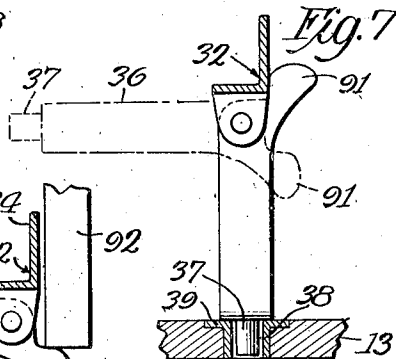
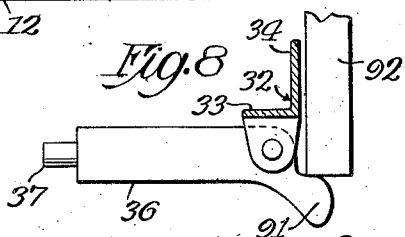
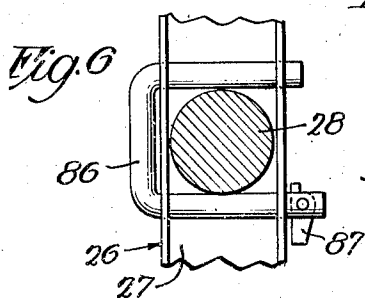
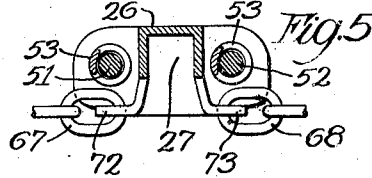
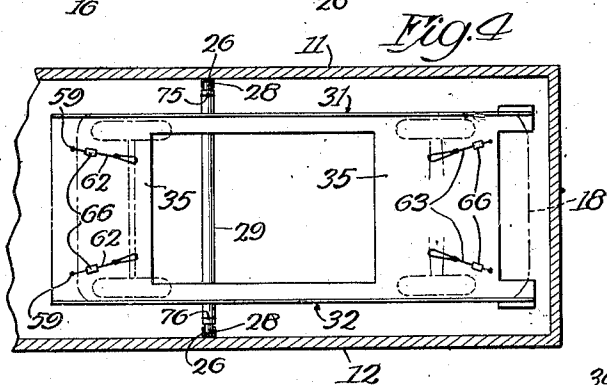
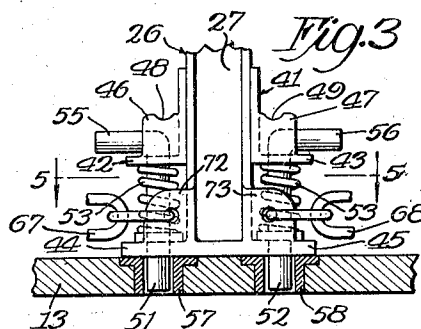
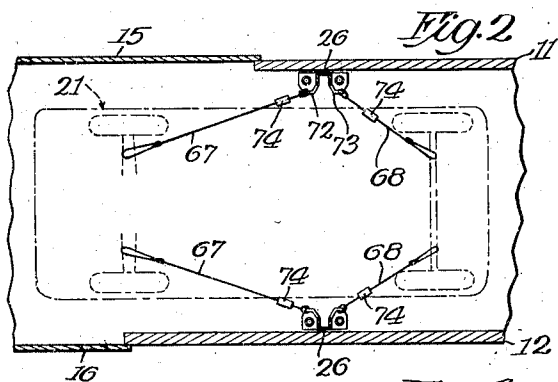
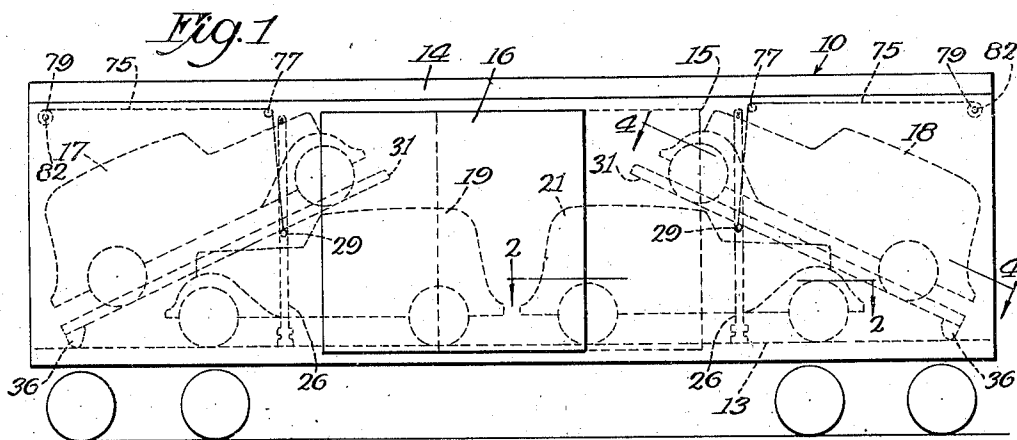
S. J. STRID ET AL

