April 15, 1969 F. WILLIS 3,438,519

RAILWAY VEHICLE PLATFORM MOVING ARRANGEMENT

Filed July 10, 1967 Sheet 1 of 4

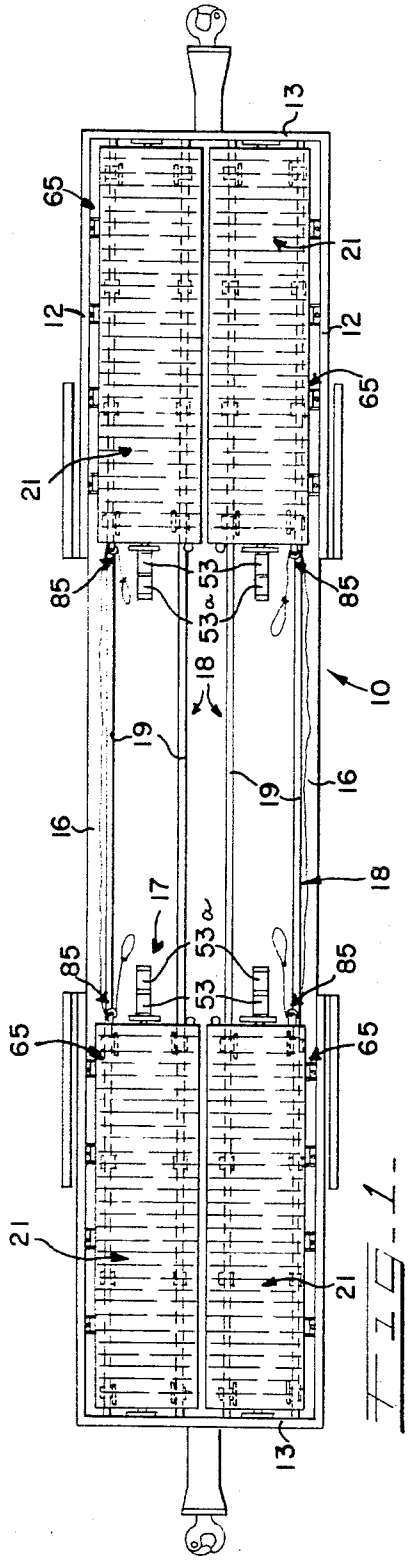


FIG. 1

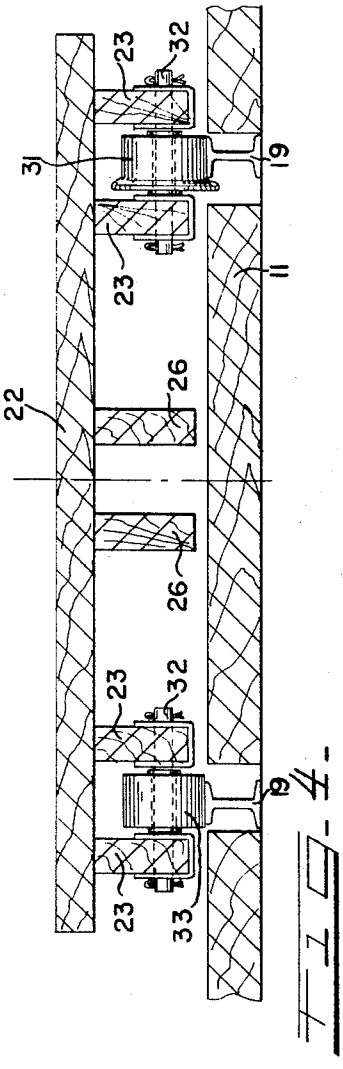


