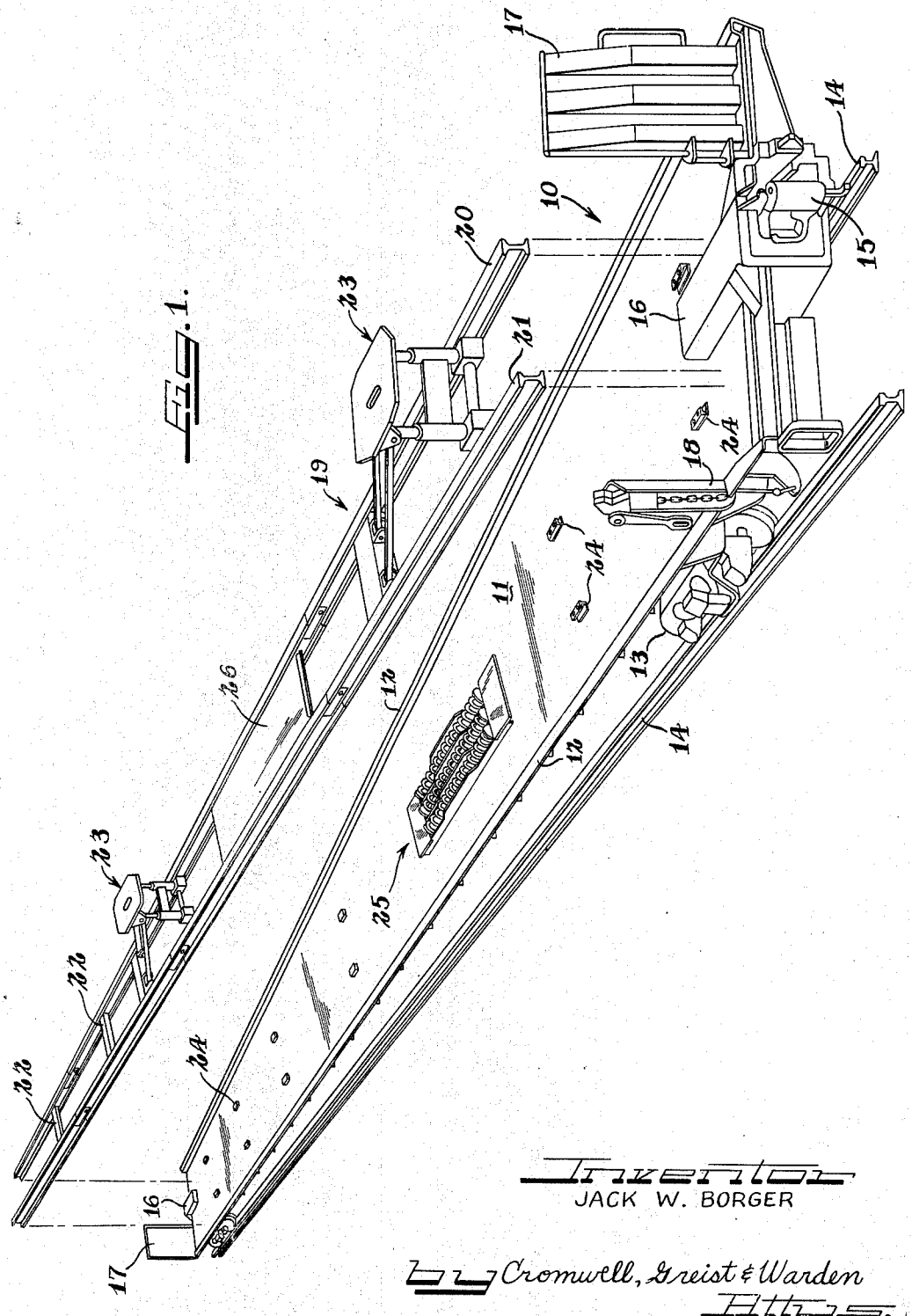
Dec. 21, 1965 J. W. BORGER 3,224,384

CUSHIONED RACK ASSEMBLY FOR RAILWAY CARS

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Fig. 1.



