Nov. 24, 1959 M. SEEL ET AL 2,914,003

RAILWAY CARS

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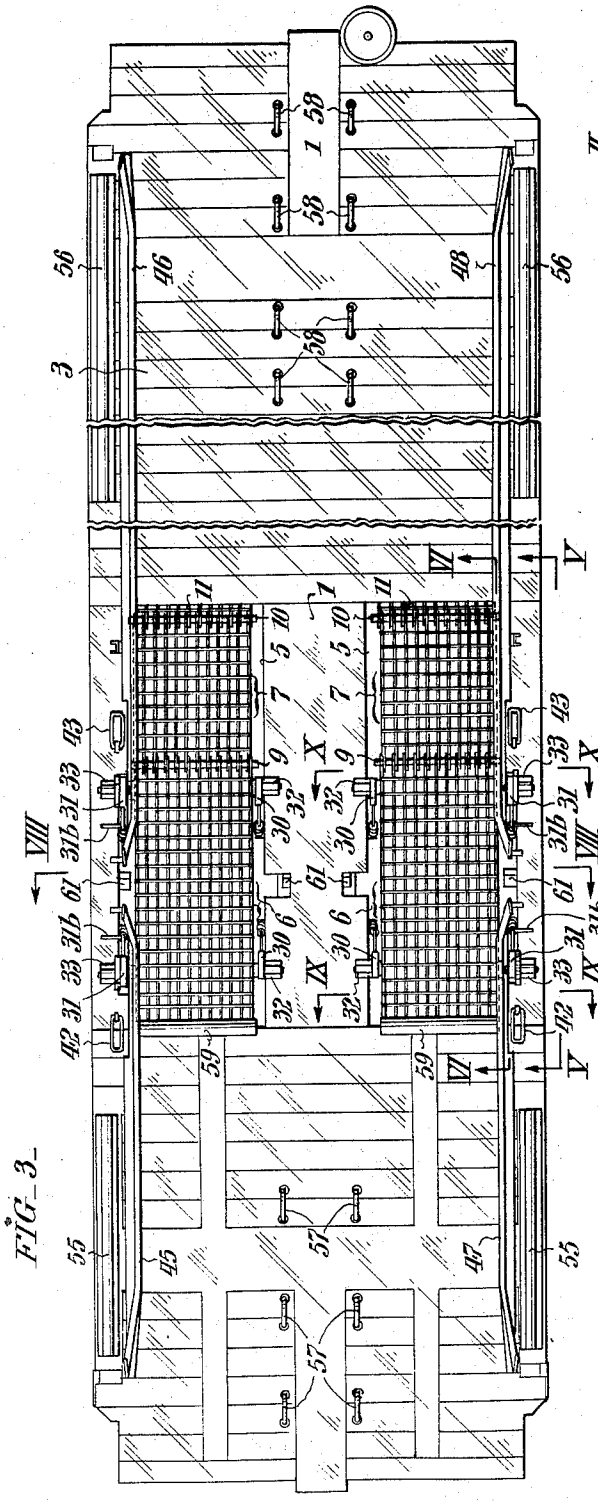

FIG. 3.

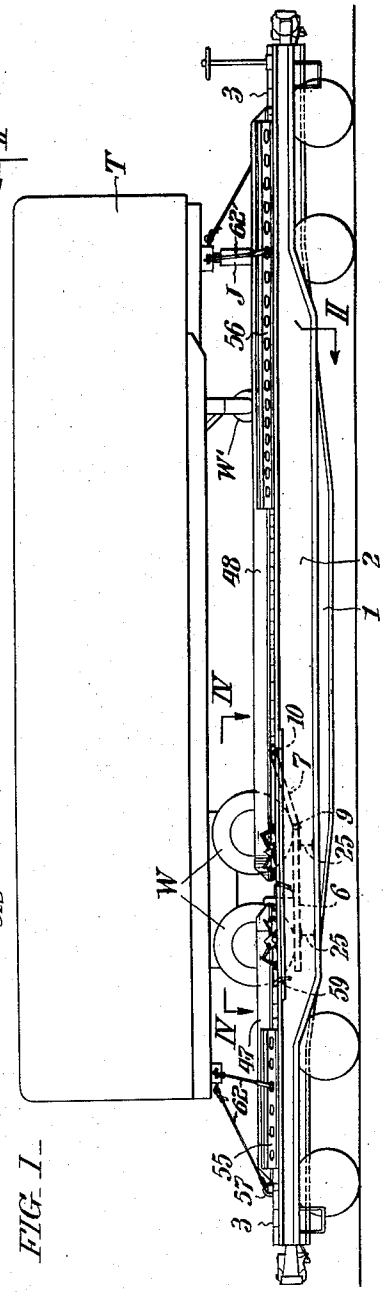

FIG. 1.