FIG. 4

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RAILWAY VEHICLE PLATFORM MOVING ARRANGEMENT

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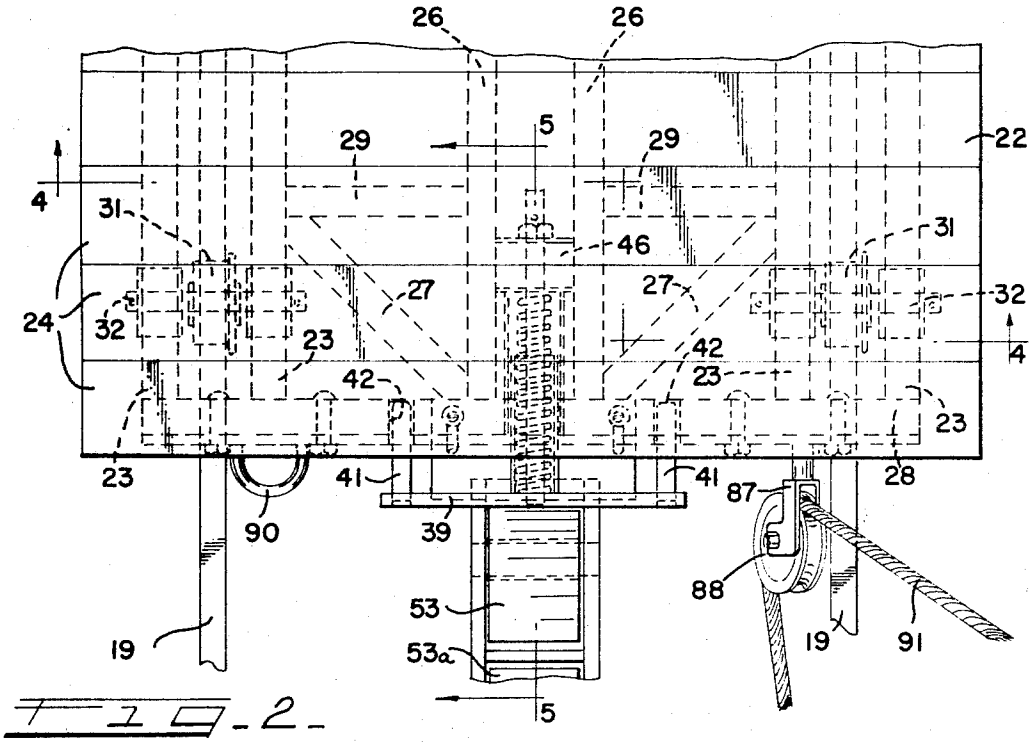


