July 24, 1951 W. A. JANECZKO 2,561,927

RAILWAY CAR

Filed Aug. 23, 1947 4 Sheets-Sheet 1

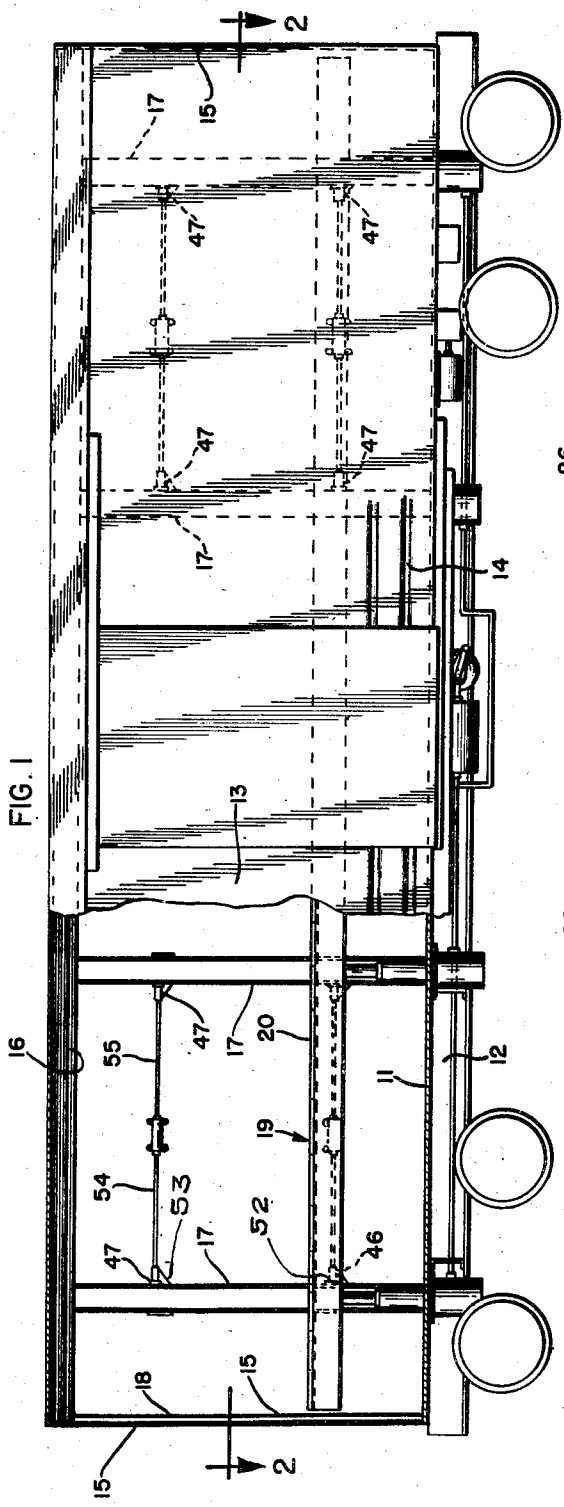


FIG. 1

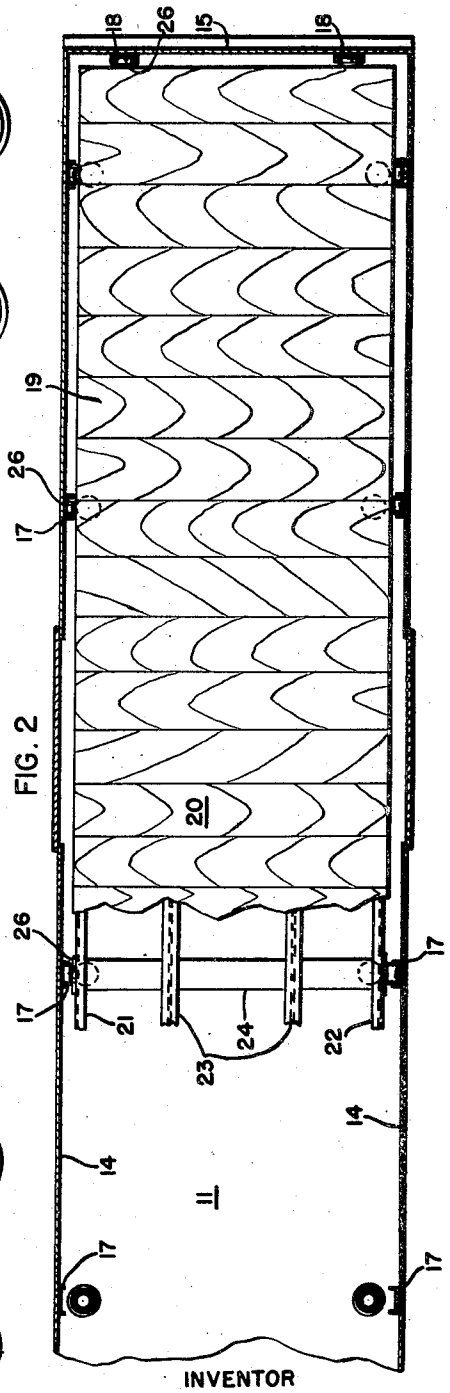