2,127,965

LOADING DEVICE

Filed Sept. 20, 1934

3 Sheets-Sheet 1



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Fig. 9

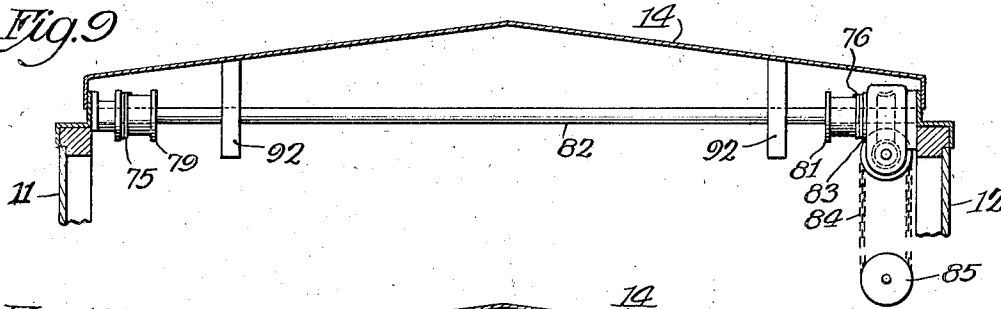
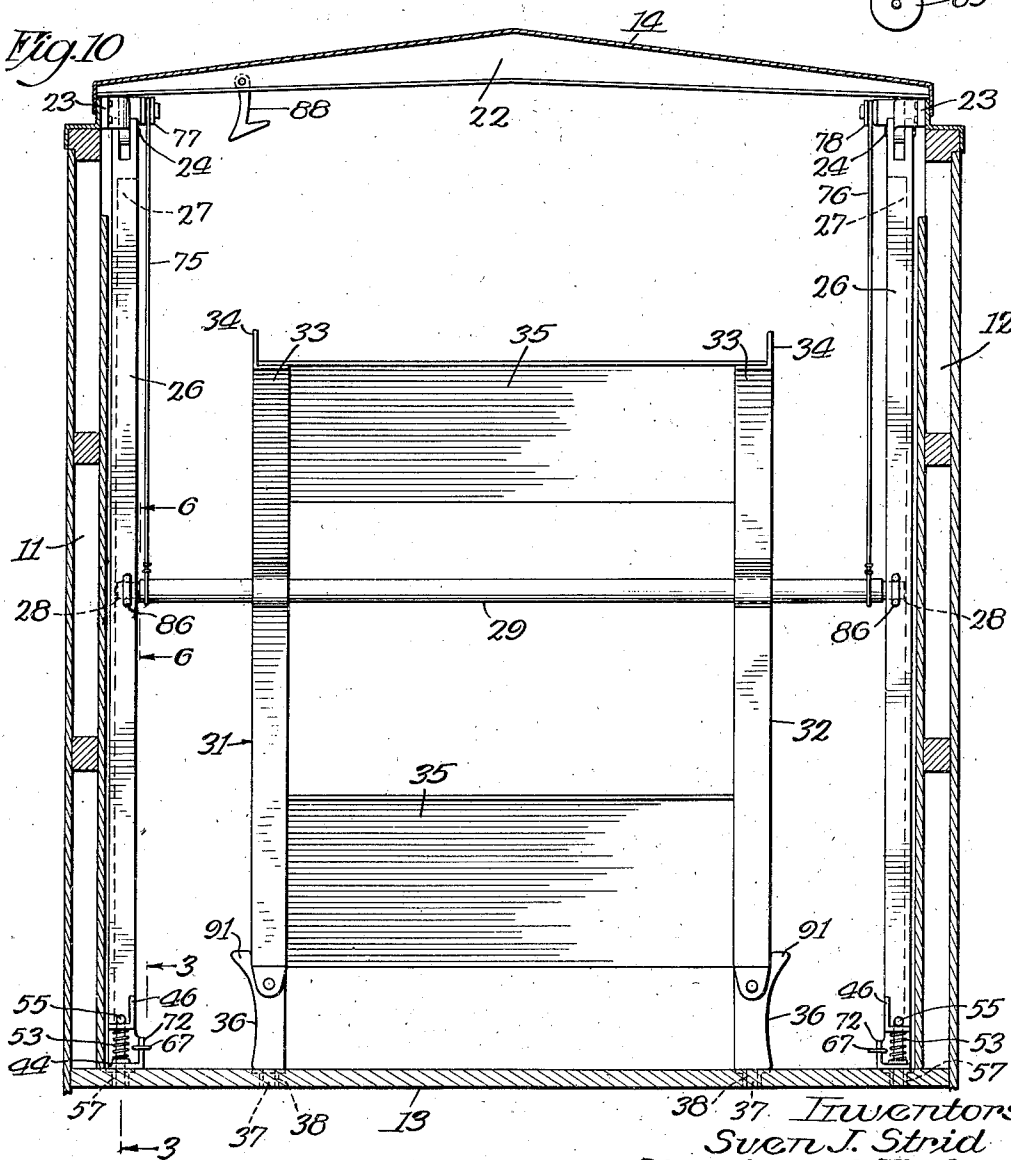