FIG. 2

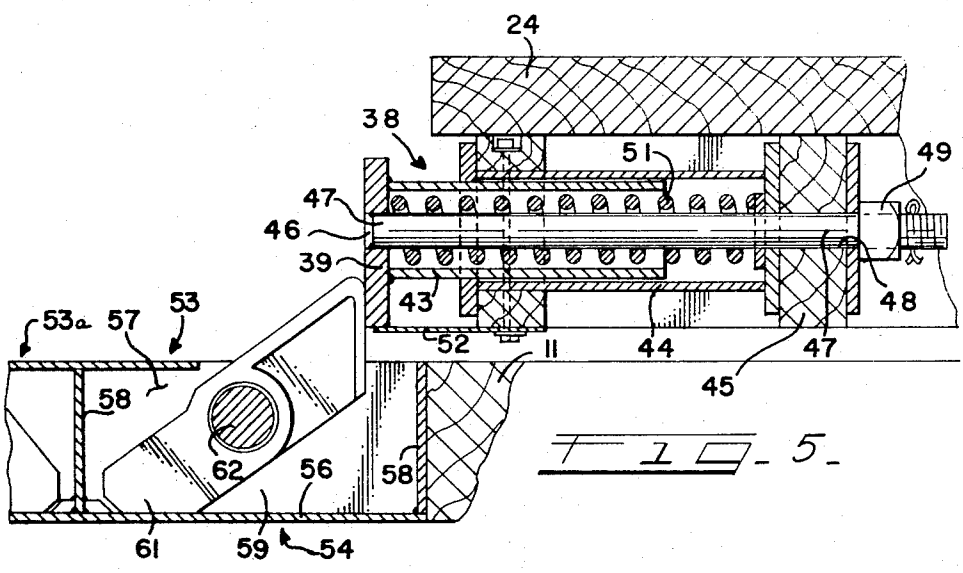


FIG. 5

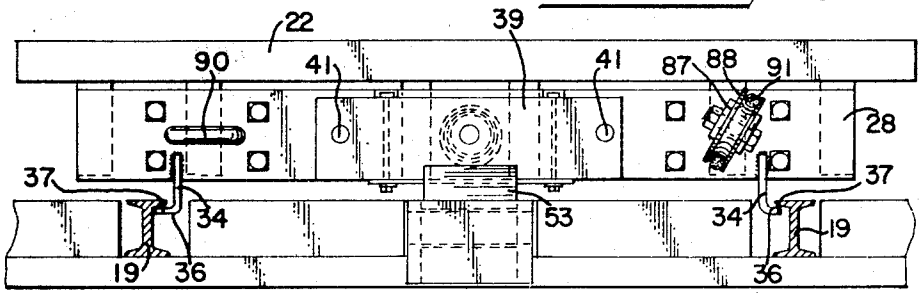
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RAILWAY VEHICLE PLATFORM MOVING ARRANGEMENT

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FIG. 3.



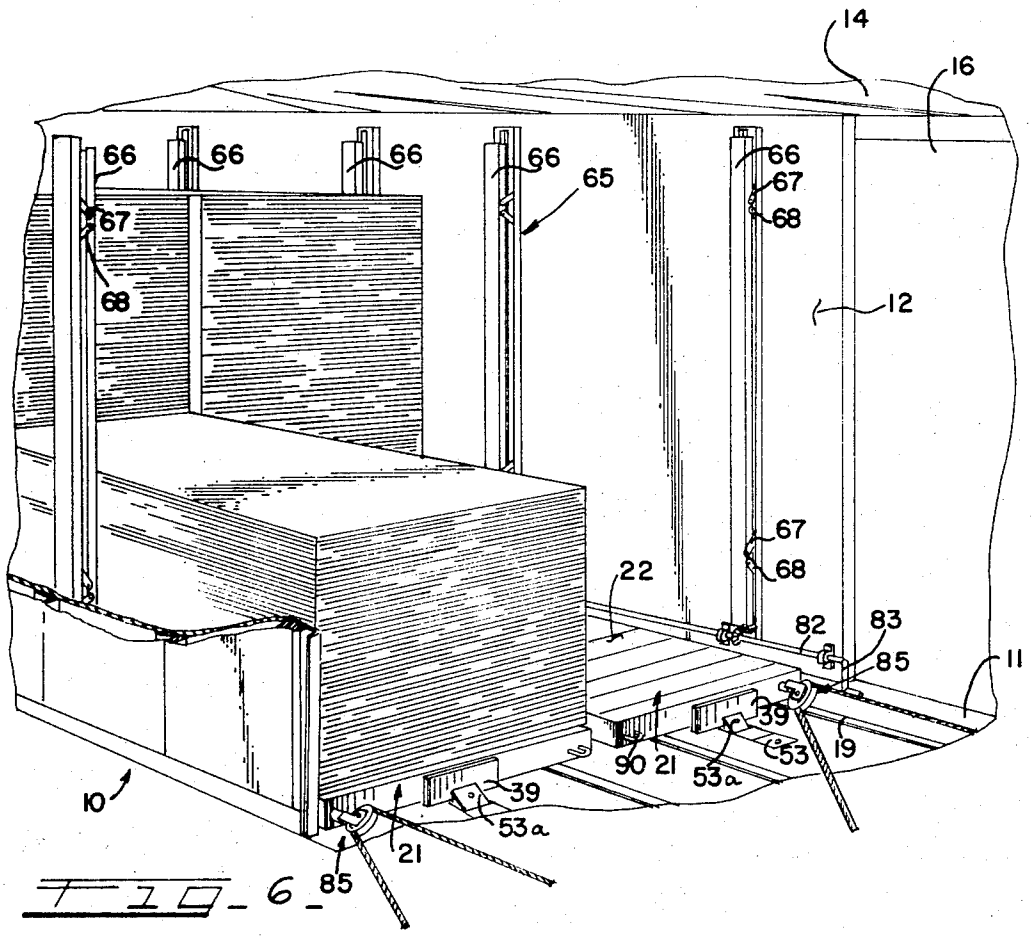


FIG. 6.