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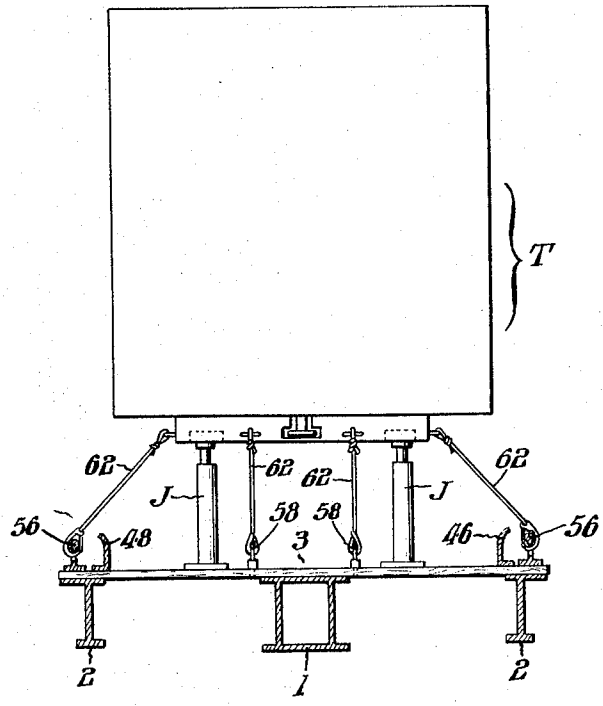
FIG. 2



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RAILWAY CARS

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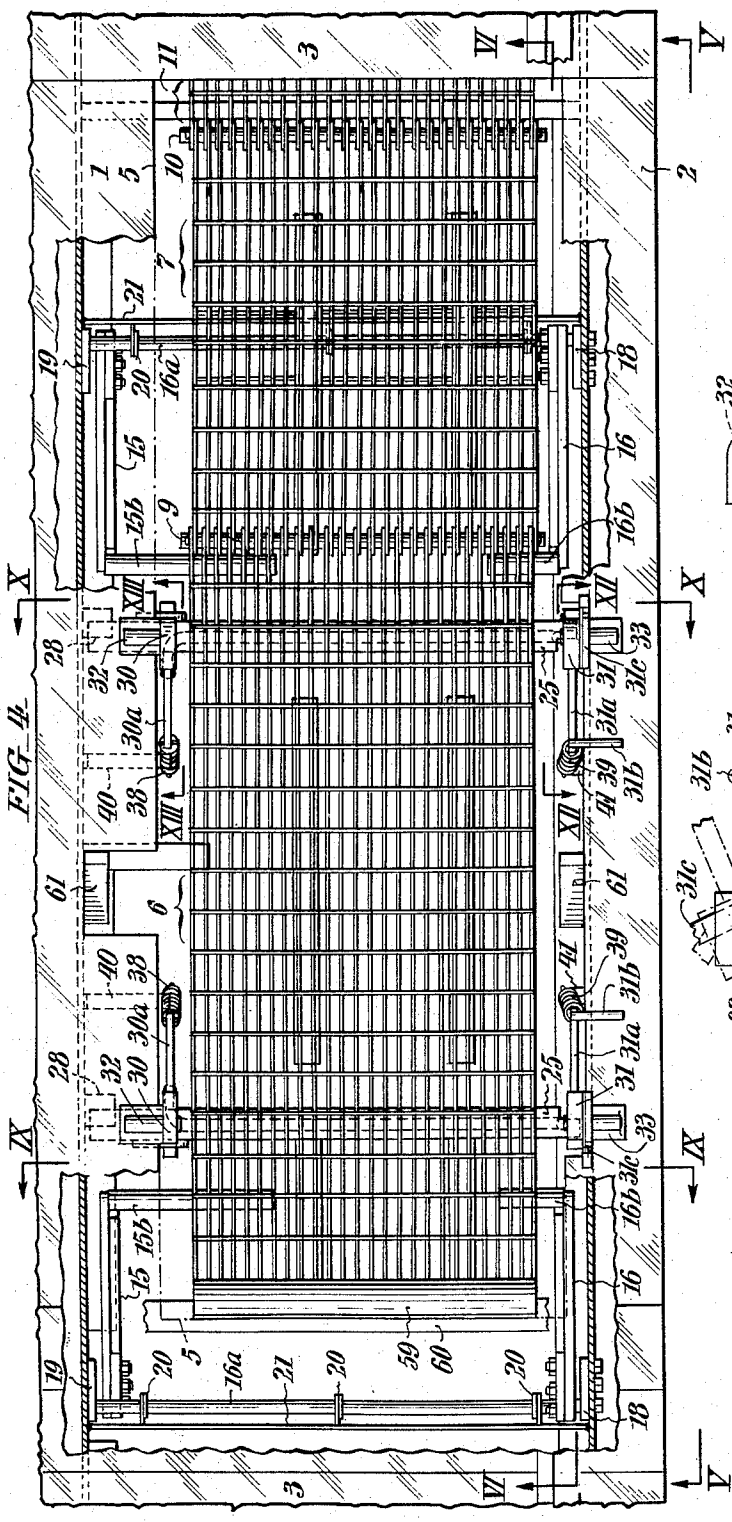