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CUSHIONED RACK ASSEMBLY FOR RAILWAY CARS

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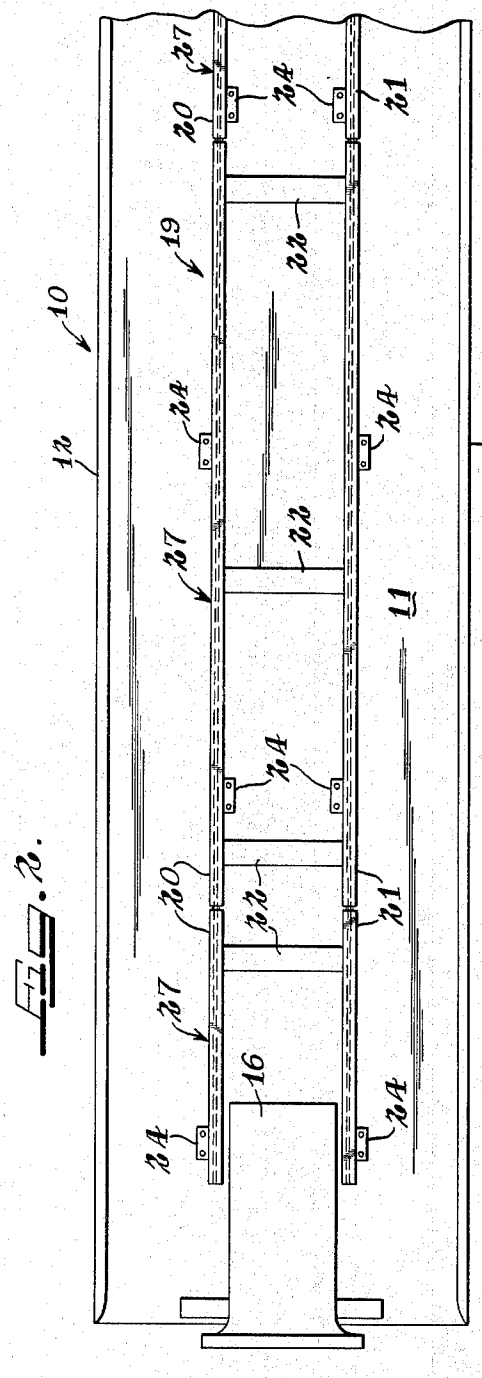


FIG. 2.

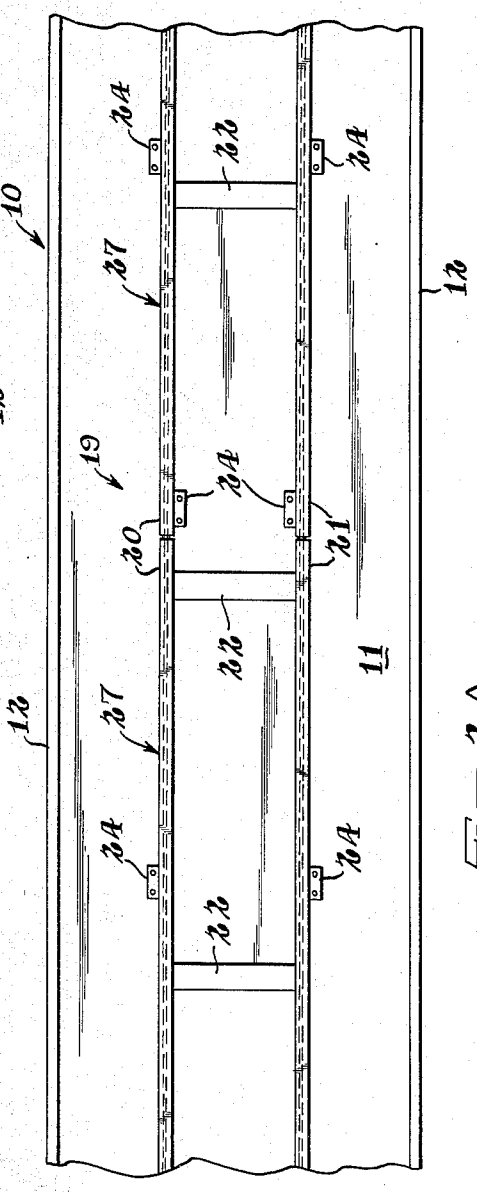


FIG. 2A.

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CUSHIONED RACK ASSEMBLY FOR RAILWAY CARS