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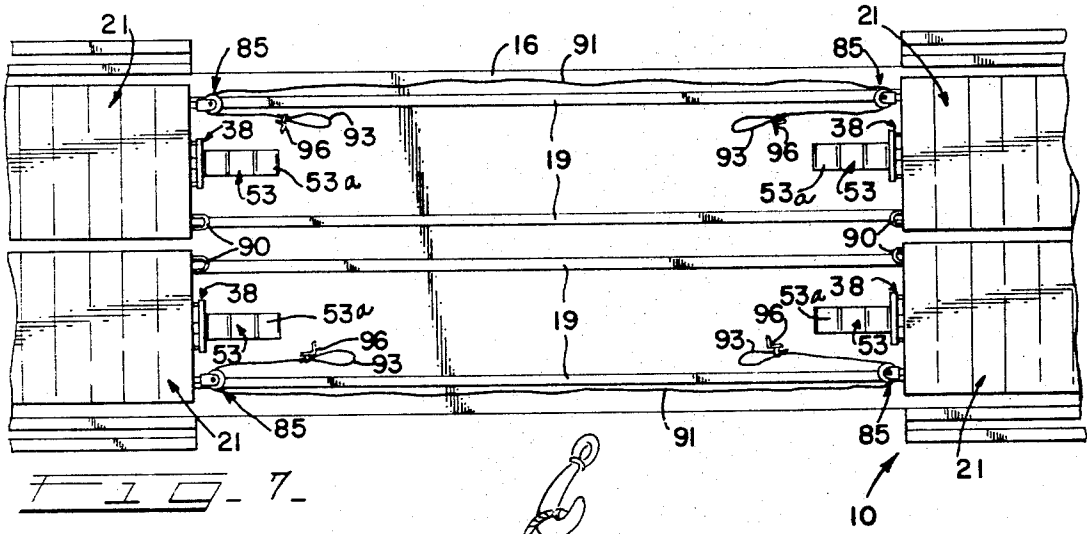