FIG. 2

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RAILWAY CAR

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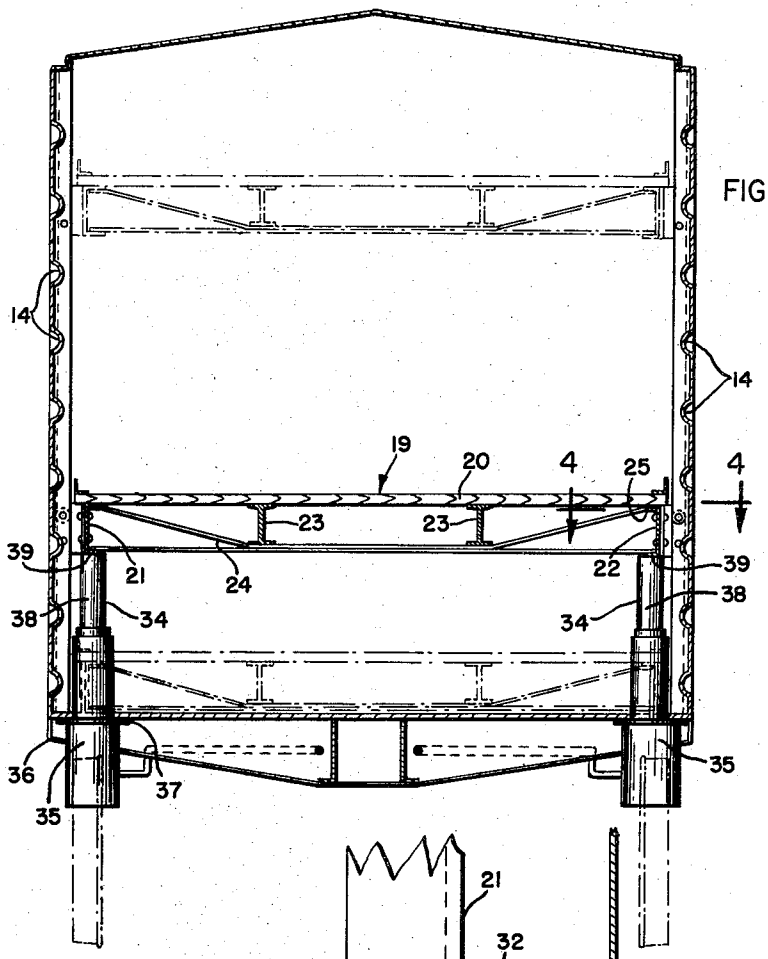