FIG. 4

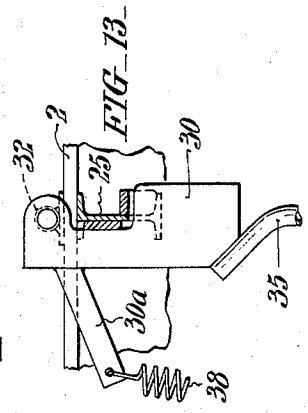

FIG. 13

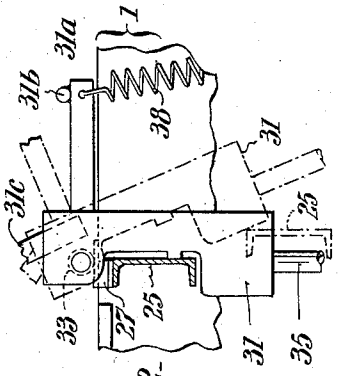

FIG. 12

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RAILWAY CARS

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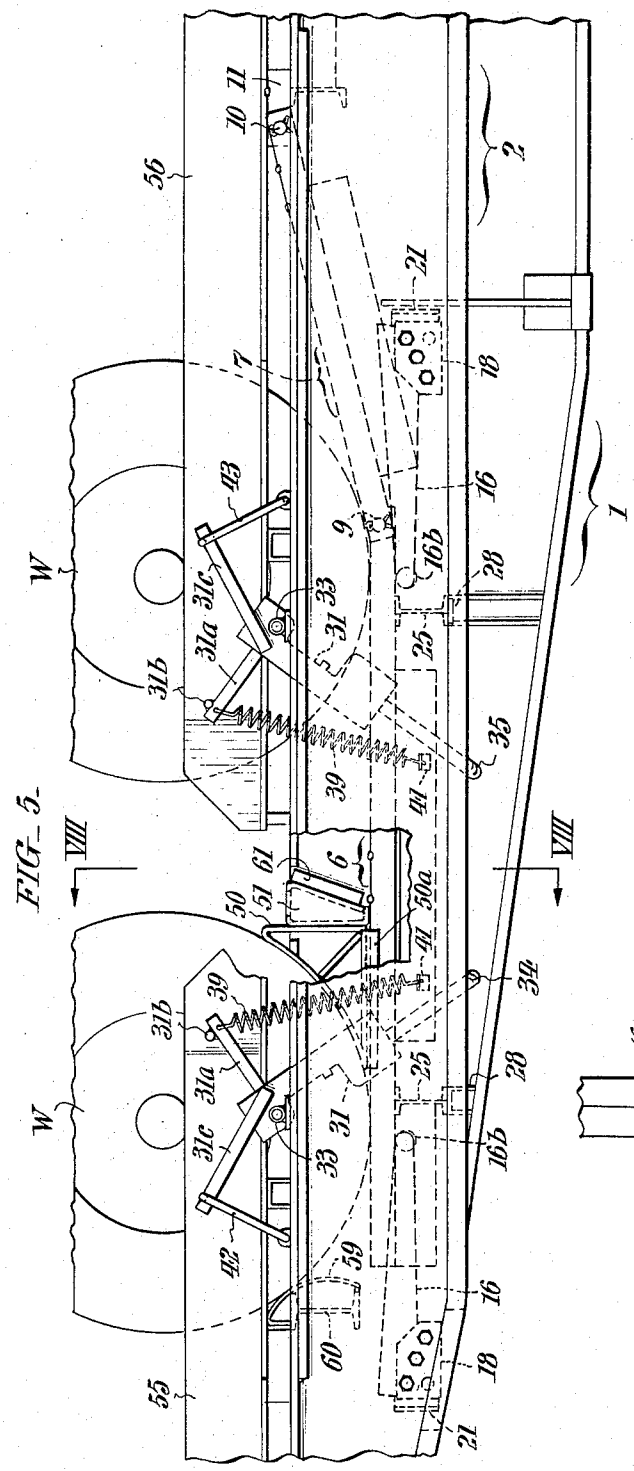

FIG. 5.

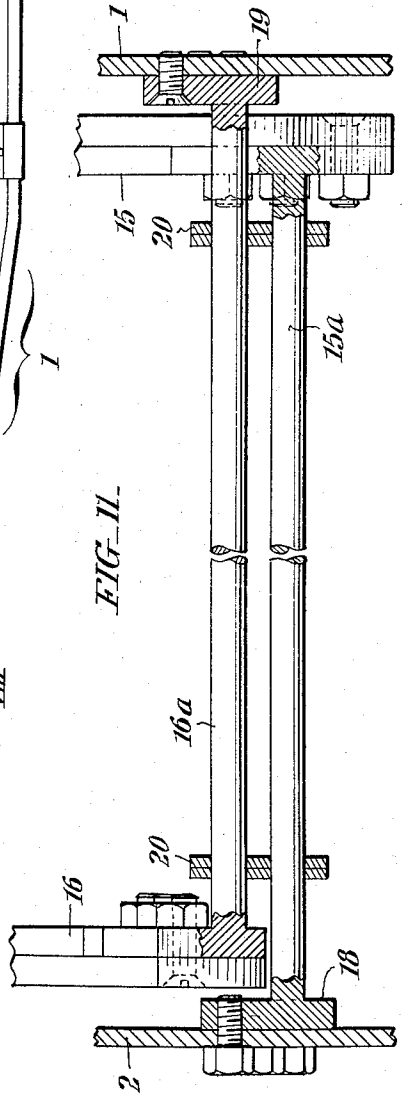

FIG. 11.