Fig. 10



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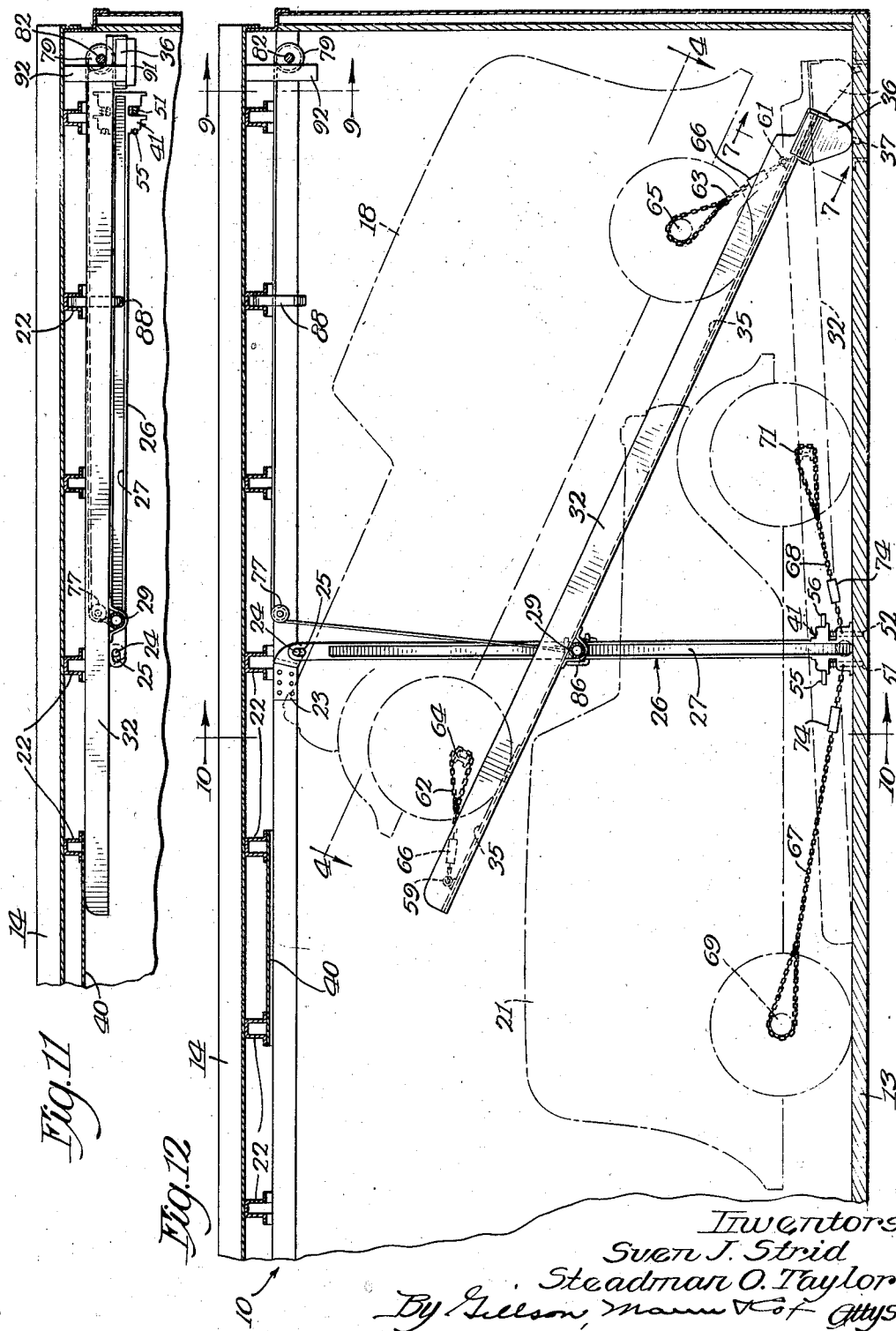
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UNITED STATES PATENT OFFICE