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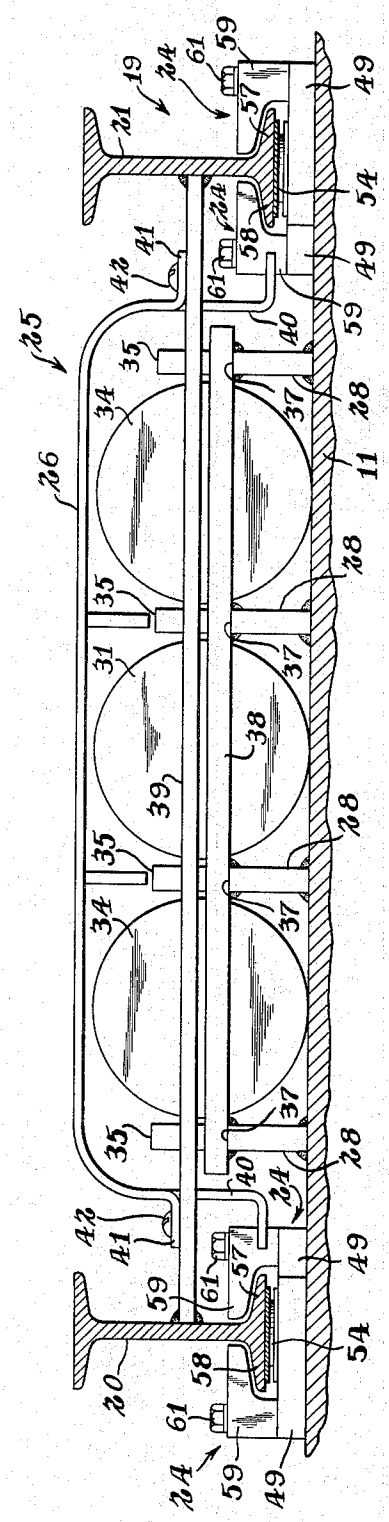


Fig. 6.

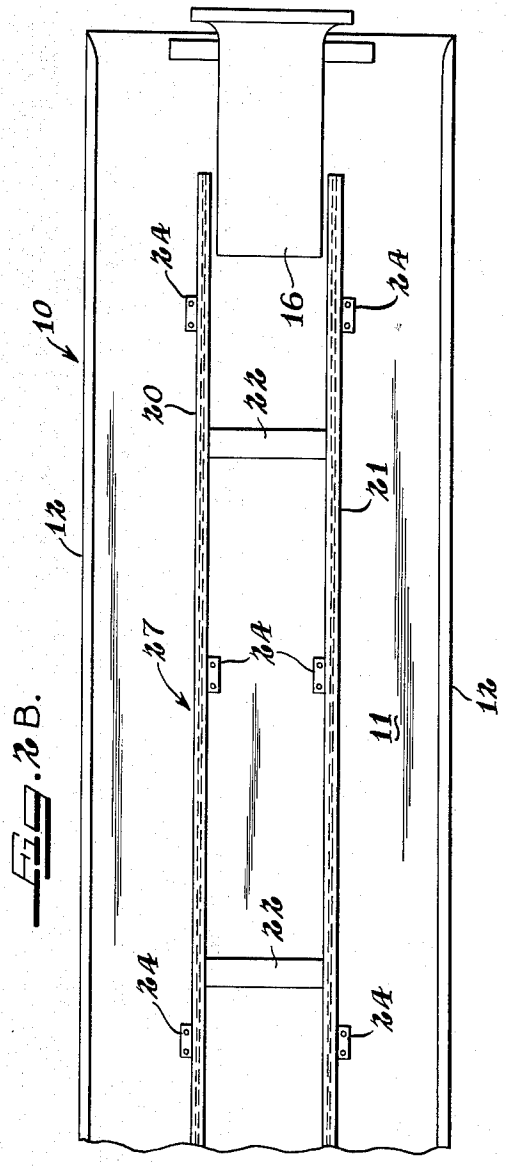


Fig. 8B.

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CUSHIONED RACK ASSEMBLY FOR RAILWAY CARS