FIG. 3

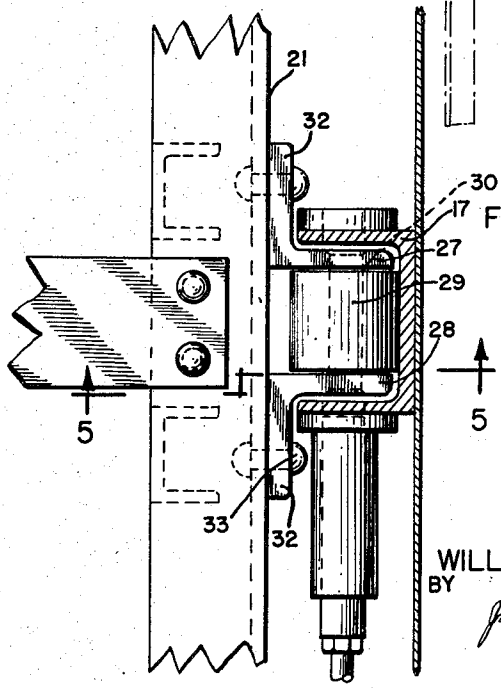


FIG. 4

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RAILWAY CAR

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FIG. 5

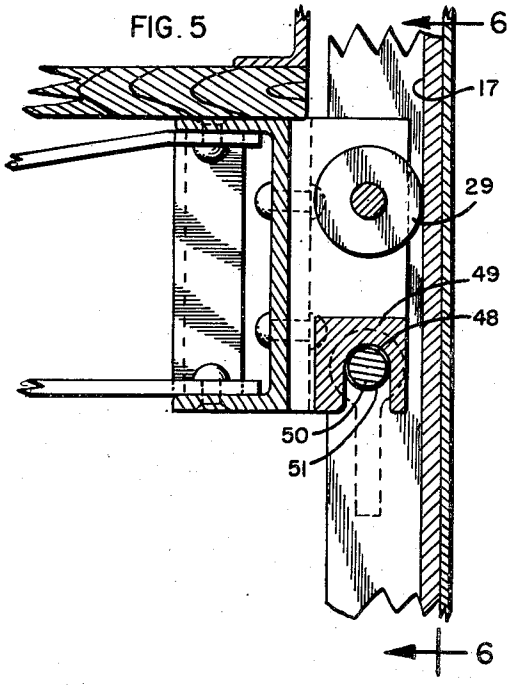


FIG. 7

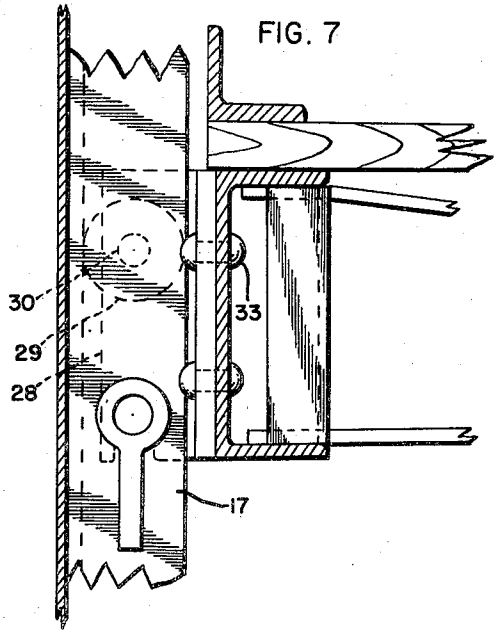