2,127,965

LOADING DEVICE

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16 Claims. (Cl. 105-368)

This invention relates to loading devices, and, more particularly, to devices for anchoring automobiles in conveyances during shipment.

One of the objects of the invention is the provision of new and improved means for securing automobiles in freight cars, that are permanently connected to the shipping conveyance and that are provided with novel means for moving the parts to an inoperative position in the top of the car when not in use.

A further object of the invention is the provision of new and improved mechanism for anchoring automobiles during shipment that is provided with novel means for raising and lowering the mechanism and for causing the automatic folding and unfolding of the parts during the raising and lowering operations, respectively.

A further object of the invention is the provision of new and improved mechanism for anchoring automobiles in freight cars that is provided with novel means for moving the mechanism to inoperative position adjacent to the roof of the car by the manual operation of a single device.

A further object of the invention is the provision of new and improved means for anchoring the automobiles on the floor of a railway car loaded with automobiles, certain of which are semi-decked—that is, supported in an inclined position within the car.

Other objects of the invention are the provision of new and improved mechanism for anchoring automobiles in a shipping conveyance that is simple in construction, inexpensive to manufacture, which may be installed at a minimum of time and expense in the conventional freight car, efficient in use and that may be readily moved from operative to inoperative position, and vice versa.

Other and further objects and advantages of the invention will appear from the following description, taken in connection with the accompanying drawings, in which:

Fig. 1 is a side elevation of a freight car showing the invention in position therein, the car being shown more or less diagrammatically;

Fig. 2 is a section on the line 2-2 of Fig. 1;

Fig. 3 is a section on the broken line 3-3 of Fig. 10;

Fig. 4 is a section on the line 4-4 of Figs. 1 and 12;

Fig. 5 is a section on the line 5-5 of Fig. 3;

Fig. 6 is a section on the line 6-6 of Fig. 10;

Fig. 7 is a section on the line 7-7 of Fig. 12;

Fig. 8 is a cross-section of the outer end of one

of the supporting members showing the extension in folded position;

Fig. 9 is a section on the line 9-9 of Fig. 12;

Fig. 10 is a section on the line 10-10 of Fig. 12;

Fig. 11 is a longitudinal section of a portion of the top of the car, showing the invention in folded position; and

Fig. 12 is a longitudinal section of a portion of one end of the railway car showing the invention in operative position for anchoring two automobiles, the latter being shown in dotted lines.