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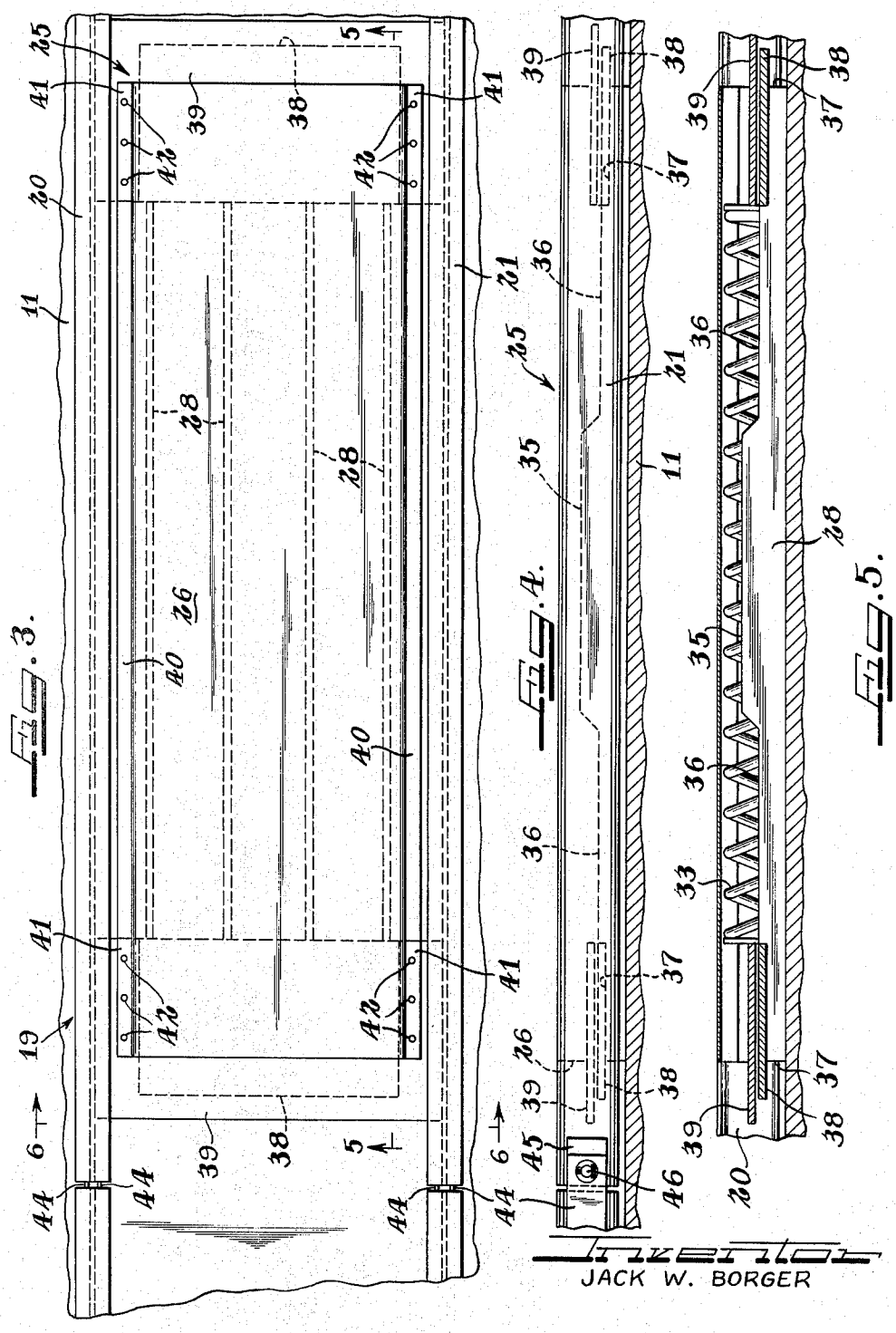


Fig. 3.

Fig. 4.

Fig. 5.

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CUSHIONED RACK ASSEMBLY FOR RAILWAY CARS

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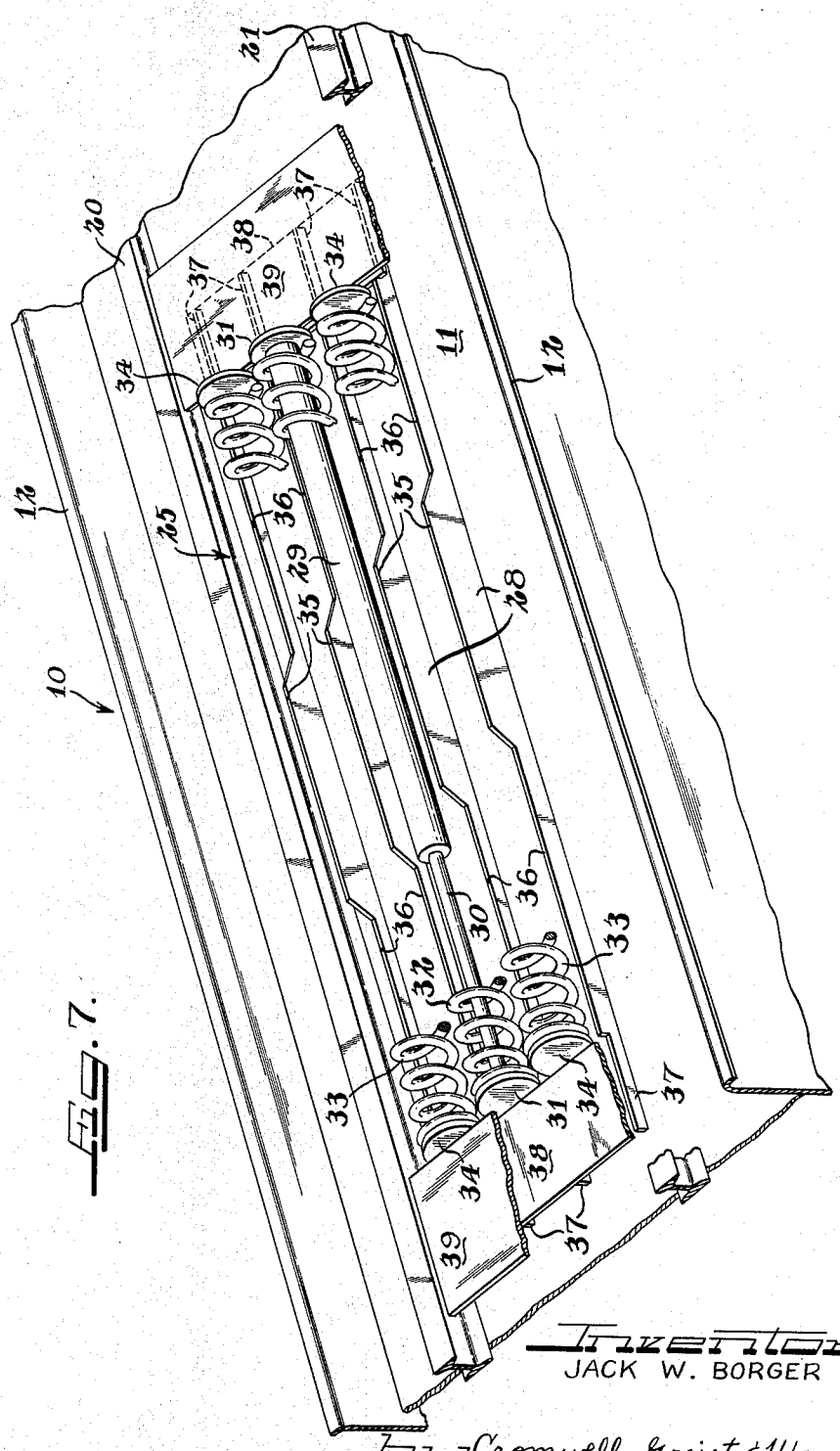