FIG. 6

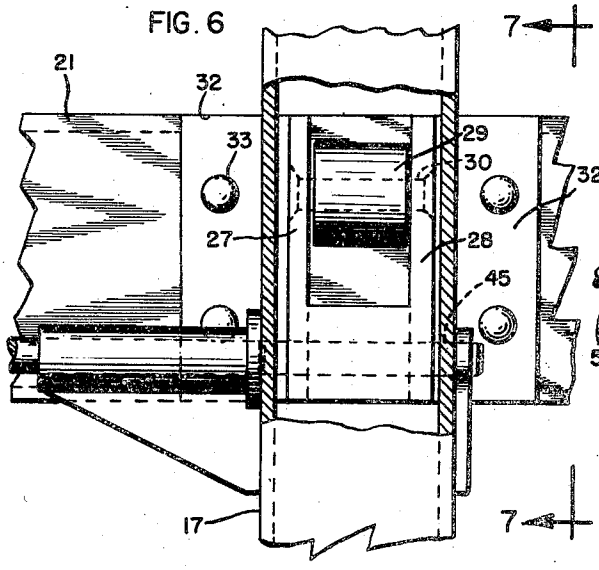
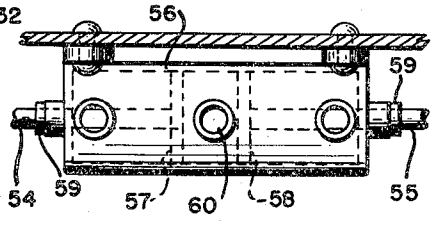


FIG. 8



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RAILWAY CAR

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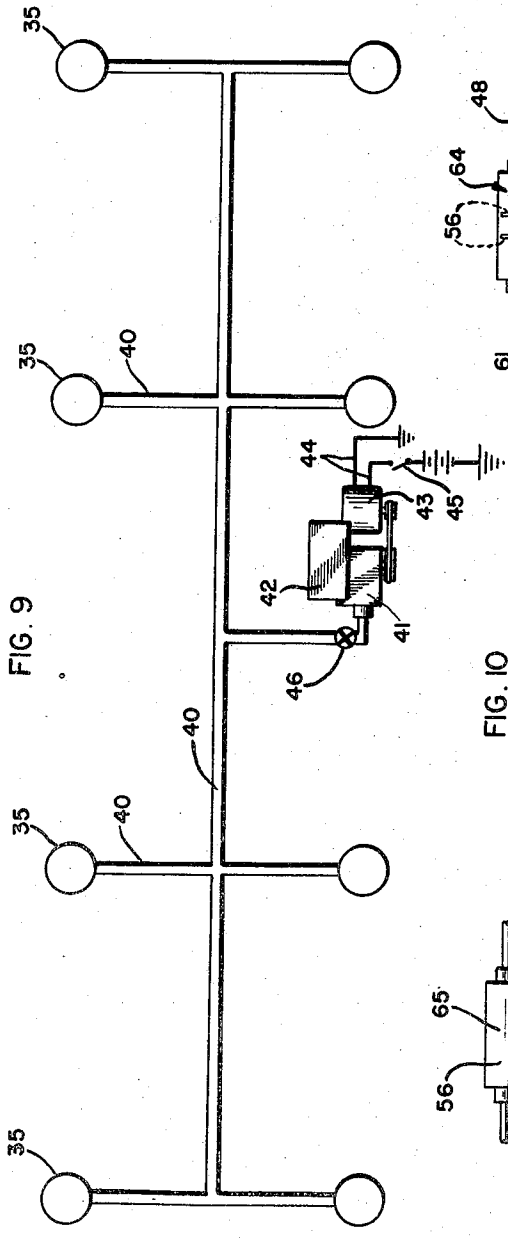