Referring now to the drawings, the reference character 10 designates a railway car which is selected for illustrative purposes for disclosing a shipping conveyance on which the anchoring mechanism is adapted to be employed. The car illustrated is shown more or less diagrammatically and is a conventional railway freight car having the side walls 11 and 12, the floor or bottom wall 13 and the roof or top wall 14 (see Fig. 10). The side walls are provided with doors 15 and 16 off-set from each other and from the transverse center line of the car, as shown in Fig. 1 and 2. This type of car is selected because the arrangement of the doors facilitates the placing of the automobiles in position for shipment. In the form of construction shown, provision is made for anchoring four automobiles within the car. The automobiles 17 and 18 (see Fig. 1) at the ends of the car are semi-decked—that is, they are supported in inclined position in order that two other automobiles 19 and 21 may be positioned beneath the elevated ends thereof.

The number of automobiles that may be secured in a single freight car will depend of course upon the length of the car, and upon the length of the automobiles being shipped. Since the arrangement of the automobiles within the freight car is the same at both ends of the car, the mechanism for anchoring the automobiles at one end only of the car need be described.

Secured to each side of the car adjacent to car-lines 22 is a plate 23 which is provided with a pivot 24 (see Fig. 11) that engages a slot 25 in the upper end of a guide member 26 for pivotally connecting the guide member to said plate. Each of the guide members 26 is provided with a guideway 27 which in the form of construction shown is a channel (see Figs. 4-5) within which slides the reduced end 28 of a supporting rod 29. The supporting rod 29 is rigidly connected to supporting members 31 and 32 (see Fig. 10) which are preferably, though not necessarily, angular in cross section and so arranged that their laterally

extending flanges 33 will form a support for an automobile and their vertical flanges 34 will form a guide for preventing the automobile from moving laterally on the flanges 33 during shipment. The laterally extending flanges 33 may be and preferably are connected together by spacers 35 that hold the supporting members 31 and 32 in proper spaced relation.

In order to provide a sufficient clearance for the lower automobile 21 (see Fig. 12), the supporting members 31 and 32 are provided with projections in the form of runners or slide members 36 which hold the rear ends of the supporting members 31 and 32 above the floor of the car the desired distance. The runners or slide members 36 are preferably pivotally connected to the supporting members 31 and 32 by pivots extending longitudinally of the supporting members so that these projections may be turned laterally to inoperative position when the parts are stored in the top of the car as will presently appear.

In order to prevent lateral movement of the runners on the floor of the car, they are provided with pins 37 (see Fig. 7) which are adapted to engage guide slots 38 in the floor of the car. A metal guide 39 having slots 38 therein is preferably embedded in the floor of the car for accommodating the pins 37.

Suitable means are provided for anchoring the lower ends of the guide members 26 to the floor of the car. In the form of construction shown, which is by way of example only, the lower ends of each of these members has rigidly attached thereto an anchor member 41 (see Fig. 3) having the upper flanges 42 and 43 and the lower flanges 44 and 45 extending laterally therefrom. The flanges 42 and 43 have along one edge the upstanding flanges 46 and 47 which are provided with recesses 48 and 49. Spring-pressed bolts 51 and 52 extend downwardly through aligned openings in the flanges 42, 44, and 43, 45, respectively. Springs 53 are provided between the flanges for normally projecting the bolts 51 and 52 downwardly. The bolts 51 and 52 are provided with laterally extending shanks or handles 55 and 56, respectively, which are adapted to be turned and seated in the recesses 48 and 49 for holding the bolts in retracted position. The lower ends of the bolts 51 and 52 are adapted to engage openings in the floor of the car, which in the form of construction shown, are provided by the metal sockets 57 and 58, which are secured in the floor of the car.

Suitable means are provided for anchoring the automobile 18 on the supporting members 31 and 32. As shown, each supporting member is provided adjacent its ends with eye members 59 and 61 to which the anchor chains 62 and 63 are connected.