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RAILWAY CARS

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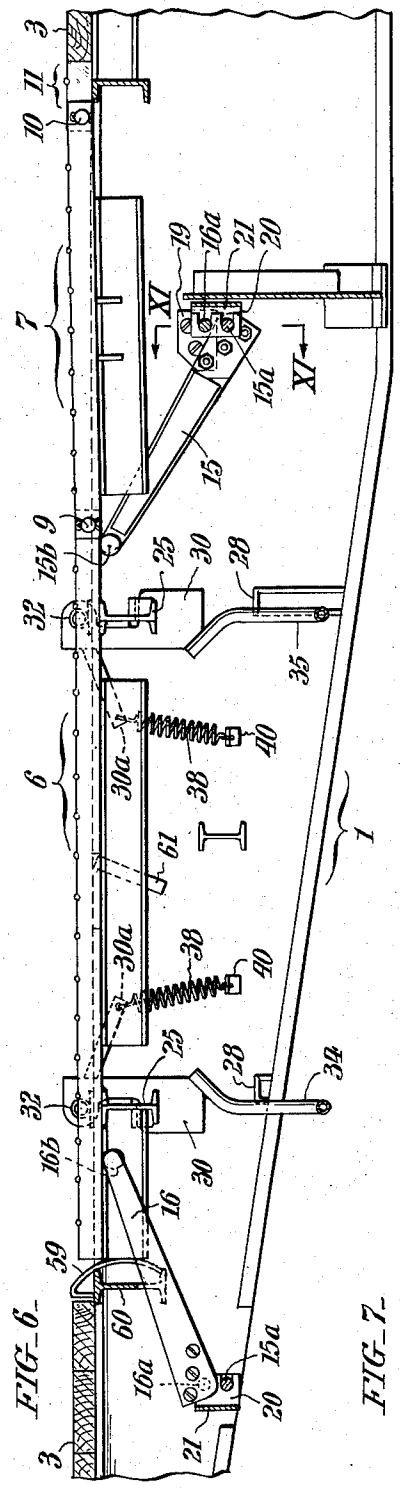

FIG. 6.

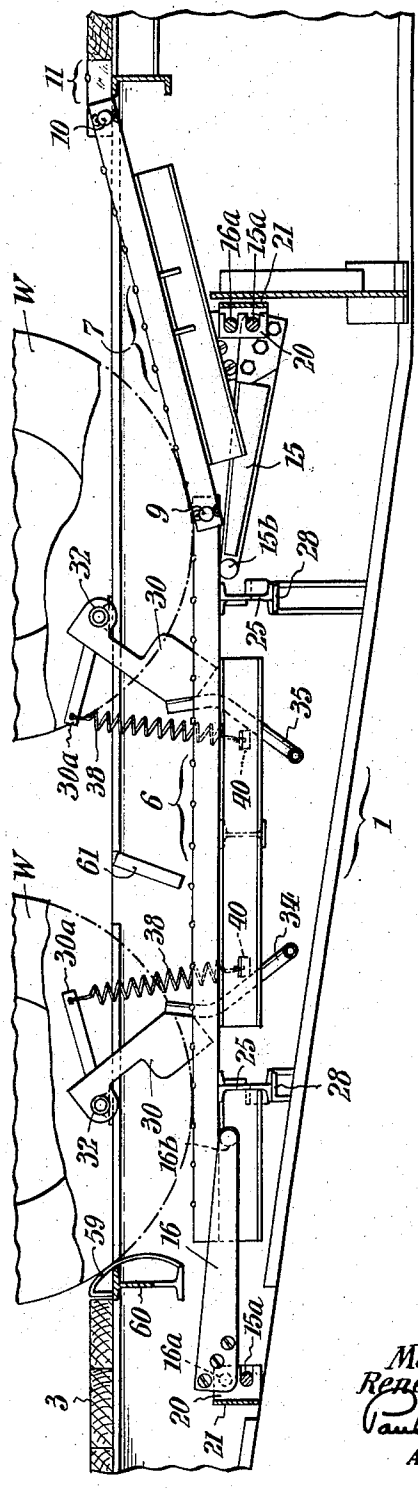

FIG. 7.