FIG. 9

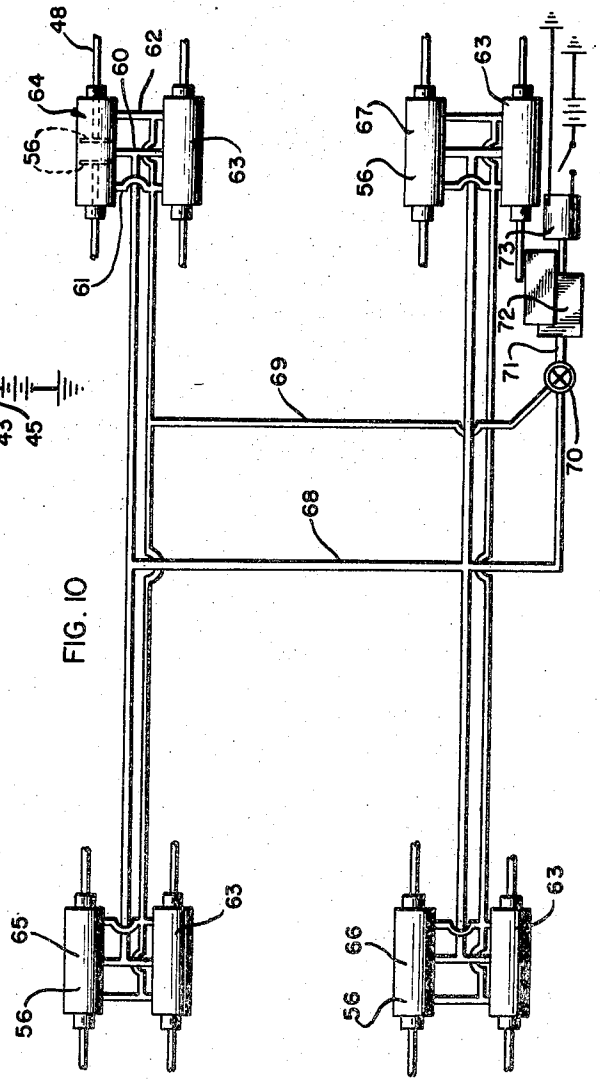


FIG. 10

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UNITED STATES PATENT OFFICE

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RAILWAY CAR

William A. Janeczko, Hammond, Ind.

Application August 23, 1947, Serial No. 770,274

13 Claims. (Cl. 105—370)

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This invention relates to railway cars, and more particularly to railway cars having movable floor structures, and has for an object a new and improved railway car of this character.

A further object of the invention is to provide a railway car having an elevatable floor or platform, which may be disposed upon the main floor of the car while being loaded, and which may be elevated to a plurality of different positions within the car, dependent upon the nature of the lading.

A still further object of the invention is to provide hydraulically operated mechanism for elevating and lowering the false floor or platform, in which the hydraulic mechanism comprises telescopically extensible sections housed in cylinders which are suspended beneath the main floor of the car, and which permit the platform to rest upon the main floor or to be elevated to different positions within the car.

Another object of the invention is to provide a plurality of hydraulically operated locking means which are adapted to support the platform in various elevated positions, and which are releasable simultaneously to permit the platform to be lowered.

Still another object of the invention is to provide a railway car having longitudinally corrugated side walls, in conjunction with a plurality of attached channel-shaped posts, which accommodate roller means carried by the platform, and wherein the rollers operate not only to reduce friction to a minimum during motion of the platform, but the roller means cooperate with the posts to prevent shifting or displacement of the platform and the lading carried thereby while the car is in transit.

It is also an object of the invention to provide a railway car which carries hydraulic mechanism operated through a motor driven pump, and wherein the motor may be plugged into any convenient receptacle outlet of a type widely used in railroad yards, or which may be energized by batteries carried by the car in case of emergency.

Other and further objects of the invention will appear from the following specification and attached claims, and from the accompanying drawings in which:

Figure 1 is a side elevational view of a railway car with parts broken away to better disclose interior construction,

Figure 2 is a broken horizontal sectional view corresponding substantially to the line 2—2 of Figure 1.

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Figure 3 is an enlarged vertical sectional view of the invention, showing one position of the platform in full lines, and another position in dotted lines,

Figure 4 is an enlarged, fragmentary, horizontal, sectional view of the invention, corresponding substantially to the line 4—4 of Figure 3,

Figure 5 is a fragmentary, broken, vertical sectional view corresponding substantially to the line 5—5 of Figure 4,

Figure 6 is a fragmentary, broken, vertical sectional view corresponding substantially to the line 6—6 of Figure 5.

Figure 7 is a fragmentary, broken, transverse sectional view corresponding substantially to the line 7—7 of Figure 6,

Figure 8 is an enlarged detailed view of hydraulic mechanism for operating the locking means,

Figure 9 is a diagrammatic view showing the hydraulic mechanism for operating the lifting cylinders,

While Figure 10 is a diagrammatic layout of hydraulic mechanism for operating the locking means.