The chains are attached to the axles 64 and 65 of the car in the usual manner. The chains 62 and 63 are each provided with the usual yielding or spring link 66 which will permit a slight yielding movement to compensate for sudden movement of the railway car incident to its operation.

The cars 19 and 21 are secured in position by the anchor chains 67 and 68 (see Figs. 12 and 2) which are attached to the axles 69 and 71 and extend diagonally outwardly to the anchor member 41 and are secured to the flanges 72 and 73, respectively. They are so secured to the axles that they will not slide along the same, and be-

ing arranged diagonally, they will not only prevent movement of the automobile longitudinally of the car, but they will also prevent lateral movement relative thereto.

The chains 67 and 68 are each provided with the conventional yielding link 74 for permitting slight movement of the automobile relative to the freight car during buffing or other sudden movement of the freight car incident to its operation.

Appropriate means are provided for elevating the inner ends of the supporting members 31 and 32 for elevating the inward end of the automobile and for moving the parts to inoperative position. In the form of construction shown, the cables 75 and 76 (see Figs. 10 and 12) are employed for this purpose. They are attached to the ends of the supporting rod 29 and are trained over suitable pulleys 77 and 78 and wound on drums 79 and 81 (see Fig. 9), which are rigidly mounted on the shaft 82. The pulleys 77 and 78 are offset toward the end of the car from the pivots 24 for causing the folding of the guide members when they are released and the drums 79 and 81 are rotatable to tension the cables 75 and 76.

The shaft 82 is supported at the end of the car adjacent the roof and is adapted to be operated in any suitable manner. In the form of construction shown, a worm and gear mechanism 83 is employed for this purpose. The worm is adapted to be turned by an endless chain 84 which engages a sprocket on the worm shaft and which extends around an idler pulley 85 secured to the end wall of the car.

In the operation of the device, assuming that the car is empty and that it is desired to load the same, the supporting members 31 and 32 are lowered onto the floor of the car, as shown in dotted lines in Fig. 12, the automobile 18 is moved into position onto the supporting members and is anchored thereon by the chains 62 and 63. The drums 79 and 81 are now operated by the chain 84 through the worm and gear mechanism 83 for elevating the inner ends of these supporting members.

Since the inner ends of the supporting members are elevated substantially vertically, it is necessary that the outer ends slide along the floor. This movement is provided for by the slots 38. When the automobile has been elevated to the required height, the rod 29 is secured to the guide members 26, thus relieving the strain on the cables 75 and 76. As shown, this is accomplished by the use of U-bolts 86 (see Fig. 6) which are adapted to extend through suitable openings through the flanges of the guide members 26, and are held in position by the gravity latch 87. The worm gear 83 is non-reversible by the load so that the drums will be held in adjusted position for holding the supporting members elevated while the U-bolts are being placed in position. After the U-bolts are applied the tension on cables 75 and 76 may be released. In order to accommodate automobiles of various heights, the flanges of the guide members 26 may be provided with a series of openings for receiving the U-bolts 86 at various heights from the floor of the car.

After the automobile 18 is placed in shipping position within the car, automobile 21 (see Fig. 12) is placed in position beneath the elevated end of the car 18 and is anchored therein by the chain 67 and 68.

In unloading the automobiles, the operation is

reversed. After the car has been unloaded, the anchoring devices may be moved to inoperative position in the following manner: The drums 79 and 81 are operated by the chain 84 for elevating the inner ends of the supports 31 and 32 until the same come in contact with the roof of the car or plates 40 secured beneath the same, after which the spring-pressed bolts 51 and 52 are withdrawn and on further turning of the drums 79 and 81, the guide members 26 will be elevated slightly to clear the floor and will be caused to swing upwardly until the whole construction is folded up against the roof of the car. The slots 25 in the upper ends of these members permit this slight upward movement. As the support 31, 32, move upwardly their ends, to the left as viewed in Fig. 12, encounter the plate 40, whereupon the opposite ends of the supports are raised. When the rod 29 reaches the upper end of the channels 27 the guide bars 26 are swung to the rights, the movement continuing until these guides and the support are folded together and come to rest immediately below the roof of the car, as shown in Fig. 11.