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RAILWAY CARS

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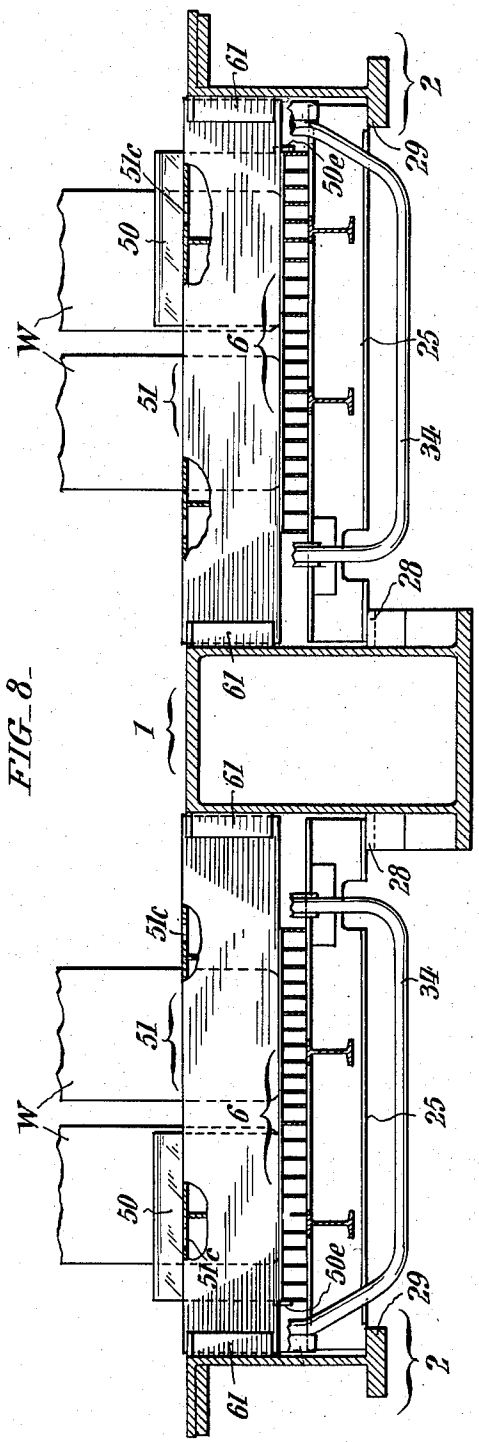

FIG. 8.

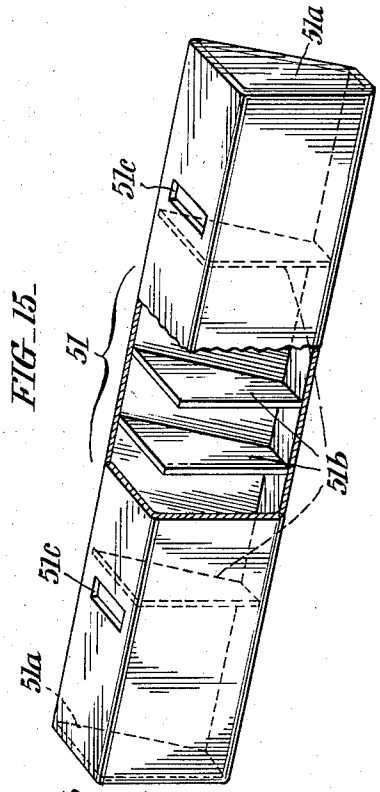

FIG. 15.

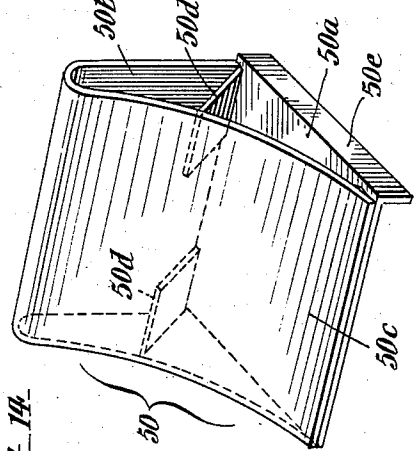

FIG. 14.