As shown in the drawings, the invention comprises a railway car having a main or usual floor 11, mounted in the usual way upon a center sill 12 and cross beams. The car is also provided with side walls 13, having longitudinally extending corrugations 14, corrugated end walls 15, and a roof 16. The side walls 13 and end walls 15 are provided with spaced vertically extending channel shaped posts 17 and 18, having their flanges inwardly disposed to present the open channels inwardly toward the car interior, and the posts 17 and 18 are rigidly secured to the walls 13 and 15, as by the usual riveting.

Disposed within the car is a false floor or platform 19, which extends substantially the length and width of the interior of the car. The platform 19 comprises flooring boards 20 having their ends supported upon longitudinally extending side and end channel members 21 and 22, and upon longitudinally extending I-beams 23, under which are disposed braces 24 having their ends riveted to the upper flanges 25 of the channel members 21.

At intervals along the side and end edges of the platform 19 a plurality of roller carrying brackets 26 are provided, the brackets 26 being located in line with the posts 17 and 18. Each of the brackets 26 has a pair of outwardly disposed spaced flanges 27 and 28, between which is mounted a

roller 29, rotatively carried upon an axle 30, which has its ends riveted in the flanges 27 and 28. The flanges 27 and 28 of each bracket 26 project between the flanges of the channel members 17 and 18, and the roller 29 is adapted to roll upon the web of the related channel post. The flanges 27 and 28 of the brackets 26 are spaced apart a distance only slightly less than the distance between the flanges of the channel posts 17 and 18, so that edgewise movement of the platform 19 is prevented, and the edgewise stresses which occur in transit, or when the car comes to a stop, are transmitted through the posts 17 and 18 and to walls 13 and 15, which are braced against deformation by the corrugations of said walls.

The flanges 27 and 28 are included as parts of angle irons having laterally extending flanges 32 riveted, as by rivets 33, to the outer surface of the web of one of the channel members 21 or 22.

For elevating and lowering the platform 19, there are provided a plurality of telescopically extensible-retractible hydraulically operative mechanisms 34. Each of the mechanisms 34 comprises a main cylinder or housing 35, suspended below the main floor 11 of the car, and preferably mounted upon, or atached to, a cross beam 36 of the car. The cylinder or housing 35 has its open end 37, disposed below, or substantially flush with, the upper surface of the main floor 11 of the car. Telescopic extensible-retractible sections 38, are adapted to be entirely housed within the housing cylinder 35, when it is desired to have the platform 19 rest upon the floor 11, and when hydraulic fluid is supplied to the cylinder 35, the sections 38 may be extended different distances to raise the platform 19 to different levels, the outermost section of each mechanism 34 being adapted to be connected to the lowermost flange of the side or end channel members 21 and 22, as indicated at 39.

As best shown in Figure 9, the housing cylinders 35 are supplied with actuating fluid through pipes 40, connected with a pump 41, which takes its supply of fluid from a reservoir 42, and the pump 41 is adapted to be driven by a motor 43. The supply wires 44 of the motor may be connected with receptacles usually present at convenient positions in a railroad yard, or may be connected to a battery carried by the car itself, a switch 45 being provided for controlling the motor 43. A valve 46 is provided so that after the platform has been raised to the desired position by the hydraulic mechanism, the valve 46 may be closed to retain the platform at the desired elevation. When the valve 46 is opened the fluid in the pipe is returned to the reservoir by the weight of the platform, assuming that it is free to descend.