FIG. 7

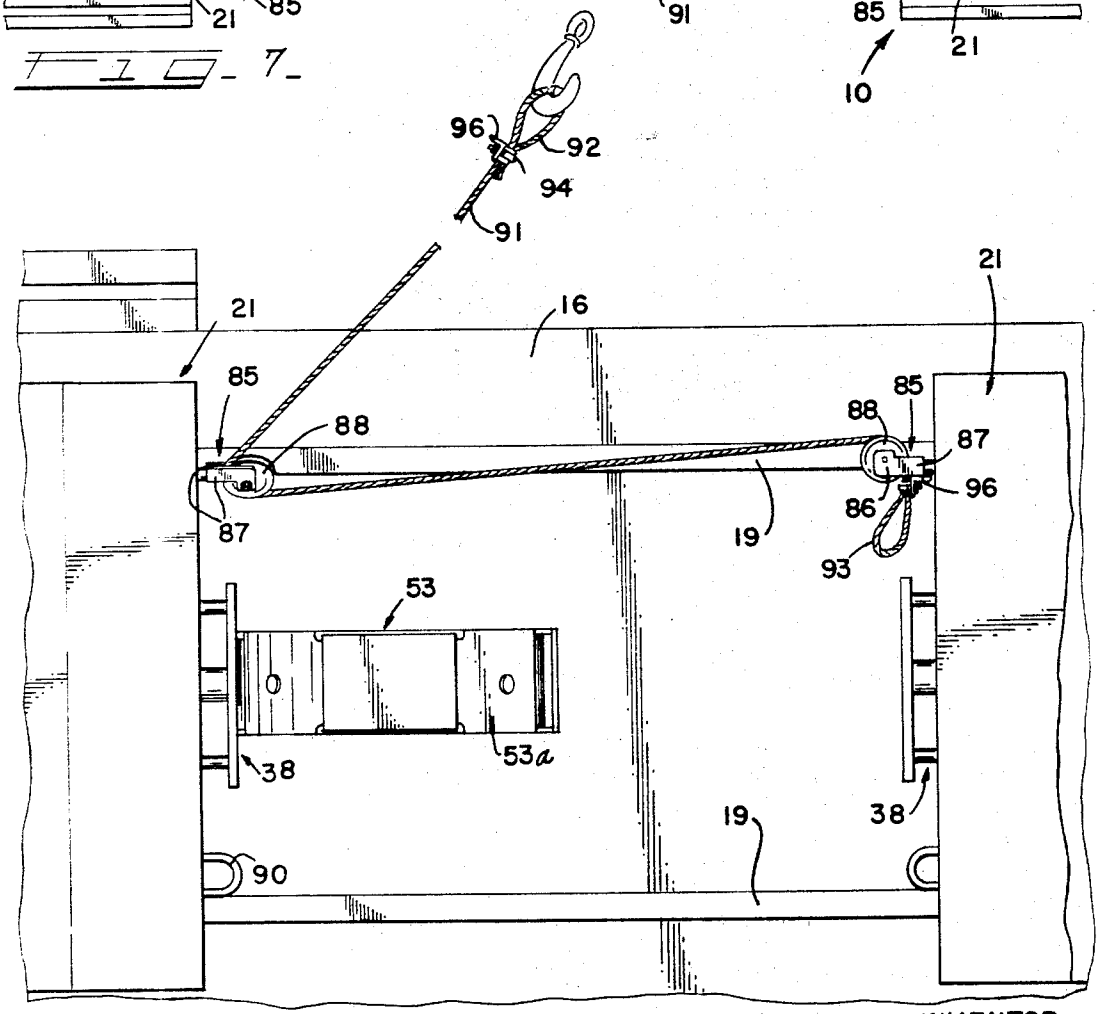


FIG. 8

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United States Patent Office 3,438,519 Patented Apr. 15, 1969

3,438,519

RAILWAY VEHICLE PLATFORM MOVING ARRANGEMENT

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Filed July 10, 1967, Ser. No. 652,142
Int. Cl. B65g 67/02; B60p 1/00; B61d 17/00
U.S. Cl. 214—38 4 Claims

ABSTRACT OF THE DISCLOSURE

A conveying arrangement for moving cargo such as sheet plywood and the like from a side door opening in a railway box car including side-by-side disposed platforms movable on trackways from a location adjacent to the door at which the platforms are loaded to a location in the enclosed ends of the car. The platforms include resilient bumper means at each end thereof with one end engaging a floor mounted stop means which is spaced from an end wall of the car to hold the other end in engagement with the wall and thereby preclude longitudinal movement of the platforms during transit. Side wall spacers are mounted on the car sidewalls for movement from a stored position against the side wall to a position in engagement with the cargo carried on the platforms to prevent displacement from the platforms during transit. Mounted on the floor stop engaging end of each of the platforms is a pulley. Trained over the pulleys on opposite ones of the platforms is a length of cable having stop means fixed adjacent the respective ends thereof. The cable is used to move the platforms from the position adjacent the end of the car to a position in the door area. To this end one of the stop means on the floor is released to permit movement of the associated platform and the opposite platform is retained against longitudinal movement by the stop means. Thereafter the end of the cable trained over the pulley on the stationary platform is pulled to move the other platform along the trackway into the door area. The moved platform may then be returned to the enclosed end of the car and the other platform released from engagement with the stop and moved into the door area in the same manner.

Cross-reference to related application

This is an improvement on the railway box car structure shown in U.S. patent application Ser. No. 619,446, filed Feb. 28, 1967 and assigned to the assignee of the present invention.