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RAILWAY CARS

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FIG_9_

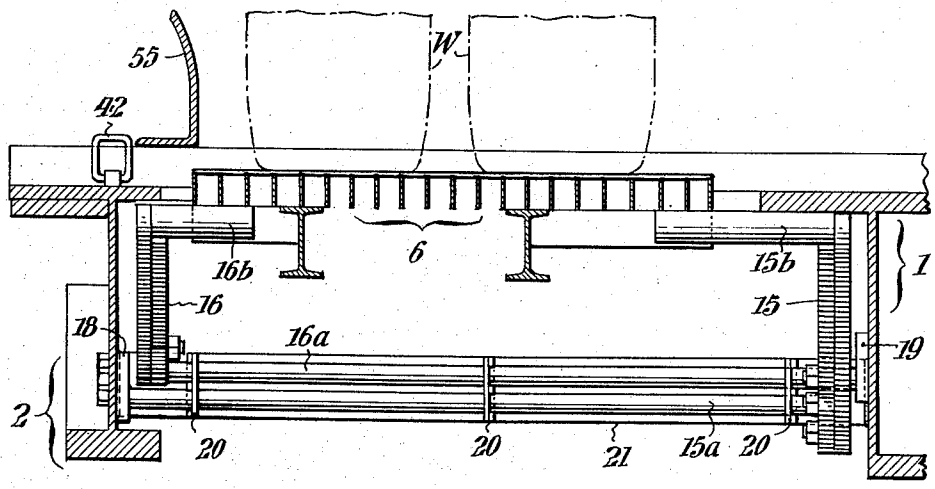
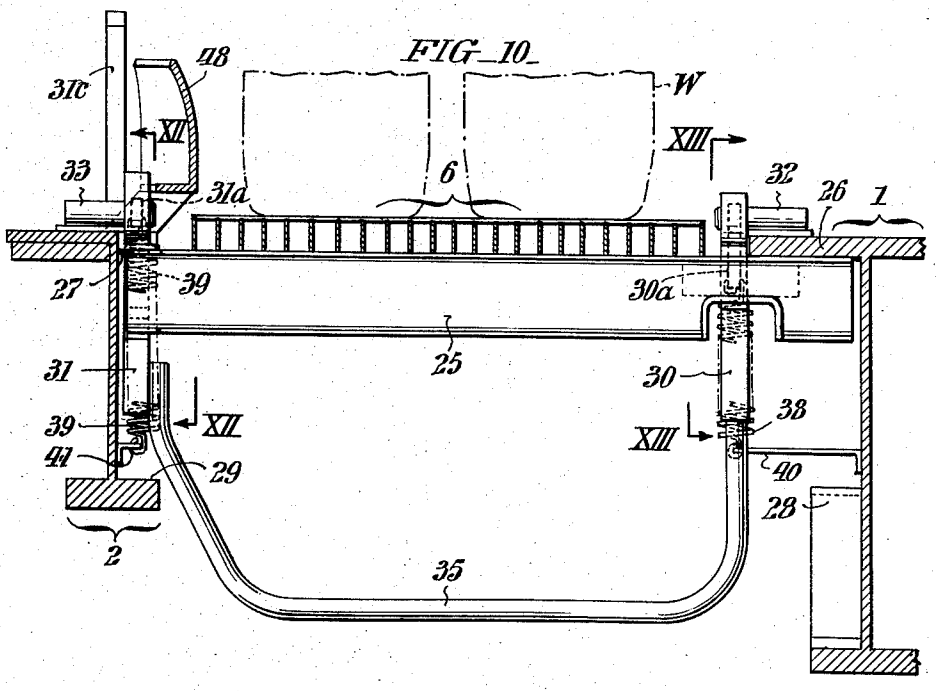


FIG_10_



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United States Patent Office 2,914,003 Patented Nov. 24, 1959

2,914,003

RAILWAY CARS

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Application April 11, 1957, Serial No. 652,161

5 Claims. (Cl. 105—368)

This invention relates to railway cars. More specifically, it is concerned with railway cars useful in transporting highway truck trailers or the like over long distances.

The chief aim of our invention is to provide a railway car for the above stated purpose having a flat top with normally raised platforms for support of the main or rear wheels of a trailer, capable of receding downwardly into pocket openings in the car top as the trailer is run onto the car; simple means for thereafter locking the wheels against rolling on the depressed platforms; and equally simple facilities for lashing down the trailer against the possibility of shifting on the car during transit.

A further aim of our invention is to provide retractable means which can be relied upon to lock the platforms in raised position flush with the top of the car so that a level runway is provided to facilitate loading a string of flat cars with trailers or for the transport of other kinds of freight.

Other objects and attendant advantages will appear from the following detailed description of the attached drawings, wherein:

Fig. 1 shows, in side elevation, a highway trailer-transporting railway car conveniently embodying our invention.

Fig. 2 is a cross section of the car taken as indicated by the angled arrows II—II in Fig. 1.

Fig. 3 is a view drawn to a larger scale showing the car in top plan with portions thereof broken out.

Fig. 4 is a fragmentary view in top plan on a still larger scale looking as indicated by the angled arrows IV—IV in Fig. 1, with portions shown in horizontal section and other portions broken away to expose important underlying details.

Fig. 5 is a fragmentary view in side elevation looking as indicated by the angled arrows V—V in Figs. 3 and 4, with the platform nearest the observer shown in dotted lines in lowered position.

Fig. 6 is a fragmentary view in longitudinal section taken as indicated by the angled arrows VI—VI in Figs. 3 and 4 with the platform in elevated position.

Fig. 7 is a view similar to Fig. 6 with the platform in depressed position.

Fig. 8 is a cross section of the car taken as indicated by the angled arrows VIII—VIII in Figs. 3 and 5.

Figs. 9 and 10 are transverse fragmentary views in section taken as indicated respectively by the angled arrows IX—IX and X—X in Figs. 3 and 4.

Fig. 11 is a fragmentary detail section taken as indicated by the angled arrows XI—XI in Fig. 6.

Figs. 12 and 13 are fragmentary detail sections taken as indicated by the angled arrows XII—XII and XIII—XIII in Figs. 4 and 10; and

Figs. 14 and 15 are perspective views respectively of a chock and wedge element therefor which we have devised for preventing rolling of the main or rear wheels of the trailer on the depressed platforms during travel of the railway car.