Mechanism is provided for locking or supporting the platform 19 in a plurality of elevated positions. This mechanism preferably takes the form of locking means, associated with selected channel posts 17, as indicated at 47. Each locking means comprises a saddle or seat 48, formed on selected brackets 26, the saddle or seat 48 being elongated, and formed in the under surface of a cross piece 49, which has its ends connected to the lower portions of the flanges 27 and 28 of the selected brackets 26. Adapted to be accommodated in the elongated saddle or seat 48 is a sliding bolt 50, which may be projected into apertures 51, formed in the flanges of the channel posts 17. Preferably the locking means 47, are arranged in pairs, and at different vertical levels in the car. For example,

a locking means 47, such as already described, will be located a predetermined distance upwardly from the main floor 11, as indicated at 52, and another locking means 47, will be located at a higher level, as indicated at 53. Adjacent pairs of locking means 47, are connected to operate together, and this is accomplished by connecting rods 54 and 55 which extend between pairs of locking mechanisms 47. The inner ends of the connecting rods extend into a cylinder 56, as best shown in Figure 8, and the rod ends are provided with piston heads 57 and 58, limited in their approach toward each other by suitable stops 59. A fluid conducting pipe 60 enters the cylinder 56 between the piston heads 57 and 58, a supply pipe 61 enters the cylinder 56 between the end thereof and the piston head 57, and another pipe 62 enters the cylinder 56 between the opposite end and the piston head 58. As best shown in Figure 10, the cylinder 56 at one level is duplicated for operating the locking mechanism 47, at a different level, as indicated at 63, the cylinder 63 having the same mechanism associated therewith as the cylinder 56, and supplied from the pipes 61, 62 and 63.

Preferably, as shown in Figure 10, there are four groups of cylinders, 56 and 63, of the character already described, and the described group being indicated at 64, and the remaining groups at 65, 66 and 67. These groups are supplied with operating fluid through supply pipes 68 and 69, controlled by a valve 70, interposed in a pipe 71. The pipe 71 leads to a pump 72, driven by a motor 73, which may take its energy from a receptacle in the railroad yard, or from a battery carried by the car, as explained in connection with the hydraulic mechanism 35.

In operation, and assuming that the platform 19 is resting upon the main floor 11 of the car, it will be apparent that if the car is to be loaded with the type of lading which may be packed to the roof of the car, the platform 19 may remain in its lowermost position. In this position the platform 19 occupies very little space, and the hydraulic operating mechanism is removed entirely from the interior of the car. In other types of lading, where it is desirable to segregate the types, the platform may be elevated to the top level, so that the entire car interior is unobstructed. When it is desired to elevate the platform to the second level, and assuming the valve 46 to be open, the pump 41 is started, and fluid from the reservoir pumped into the cylinders 35. This causes extension of the telescopic sections 38 to raise the platform. When the platform has reached a position a little beyond the top level, the valve 46 is closed, and the motor 43 cut out.

The valve 70 is then positioned to permit passage of fluid through the supply pipes 68 and pipe 60, when the motor 73 is started, and this causes the fluid to enter the cylinders 56 (and the cylinder 63, as well), and press the piston heads 57 and 58 away from each other, causing the connecting rods 54 and 55 to position the sliding bolts 50 in supporting relation with respect to the seats or saddles 48. The valve 46 is then opened, allowing the platform 19 to begin descent, after which the seats 48 come to rest upon the locking mechanisms 47. The same action takes place when the platform is elevated to the lower level.

When it is desired to lower the platform 19, the same is elevated slightly above the locking means 47, the valve 70 operated to supply fluid

through the pipe 69, resulting in retraction of the locking bolts 50, and permitting the platform 19 to descend of its own weight, such descent being retarded by return of the fluid to the reservoir, as through a restricted opening. Movement of the locking bolts 50 toward retracted position, of course returns the actuating fluid from between the piston heads 57 and 58 to the source of supply.

During the vertical movements of the platform 19, the antifriction rollers 29 travel over the webs of the posts 17 and 18, prevent binding of the platform 19 in its vertical movement, and cut down the power necessary in maneuvering the platform. When the platform 19 is in one of the three positions described, that is on the floor of the car, or at the first level, or at the second level, edgewise movement of the platform, either longitudinally or transversely of the car, is prevented by reason of engagement of the roller brackets 26 with the flanges of the posts 17 and 18, and consequently in transit, there can be no shifting or edgewise movement of the platform, and the stresses in an edgewise direction are transmitted through the posts 17 and 18 to the reinforced car walls 13 and 15.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A railway car construction, having a floor, a platform movably mounted in said car; means for elevating and lowering said platform; and means arranged at different levels in said car for supporting said platform independently of said elevating and lowering means at more than one level in said car said means including spaced pairs of spaced platform disengageable supports, each pair of supports being operated by a single mechanism.