The chains 67 and 68 are stored within the channels 27 and held therein in any suitable manner.

In order to relieve the cables 75 and 76 from the strain of holding the parts in elevated position, one or more hooks 88 are provided in the roof of the car for engaging one or both of the supporting members for holding the device in elevated position. In order to prevent the runners or slide members 36 from extending downwardly when in elevated position in the car each is preferably provided with an extension 91 which is adapted to engage a projection 92 on the roof (see Figs. 12 and 11) when the parts are elevated for causing the same to fold in horizontal position, as shown in Fig. 8.

It is thought from the foregoing taken in connection with the accompanying drawings that the construction and operation of our device will be apparent to those skilled in the art, and that changes in size, shape, proportion and details of construction may be made without departing from the spirit and scope of the appended claims.

We claim as our invention:—

1. In a railway car, a pair of upright guide members having their upper ends pivotally secured to said car, a pair of automobile supporting members, means for slidably connecting said guide and supporting members together, means for elevating said members, extensions pivotally mounted on the outer ends of said supporting members for supporting the same on the car floor and means for automatically folding said extensions when said members are elevated to inoperative position.

2. In a railway freight car having roof, floor, end and side walls, a pair of guide members connected by a pin and slot connection to said side walls adjacent to the roof, means for locking the lower ends of said members to said floor, a pair of automobile supporting members, a supporting bar extending between and connected to the inner end portions of said supporting members and slidably along said guide members, means for fastening said bar at a predetermined height on said guide members for supporting an automobile in an inclined position in said car, and means for holding said guide and supporting members and for moving the same into inoperative position adjacent to the roof of said car.

3. In a shipping conveyance, a pair of guide

members pivoted at their upper ends, means for locking the lower ends of said members to the floor of said conveyance, a supporting bar movable along said members, means for securing said bar in elevated position on said members, a pair of angle bars having their inner end portions connected to supporting bars, said bars each having one flange extending laterally for supporting the wheels of an automobile during shipment, and its other flange extending upwardly for preventing lateral movement of said automobile, and means comprising winding drums and cables secured to said supporting bar and drums for elevating the inner ends of said angle bars and an automobile thereon and for moving said members and supports to a horizontal position in the upper portion of said conveyance.

4. In a railway car having a roof, a floor, end and side walls and a door in each side wall, said doors being off-set relative to each other, the combination of a pair of guide members extending upwardly alongside said walls, means including a pin and slot connection for pivotally connecting the upper ends of said members to said car adjacent to said roof, fittings for securing the lower ends of said members to the floor of said car, a supporting bar slidably along said members, supporting elements connected to said bar, slotted guide members secured in the floor of said car adjacent to each end thereof, means on the ends of said elements engaging the slots in said guide members, means for raising and lowering said bars, means for securing an automobile on said elements at each end of said car, and means for securing the front and rear portions of an automobile to said fittings for positioning same beneath the inner ends of said elements at each end of said car.

5. In a railway car, a pair of channel irons pivotally secured to the side walls of said car by a pin and slot connection for moving in a plane longitudinally of the car, a pair of supporting members, a supporting element having its ends slidably engaging in the channels of said irons and connected to said supporting members, pulleys secured adjacent to said pin and slot connections but off-set toward the end of the car, drums at the end of the car adjacent to the roof, cables secured to said supporting element, trained over said pulleys and secured to said drums and means non-reversible by the load for raising and lowering said element.

6. A loading device comprising a pair of guide members spaced apart, means for pivotally connecting said members to the walls of a railway car, whereby the same may be moved to inoperative position adjacent to the roof of the car, said members having grooves in their inner faces, a supporting bar having its ends slidably engaging said grooves, a pair of automobile supporting members connected to said bar adjacent to their inner ends and means for elevating said bar along said grooves.