Fig. 7.

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CUSHIONED RACK ASSEMBLY FOR RAILWAY CARS

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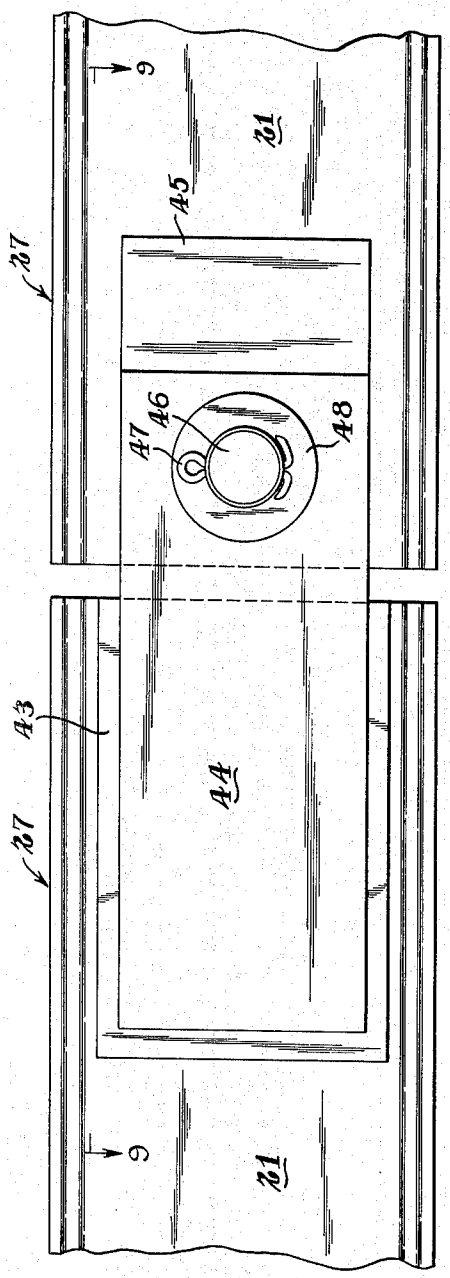


Fig. 8.

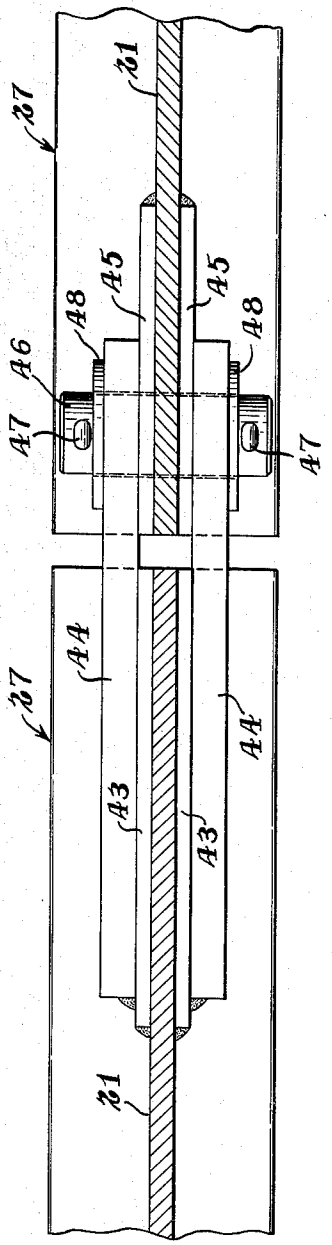


Fig. 9.