With more specific reference first to Figs. 1–4 and 8–10 of these illustrations, it will be noted that the chassis frame of the railway car is generally of well-known construction, the center sill thereof being designated by the numeral **1** and the side sills by the numeral **2**. As shown, the car has a flat top **3** formed of transversely-laid planking which is omitted adjacent one end of the car to provide between the center sill **1** and the side sills **2** respectively, a pair of transversely-aligned longitudinally-elongate rectangular openings **5**. Disposed in the openings **5** are depressible platforms **6** for the support respectively of the main or rear wheels W of a trailer T, and associated with the respective platforms are ramp sections **7**, both said platforms and said ramp sections being constructed from metallic stock materials into the form of grids for ready water shedding. As shown in Figs. 4–7, each platform **6** is hingedly connected at one end to the corresponding end of the associated ramp section **7** by a cross rod **9**, the opposite end of said section being hingedly connected, in turn, to a cross rod **10** engaged in bearing member **11** affixed respectively to the center sill **1** and the corresponding side sill **2** of the car frame. Moreover, each platform **6** is yieldingly sustained from beneath adjacent opposite ends by pairs of arms **15** and **16**. The arm **15** of each pair is fast upon one end of a transverse torsion rod **15***a* (see Figs. 9 and 11) whereof the other end is fixedly anchored in a bracket **18** bolted to the inner face of a side sill **2**, and the other arm **16** is likewise fast upon one end of a separate transverse torsion rod **16***a* whereof the other end is fixedly anchored in a bracket **19** bolted to the inner face of the center sill **1**. The rods **15***a* and **16***a* of each pair are arranged one above the other and are supported for torsional movement in vertically-spaced notches of bearing lugs **20** on a fixed member **21** extending crosswise between the center sill **1** and the side sill **2** as best seen in Figs. 4–7 and 9. As further shown, the arms **15** and **16** of the respective pairs have lateral projections **15***b*, **16***b* at their distal ends which underreach the platform **6** adjacent its opposite ends. Accordingly, by torsional action of the rods **15***a*, **16***a* upon the arms **15**, **16** the corresponding platform **6** is yieldingly urged upwardly. When in raised position flush with the car top as in Fig. 10, each platform **6** is stopped by engagement of the ends of transverse reinforcing beams **25** at the bottom thereof with the under sides of inward flange projections **26** and stops **27** respectively at opposite sides of the corresponding opening in the car top. When depressed, the platform **6** is stopped by engagement of the ends of the reinforcing beams **25** with stop projections **28** and inward flanges **29** respectively on the center sill **1** and the side sill **2** as best shown in Figs. 5 and 8.

For locking each platform **6** in raised position, we have provided pairs of hook elements **30** and **31** which are pivotally suspended from brackets **32** and **33** respectively fixed upon the tops of the center and side sills **1** and **2** at opposite sides of the opening in the car top, and which are adapted to engage beneath the opposite ends of the reinforcing beams **25** of said platform as shown in Figs. 6, 12 and 13. Transverse pairs of the hook elements **30** and **31** are connected, as best seen in Figs. 6–8 and 10, by U-shaped cross bars **34** and **35**, the downward swing of said elements being limited by engagement of said bars with the beams **25** as best seen in Figs. 12 and 13. Springs **38** and **39**, secured at one end to anchorage lugs **40** and **41** respectively on center and side sills **1** and **2** and connected at their other ends to arms **30***a* and **31***a* on the hook elements **30** and **31**, serve to maintain said elements in locked position with capacity to be retracted as shown in Figs. 5 and 7, to permit the platform **6** to recede downwardly when the

trailer T is run onto the car as later on explained. As shown in Figs. 3 and 5 suitably allocated swing loops 42 are provided on the tops of the side sills 2 for engaging over other arms 31*c* of the hook elements 31 to hold said elements in retracted position against the pull of the springs 38 and 39.

Mounted on the car top along opposite sides are aligned pairs of trailer wheel guide and guard rails 45, 46 and 47, 48 which extend from the openings 5 in the car top to the opposite ends of the car. It is to be noted that the inner ends of the rails 45, 46, and 47, 48 of the respective pairs are spaced by a short distance to provide clearances for insertion of wheel chocks and retaining elements such as separately illustrated in Figs. 14 and 15 respectively and there designated 50 and 51 after the trailer T is run onto the car.

Referring to Fig. 14, the wheel chock is made up from suitable stout plate metal parts which are welded together along the regions of mutual abutment, said chock having a rectangular bottom 50*a* with a pendent flange 50*e* along one side edge, a vertical back 50*b*, and a front 50*c* which is convexly rounded to conform with the peripheral curvature of the main or rear wheels W of a trailer T, and is braced from the back by inclined buttress pieces 50*d*.

The wedge 51 (Fig. 15) is likewise made up from suitably stiff plate metal parts which are similarly integrated along the regions of mutual abutment, the element thus formed being hollow, closed at opposite ends as at 51*a*, reinforced in the top thereof with grasp holes 51*c*.

In accordance with our invention, the car is further provided, adjacent opposite ends outward of the guard rails 45 and 46 with pairs of apertured bars 55 and 56, and with parallel rows of eyes 57 and 58 for anchorage of tie-down chains or cables as presently explained.