2. A railway car construction, having a floor, side walls and a roof; a platform movably mounted in said car; means for moving said platform; a plurality of hydraulically operated means for supporting said platform independently of said moving means; and means for simultaneously actuating all of said supporting means from a single operator station.

3. A railway car construction, having a floor and side walls; a platform adapted to be raised and lowered in said car; hydraulic means for elevating and lowering said platform, said hydraulic means being retractible to a position substantially flush with said floor; and means for supporting said platform above said floor permitting retraction of said hydraulic means independently of said platform.

4. A railway car construction, having a floor and side walls, a platform movably mounted in said car; means for elevating and lowering said platform; and a plurality of means for supporting said platform independently of said moving means; and means for linking at least two of said supporting means for tandem operation.

5. A railway car, having a floor, a platform extending substantially parallel to and above said floor; and hydraulically operable means for raising and lowering said platform by direct contact therewith to different positions, and in one position adapted to rest said platform on said floor, said hydraulically operable means being below said platform in all of its positions.

6. A railway car, having a floor, a platform extending substantially parallel to and above said floor; a cylinder and ram means directly raising and lowering said platform to different positions, said cylinder and ram means including a plurality of cylinders secured to said floor, extending therebeneath, and having open ends flush with said floor, and ram means operatively received in said cylinders and directly supporting said platform.

7. A railway car, having a floor, a platform extending substantially parallel to and above said floor; and hydraulically operable means for raising and lowering said platform to different positions by direct contact therewith, said hydraulic means including a plurality of hydraulic cylinders, the main part of each being below said floor, and each cylinder having a set of telescopic rams adapted to bear directly upward under said platform.

8. A railway car having a floor, a raisable platform substantially covering said floor and resting directly thereon in its down position, a plurality of piston means under said platform adapted to bear directly upward under same, said piston means serving to raise said platform to different heights as required, and a plurality of cylinders in working relation with said piston means, said cylinders being secured to said floor and being substantially below the floor surface thereof.

9. A railway car, having a floor, a platform disposed over said floor, and means for raising and lowering said platform, said means having a plurality of cylinders supported by said floor and the upper ends thereof terminating at said floor, and sets of telescopic ram sections, each of said sets operating in conjunction with one of said cylinders and exerting their force directly against said platform.

10. A railway car, having a floor, a platform disposed over said floor, and means for lifting and lowering said platform, said means having a plurality of cylinders suspended from said floor and the upper ends thereof terminating substantially flush with said floor, and having sets of telescopic ram sections, operating in conjunction with said cylinders, and exerting their force directly against said platform when holding same above said floor and when in telescoped position terminating adjacent to said floor.

11. A railway car having a floor, a raisable platform resting on said floor in its most downward position, sets of telescopic piston means under said platform adapted to bear directly upward under same, said piston means serving to raise said platform to different heights as required, and a cylinder for each of said sets of piston means attached to said floor, the upper ends of said cylinder means terminating at said floor.

12. A railway car having a floor, a platform disposed above said floor, a plurality of hydraulic means directly under said platform and operable to raise and lower said platform, a plurality of platform locks embodied with the framework of such car and suitably spaced to engage said platform at intervals, and means to actuate all of said locks simultaneously from a single actuating station.

13. A freight car having walls and a floor, a platform disposed over said floor, a plurality of platform raising means distributed under said

platform for raising same to different heights, a plurality of platform locking means spaced in the walls of said car serving to lock said platform at different heights, and means to operate all of said raising and locking means concurrently, from a single operator station.

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