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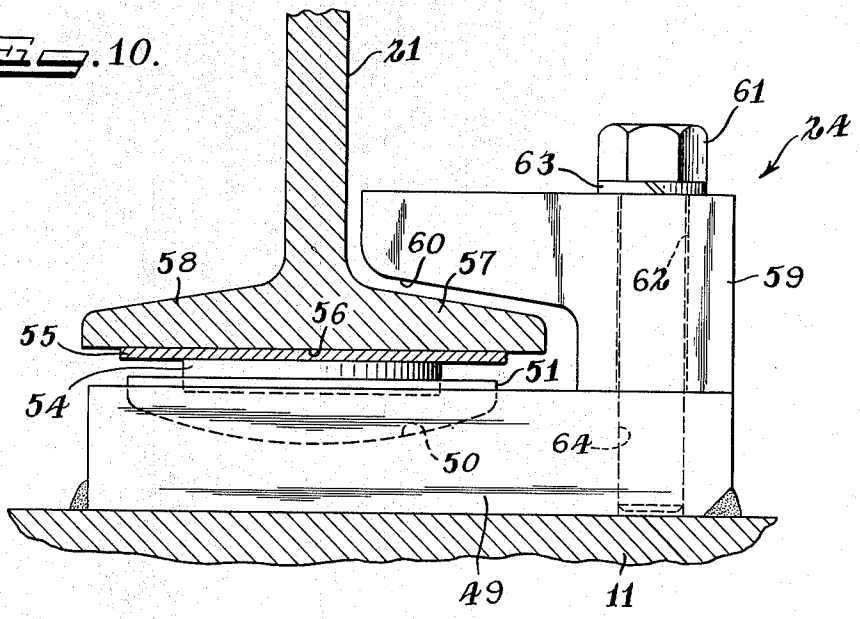
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CUSHIONED RACK ASSEMBLY FOR RAILWAY CARS

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Fig. 10.



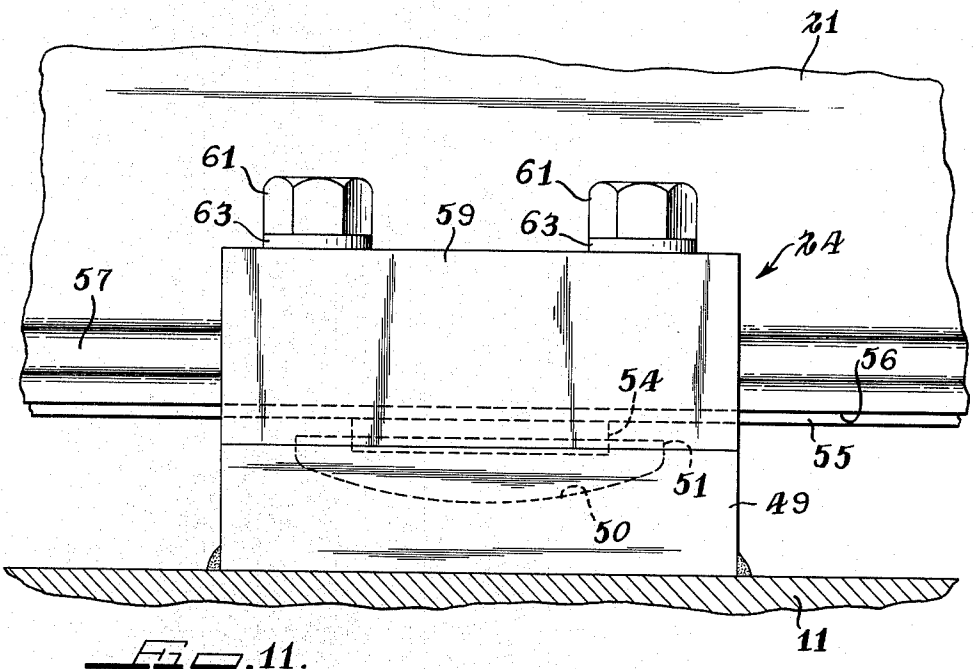


Fig. 11.