To prepare the car for reception of a trailer, the hook elements 30, 31 are swung to the clearing position in which they are shown in Fig. 5 and made fast in this position against the pull of the springs 39 by means of the loops 42. The trailer is then backed onto the car from the right hand end thereof in Figs. 1–3 incident to which the rear or main wheels W are guided by the guard rails 46, 48 said wheels eventually rolling down the ramp sections 7 associated with platforms 6, the wheels coming to rest on said platforms as said ramp sections and said platforms recede, against convexedly rounded stops 59 weld-integrated to beams 60 extending crosswise between the center and side sills 1 and 2. The downward recession of the ramp sections 7 is yieldingly but effectively resisted incidentally by the torsional action of the rods 15*a* and 16*a*, and the descent of the platforms is limited, of course, upon contact of the reinforcing beams 25 at their bottoms with the projections 28 and 29 hereinbefore referred to. With the trailer T now on the car, the wheel chocks 50 are placed as instanced in Fig. 5, and the wedge blocks 51 inserted between said chocks and inwardly-projecting sloped lugs 61 at opposite sides of the platform openings in the car top. The front end of the trailer is thereupon raised, and supported by means of the jacks shown at J in Figs. 1 and 2, to take the weight off the auxiliary wheels W', and the trailer is finally lashed to the car at the front and back by means of tie-down chains or cables 62 engaged with the apertured bars 56 and with eyes 58 at opposite ends of the car top as shown in Figs. 1 and 2. Upon subsequent removal of the trailer T, the platforms and the associated ramp sections are raised flush with the car top by torsional reaction of the rods 15*a* and 16*a*, and the hook elements 30 and 31 swing into position automatically, as instanced in Figs. 6, 12 and 13, to so hold and lock said platforms and ramp sections. It is to be particularly noted that the location of the openings 5 is such that trailers of varying lengths can be readily accommodated on the car. In all cases, maximum height and maximum side clearance are provided with reduction in the height of the center of gravity.

By way of further example, we may provide the car with but a single opening in its top and single depressible platform and associated ramp section for the support of both rear wheels (or groups of such wheels) of the trailer instead of two separate platforms and ramps.

We do not, of course, consider ourselves restricted to the precise details of construction herein disclosed since various other modifications are possible within the scope of the appended claims, as will be readily understood by those skilled in the building of railway cars, without departing from the spirit of the invention.

Having thus described our invention, we claim:

1. A railway car, for transporting a highway truck trailer or the like, having a frame, and a flat deck with a pair of transversely-aligned openings therein; a platform disposed in each opening; yielding means for supporting each platform from beneath adjacent its opposite ends with capacity to be depressed by engagement therewith of the rear wheels of a trailer as the trailer is run onto the car, each such means comprising a pair of torsion rods arranged crosswise of the car and respectively secured, each at one end, to the car frame at opposite sides of the corresponding opening, and arms at the opposite ends of the rods of the respective pairs engaging the platform from beneath adjacent the corresponding end thereof; and stops on the car frame at opposite sides of the opening for limiting the drop of the platform upon being depressed under the weight of the rear trailer wheels as the trailer is run onto the car, and for rigidly supporting the platform in depressed position.

2. A railway car according to claim 1, further including means for rigidly supporting the platforms in elevated position flush with the car top when the car is to be used for freight other than trailers, said supporting means comprising hooks pivotally suspended at opposite sides of each opening in the car top and adapted to engage beneath the ends of reinforcing cross bars at the bottom of the platform, spring means tending to urge the hooks to operative position, and releasable means for normally holding the hooks retracted in opposition to the force of the springs.

3. A railway car, for transporting a highway truck trailer or the like, having a frame with a center sill, laterally-spaced side sills and a flat deck with a pair of transversely-aligned openings therein respectively between the center and side sills; a platform disposed in each opening: yielding means for supporting each platform from beneath adjacent its opposite ends with capacity to be depressed by engagement therewith of the rear wheels of a trailer as the trailer is run onto the car, each such means comprising a pair of torsion rods arranged crosswise of the car and respectively secured, each at one end, to the center sill and the corresponding side sill of the car frame, and arms on the opposite ends of the respective rods of each pair for engaging the platform from beneath adjacent the corresponding end thereof; and stops on the center sill and the corresponding side sill of the car frame for limiting the drop of the platform upon being depressed under the weight of the rear trailer wheels as the trailer is run onto the car, and for rigidly supporting the platform in depressed position.

4. A railway car according to claim 3 further including a ramp section with one end thereof hingedly connected to one end of each platform, the other end of said ramp section being connected to the approach end of the corresponding opening in the car top; and transversely-aligned sloped lugs projecting inwardly respectively from the center and side sills of the car in the respective openings for insertion of wedge blocks between said lugs and chocks placed on the platforms behind the rear trailer wheels after the trailer is run onto the car.

5. A railway car, according to claim 3, further including means for rigidly supporting the platforms in elevated

position flush with the car top when the car is to be used for freight other than trailers, said supporting means comprising hooks pivotally suspended at opposite sides of each opening in the car top and adapted to engage beneath the ends of reinforcing cross bars at the bottom of the platform, spring means tending to urge the hooks to operative position, and releasable means for normally holding the hooks retracted in opposition to the force of the springs.

References Cited in the file of this patent

UNITED STATES PATENTS

2,118,364	Sheehan	May 24, 1938
2,159,479	Goodwin et al.	May 23, 1939
2,585,126	Holland	Feb. 12, 1952
2,587,456	Francis	Feb. 26, 1952
2,605,007	Gaynor	July 29, 1952