Summary of the invention

The present invention relates to an arrangement for drawing or pulling lengthwise movable roller mounted platforms from the enclosed ends of a railway vehicle of the box car type by means of a pulley-cable arrangement coacting between the opposing ones of the roller mounted platforms. The pulley-cable arrangement includes a pulley fixed to respective ones of the opposing platforms and a cable trained thereover. The ends of the cable are looped to receive a hook attached to a mechanically operated pulling force. Each of the cable members adjacent the looped end thereof is provided with a stop member which spans the yoke arms of each of the yoke members mounting the pulleys on the platforms so that when a pulling force is exerted on one of the looped ends of the cable, the stop on the other end of the cable spans the yoke arms and transmits a pulling force on the associated platform. The arrangement is used to selectively move one of the platforms from the enclosed ends of the railway car into the door area by initially restraining the opposing platform against lengthwise movement in the opposite enclosed end and applying a pulling force on the looped end of the cable associated with the restrained platform.

Brief description of the drawings

FIG. 1 is a top plan view of a railway car with the roof removed and showing the platforms of the cargo carrying platforms in the stored position thereof and the pulley and cable arrangement of the present invention;

FIG. 2 is a fragmentary plan view of one end of the platform of the conveying arrangement and showing the track and stop structure mounted on the floor of the railway car;

FIG. 3 is an end elevational view showing the platform mounted on the trackway installed in the floor of the car;

FIG. 4 is a cross sectional view taken generally along the lines 4—4 of FIG. 2;

FIG. 5 is a cross sectional view taken generally along the lines 5—5 of FIG. 2 and showing in particular the resilient bumper arrangement at one end of the platform in engagement with the stop means for preventing lengthwise movement of the platform;

FIG. 6 is a fragmentary perspective view of one end of the railway car incorporating the cargo carrying platforms and showing the side spacers mounted on the side walls for retaining the cargo on the platforms during transit;

FIG. 7 is a fragmentary top plan view of the railway car in the doorway area thereof with the cargo carrying platforms in the stored position; and

FIG. 8 is a view similar to FIG. 4 showing two of the opposing platforms with the pulley-cable arrangement being attached to pulling mechanism for moving one of the platforms into the door area.

Description of the preferred embodiments

Referring now to the drawings, in particular FIGS. 1 and 6, there is shown a railway box car **10** of substantially conventional structure including a floor **11**, side walls **12**, end walls **13** and a roof **14**. Formed in the side walls are door openings **16** which are adaptable to be closed off by lengthwise slidable doors of well known construction. Mounted on the floor **11** and incorporated into the interior chamber of the box car is a cargo carrying arrangement **17**.

The cargo carrying arrangement **17** is particularly adapted for using the box car **10** to transport lumber in the form of stacked plywood sheets or bundles of lengths of stick lumber and the like.

The cargo carrying arrangement **17**, as shown in FIGS. 2 to 5, comprises generally a trackway means **18** including two pairs of transversely spaced rails **19** extending lengthwise of the car between the end walls **13** thereof. The rails **19** may be in the form of an I-beam and may be fixed to crossbearers (not shown) or to the floor, if metal, by welding or the like.

Mounted for rolling movement on the rails **19** are platforms **21** which are preferably dimensioned to accommodate two lengths of the usual 4 x 8 sheets of plywood. The platforms **21** each include a floor **22** which may be formed by lengthwise extending frame members **23—23** extending along the sides and across which there are fixed floor boards **24**. The center of the platform **21** may be reinforced by transversely spaced members **26—26** which are reinforced adjacent each end thereof as shown in FIG. 2 by means of diagonally extending braces **27—27** between the end frame member **28** and inwardly spaced braces **29—29**. Journaled adjacent each end of the platform **21** between each pair of the frame members **23—23** are flanged roller wheels **31** which are supported on shafts **32**. Intermediate the ends there may be provided rollers **33** which may be of the unflanged type so as to be merely

ridable on the top surface of the I-beam rails 19. Further retaining the platform on the rails 19 are hook members 34 fixed to the end frame members 28 and having a horizontal leg 36 underlying upper web 37 of I-beam rail 19.