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CUSHIONED RACK ASSEMBLY FOR RAILWAY CARS

Filed Dec. 15, 1961 8 Sheets-Sheet 8

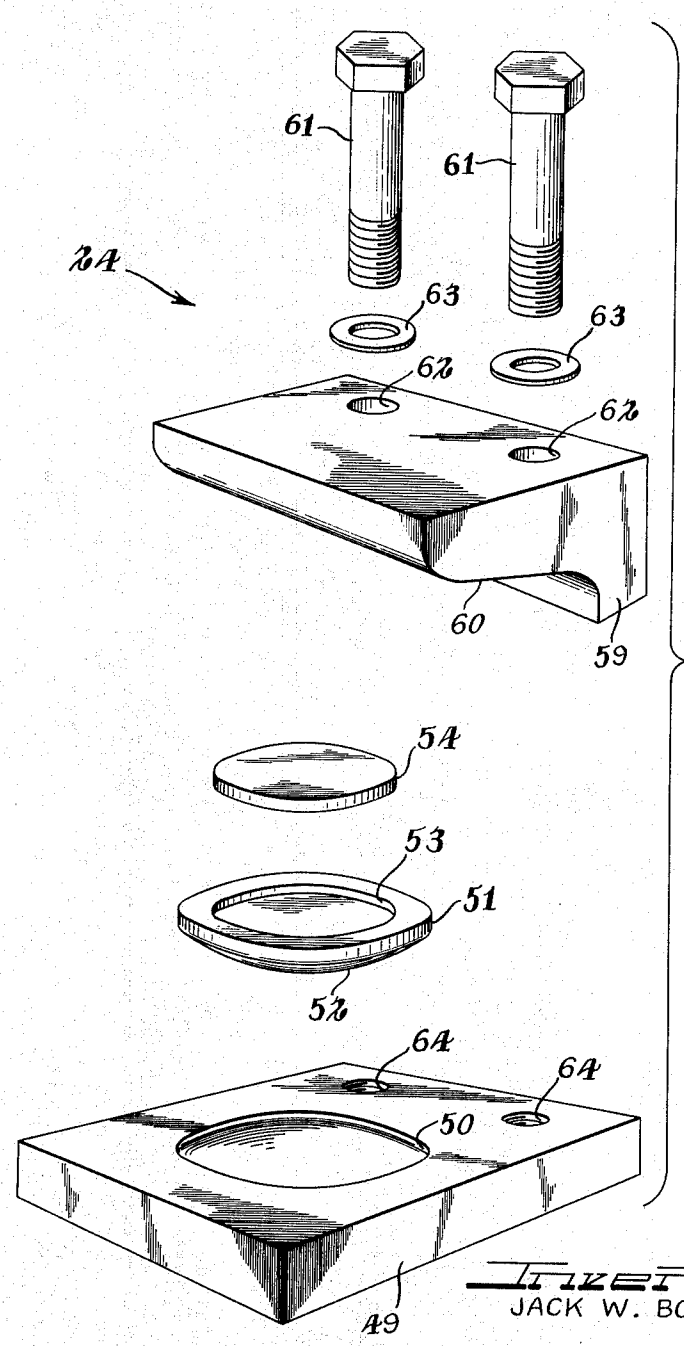


Fig. 12.

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Patented Dec. 21, 1965

3,224,384

CUSHIONED RACK ASSEMBLY FOR RAILWAY CARS

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Filed Dec. 15, 1961, Ser. No. 159,543
14 Claims. (Cl. 105—368)

This invention relates to improvements in vehicles, such as railway cars, adapted for piggyback-type lading operations, the vehicle being provided with a deck portion having mounted thereon lading engaging means attached to the vehicle through a cushion assembly providing for controlled relative movement between the lading engaging means and the vehicle. More specifically, the invention is directed to improvements in lading engaging means, particularly rack assemblies, and the cushioned interconnection thereof to a vehicle, the lading engaging means being sectionalized in a new and improved manner and adapted for ready operative mounting and improved fuctioning on the vehicle.