7. In a freight car, mechanism for anchoring a plurality of cars therein comprising a pair of uprights, fittings on the lower ends thereof for securing the same to the floor of a car, supporting members, means for securing the inner ends of said members to said uprights in elevated position, means on said members for securing an automobile thereon, an automobile beneath the inner ends of said members, and means extending diagonally from said fittings to the front and rear of said automobile and secured thereto for

anchoring said last-named automobile on the floor of said car.

8. A loading device for use in a railway freight car, comprising a pair of upright guide members movable in planes longitudinally of said car, means for movably connecting the upper end portions of said members to the inner side portions of said car, means for rigidly connecting the lower ends of said members to said conveyance, car supporting means movably connected to said members and means for folding said members and car supporting means beneath the roof of said conveyance above the floor thereof.

9. In a railway car, a guide member extending upwardly within said car at each side thereof, means for movably connecting the upper end portions of said members to said car, a pair of supports, means for slidably connecting intermediate portions of said supports to said guide members, flexible members for elevating the inner ends of said supports, means for winding up said flexible members for folding said supports and members against the underside of the roof of said car, and means for engaging the inner ends of said supports during the winding operation for limiting the upward movement of the inner ends of said supports.

10. In a railway car, a guide member extending upwardly within said car at each side thereof, means for movably connecting the upper end portions of said members to said car, a pair of supports, means for slidably connecting intermediate portions of said supports to said guide members, flexible members for elevating the inner ends of said supports, and means for winding up said flexible members for folding said supports and members against the underside of the roof of said car.

11. An anchoring device for securing automobiles in cars for shipment comprising, in combination, a pair of guide bars, means for pivotally connecting the upper ends of the bars to the walls of a car at opposite sides thereof, means for detachably securing the bars in upright position, a pair of automobile supporting members, means for pivotally and slidably connecting such members to the guide bars, and pull cables for raising the supporting members and swinging the guide bars.

12. Means for securing an automobile in freight cars comprising, in combination, a pair of guide bars adapted for pivotal attachment at their upper ends to the side walls of a car, a pair of supports for an automobile, means for pivotally and slidably connecting said supports at one of their ends to said bars and vertically movable

longitudinally thereof, limiting stops on the bars for arresting the upward movement of the supports, and means for raising the bar engaging ends of the supports, such means acting in a direction oblique to the vertical.

13. Means for securing road vehicles in freight cars comprising, in combination, a pair of guide bars adapted for pivotal attachment to the side walls of a car, a pair of vehicle supports, means for slidably and pivotally connecting said supports adjacent to one of their ends to the bars, means for limiting the upward movement of the supports relatively to the bars, and means for applying lifting force to the supports, such force acting out of the longitudinal plane of the bars.

14. An anchoring device for securing automobiles in freight cars during shipment comprising a pair of vertically arranged guide members, means for pivotally connecting the upper ends of the same to the side wall of a railway car, means for detachably securing the lower ends of said guide members in lowered position, a pair of supporting members, a supporting rod secured to said supporting members and slidably connected to said guide members, a cable secured to each end portion of said supporting rod, and means for tensioning said cables for elevating said guide members and supporting members to elevated position when said second-named means are released.

15. In a vehicle provided with side, end, top and bottom walls, a guide member secured to each side wall, a pair of automobile supporting members, pivoted runners on the outer ends of said supporting members adapted to engage the floor for supporting the outer ends of the supporting members, a supporting rod attached to the inner ends of said supporting members, said rod slidably engaging said guide members, drum means at one end of the car adjacent the top wall thereof, cables connected to said means and rod, a worm gear for operating said means, and means for manually operating said gear.

16. In a device for supporting automobiles in a freight car during shipment, an anchoring member having a body portion, flange members extending laterally outwardly from said body portion, a supporting standard rigidly connected to said flanges and extending upwardly therefrom, spring pressed latch bolts extending through said flanges, means for holding said bolt in retracted position, and anchoring chains connected to said flanges.

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CERTIFICATE OF CORRECTION.

Patent No. 2,127,965.

August 23, 1938.

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It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, first column, line 71-72, claim 2, for the word "holding" read folding; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 4th day of October, A. D. 1938.

Henry Van Arsdale

Acting Commissioner of Patents.

(Seal)