Mounted on the end frame members 28 of each of the platforms 21 is a bumper mechanism 38 as shown in particular in FIGS. 2, 5 and 8, including a stop plate 39 disposed substantially midway between the sides of the platform 21. Fixed adjacent to the ends of the stop plate 39 are guide pins 41 which are slidably received within openings 42 formed in the end frame members 28. At the center of the stop plate 39 there is fixed to the inner face thereof one end of a tubular member 43 which is received within a second tube 44 extending through the end member 28 and fixed at its other end to a transverse reinforcing brace 45 extending between the braces 26—26. Fixed at one end in an opening 46 provided in the stop plate 39 and extending coaxially through the tubular members 43 and 44 is a bar 47 which at its other end is received within an opening 48 through the transverse brace. Threaded to the projecting end of the bar 47 is a nut 49 which serves as a stop. Coaxially disposed about the bar 47 and disposed within the tubular members 43 and 44 is a compression spring 51 which serves to cushion impact forces applied on the buffer plate 37. Extending between the buffer plate 37 and the end member 28 is a bottom plate 52 which engages the lower edge of the buffer plate as shown in FIG. 5 and serves to hold a stop means 53 inoperative as the platform 19 passes thereover.

Mounted on the floor 11 and spaced from the end wall so as to hold the platforms 21 against the respective end walls 13, are stop means 53. The stop means 53, as shown, in particular in FIGS. 2 and 5, comprises a rectangular box-like support structure 54 which is recessed in the floor 11 and includes a base 56, sides 57 and ends 58. Disposed within the chamber 59 of the box support 54 is a counterbalanced stop lever 61 rockably supported on a horizontal shaft 62 extending between the sides thereof. The stop lever 61 normally assumes the inclined position shown in FIG. 5 and engages the buffer plate 39 after the platform has passed thereover from a position in the door area of the car to a position in the enclosed area so as to hold the latter against the end wall and prevent lengthwise movement thereof. To release the platforms 21 from the closed ends for movement on the tracks 19, the stop levers 61 at each of the platforms 21 are manually depressed so that the lever 61 is rotated to a position within the chamber 59 out of the path of movement of the platforms 21. A complementary stop means 53*a* may also be provided to hold the platforms 21 in position for loading adjacent the door openings 16. The stop means 53*a* may be formed similarly to that shown in FIG. 7 and lie in back-to-back relationship therewith, as shown in FIG. 1.

As shown in FIGS. 1 and 8, mounted along each side of the door openings 16 to the end walls 13 are a plurality of lengthwise spaced filler or spacer assemblies 65 which are movable inwardly and outwardly in a vertical plane from a stored position adjacent the wall to a position abutting plywood sheets or stick lumber carried on the platforms 21. The spacer assemblies 65 each include a plurality of spacer boards 66 each of which extends vertically between the platform floor 22 to the car roof or ceiling 14. The spacer boards 66 are each mounted on the wall by means of pairs of links 67—67 and 68—68 disposed on opposite sides at the upper and lower ends thereof. The links 67—67 and 68—68 are pivotally connected to respective sleeve members which are rotatable on reversely threaded portions formed on a vertically extending shaft which is turnably mounted on the wall. Upon turning of each of the shafts, the spacer boards 66 are movable inwardly and outwardly between a stored position adjacent the wall and are operative in engagement with the cargo carried on the platforms 21, as shown in FIG. 8.

The spacer assemblies 65 further include a drive shaft 82 for actuating the spacer boards 66 simultaneously between the stored and operative positions. The drive shaft 82 is manually operated by a handle 83 located in the door area 16. Upon turning of the drive shaft 82, bevel gears mounted thereon and meshing with bevel gears carried by the spacer shafts are operative to turn the latter to the desired positions. For a more detailed description of the spacer assemblies reference is made to the aforementioned U.S. copending patent application Ser. No. 619,446.

In use, two of the platforms 21 may be located in the center of the car 10 in the door openings 16 between the stops 53*a* so as to hold the platforms in position. Thereafter, the lumber in the form of plywood sheets or bundles of boards may be loaded on the platforms 21. The loaded platforms 21 may then be pushed either manually or by way of a lift truck to a position in the enclosed end of the car 10. During such movement of the platforms along the trackway when the bumper on one end of the car strikes the end wall 13, the stop means 53 will be in a position to engage the opposite end of the platform to retain the latter against longitudinal movement of the railway vehicle.

The other two platforms may be similarly loaded and positioned in the enclosed end of the car and held fixed against lengthwise movement by the stop means 53. If desired, further lumber may be stored in the doorways on the floor structure as shown in FIG. 1 to fill the area in the vicinity of the door.

To facilitate the unloading of the railway vehicle 10 each of the platforms 21, as shown in FIGS. 3, 7 and 8, is provided with a pulley assembly 85. The pulley assemblies 85 each include a yoke 86 to the bight of which there is turnably attached one end of a fastening stud which is fixed at the other end to the front brace 28. Rotatably supported between the yoke arms 87 of each of the assemblies 85 is a pulley 88. It is to be noted that pulley assemblies 85 on the opposing ones of the platforms are located on the same side of the longitudinal center line in substantial longitudinal alignment.

Trained over the pairs of the pulleys 88 on each of the opposing platforms 21—21 is a cable 91. The ends of the cable 91 are formed into loops 92 and 93 by means of clamps 94. The clamps 94 have attached thereto a stop member 66 which bridges the yoke arms 87 of the yokes 86.

To move the platforms from the enclosed ends of the car 10 to the doorway 16 by means of the pulley-cable arrangement, one of the platforms 21 is restrained against longitudinal movement by an associated stop means 53, while the other platform 21 is released therefrom for longitudinal movement. Assuming, as shown in FIGS. 7 and 8, it is desired to move the platform 21 located in the right enclosed end of the car 10 into the doorway 16, a grapple hook is attached to the looped end 92 of the cable 91 and a pulling force exerted thereon. The counterbalance stop lever 61 associated with the right platform 21 is depressed to release the latter for movement along the tracks 19. As the pulling force is exerted on the cable 91 the stop member 96 adjacent the loop end 93 is drawn against the yoke arms 87, whereupon the right platform is pulled along the tracks into the door area 16. When the right platform 21 abuts against the left counterbalanced lever 61 of the stop 53*a*, the pulling force is released and the right counterbalanced lever engages the opposite end of the right platform 21 and holds the latter restrained within the door area 16. Thereafter the platform 21 may be loaded or unloaded.

To move the left platform 21 the right platform 21 is released from engagement from the right stop means 53*a* and pushed to the right enclosed end of the car 10 and restrained against longitudinal movement against the right end wall 13 by the right stop means 53. Thereafter, the grappling hook is attached to the loop 93 and a pulling force applied thereto.

In a manner similar to that described in connection with the moving of the right platform **21**, the stop **96** spans and engages the yoke arms **87** of the pulley assembly **85** associated with the left platform **21** and the latter is moved to the center of the car into the door areas **21**.

I claim:

1. In a railway vehicle of the box car type having a substantially centrally located door area, a pair of track mounted platforms movable lengthwise of the car into opposite enclosed ends of the box car and releasable platform stop means for retaining said platforms in lengthwise spaced opposing relationship in the enclosed ends of said box car, the improvement comprising pulley means attached to said opposing platforms in opposing relationship, a cable trained over said pulley means on each of said platforms, and stop means spaced from each of the respective ends of said cable, said stop means being engageable with said pulley means on one of said platforms upon the application of a pulling force to the other end thereof whereby when said platform associated with said one pulley means is released from said platform stop means said associated platform is moved into said door area.

2. The invention as defined in claim **1** wherein said respective ends of said cable are formed into loops.

3. The invention as defined in claim **2** wherein a clamp is used to form said loops and said clamp incorporates said stop means.

4. The invention as defined in claim **3** wherein said pulley means includes a yoke turnably supporting a pulley and said stop means spans said yoke.

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ROBERT G. SHERIDAN, *Primary Examiner.*

U.S. Cl. X.R.

214—83.24, 85.5; 105—366