Basic cushion rack assemblies are in general use in the railroad industry, such assemblies essentially comprising transversely spaced and interconnected rail members mounted longitudinally of an open deck portion of a railway flat car, the rail members being supported and engaged by bracket-type hold down means to permit longitudinal relative movement between the rack assemblies and cars supporting the same, such relative movement being controlled by cushion means which, in effect, operatively interconnect the rack assemblies to the car structures. The rack assemblies may be adapted for the support of a plurality of freight containers thereon, may be equipped with fifth wheel stands for supporting the king pin end of a semi-trailer with the axle supported end of the semi-trailer being supported on the deck of the car, may be supplied with truck axle attachment means to provide for movement of trucks or other wheeled vehicles with the rack assemblies, etc. With such a wide variety of use, the rack assemblies should be capable of efficient functioning under variable load conditions. It has been the practice to utilize one-piece rail members of continuous length and, when applied to cars of substantial length such as 80 feet or more, continuous rack assemblies have been found rather difficult to fabricate, install and operate efficiently under widely variable stress conditions throughout their lengths. Cushion operating means which define the basic operational interconnection of the rack assemblies to the car are also subjected to a wide variance in operational stresses. By way of example, cars have been utilized with maximum cushioned travel ranging from 7 to 30 inches. In attempting to take into consideration all of the variables encounteerd in operational use, it has generally been the procedure to specifically design each rack assembly and cushion interconnection arrangement for performance under a given set of expected operating conditions. This, in effect, often requires customized design and fabrication with attendant increased cost.

It is an object of the present invention to provide a new and improved lading engaging arrangement for cushioned travel on a vehicle such as a railway car, the lading engaging arrangement permitting uniformity in design and fabrication over a wide range of variable conditions of operational use with attendant economies in fabrication and installation.

Another object is to provide a new and improved cushion connection arrangement for use in establishing cushioned travel between lading engaging means such as a rack assembly and a vehicle such as a railway car, the cushion connection arrangement including elements

of uncomplicated design which are cooperatively arranged to provide efficient operation under widely viariable stress conditions.

A further object is to provide a new and improved rack assembly for cushioned interconnection with a vehicle such as a railway car, the rack assembly being sectionalized with the sections being interconnected for efficient unitary operation and improved individual reaction to localized stresses.

Still another object is to provide new and improved rack assembly rail member hold down means which permit ease in rack assembly installation and dismounting, the hold down means being particularly adapted for use with the special sectionalized rack assembly of the present invention.

Another object is to provide a new and improved cushion rack assembly for use with a railway car and the like, the assembly including special sectionalized portions, cooperating hold down means and cooperating cushion operating means, all of these means being uniquely designed and arranged to provide uniformity in rack assembly design for widely varying uses and ease of installation.

Other objects not specifically set forth will become apparent from the following detailed description of the invention made in conjunction with the accompanying drawings wherein:

FIG. 1 is an exploded perspective of a railway car and rack assembly of the present invention;

FIGS. 2, 2A and 2B are generally schematic plan views of the rack assembly mounted on the railway car;

FIG. 3 is a fragmentary plan view of the cushion assembly of the inveniton;

FIG. 4 is a fragmentary side elevation of the cushion assembly;

FIG. 5 is a fragmentary longitudinal section of a portion of the cushion assembly as viewed generally along line 5—5 in FIG. 3;

FIG. 6 is an enlarged fragmentary, partly sectioned end view of the cushion assembly taken generally along line 6—6 of FIG. 3;

FIG. 7 is a fragmentary perspective of a portion of the cushion assembly;

FIG. 8 is an enlarged fragmentary side elevation of the special rack section interconnection arrangement;

FIG. 9 is a sectional plan view of the interconnection arrangement as viewed generally along line 9—9 in FIG. 8;

FIG. 10 is a fragmentary, partly sectioned end view of the special rack assembly hold down means of the invention;

FIG. 11 is a fragmentary side elevation of the hold down means; and

FIG. 12 is an exploded perspective of the hold down means.

FIG. 1 illustrates an open deck flat car **10** of any suitable design including a flat, longitudinally extending, open deck portion **11** forming a part of the car body between upstanding side sills **12**. Opposite ends of the body of the car **10** are supported by wheel truck units **13** for engagement with standard rails **14**. The car **10** illustrated is of low height, light weight construction with the deck portion **11** thereof being lower than the deck of conventional cars thus permitting overpass clearance by lading of increased height, such as freight containers and truck trailers. To place the opposite end couplers **15** at standard operating height for use with cars of conventional design, each end of the car **10** is provided with a raised coupler housing **16**. Bridge plates **17** are positioned at opposite ends of the car and located for cooperative use with bridge plates of similar cars during longitudinal loading and unloading of a series of

interconnected cars **10**. Hand brake apparatus **18** completes the basic car structure illustrated in FIG. 1.

The new and improved rack assembly **19** of the invention is shown in FIG. 1 as including basically a pair of parallel, longitudinally extending rail members **20** and **21** which are interconnected by a plurality of transverse members **22**. Any suitable number of interconnecting members may be used as best illustrated in FIGS. 2, 2A and 2B. At suitably spaced intervals, the rack assembly **19** has operatively mounted thereon a pair of fifth wheel stand assemblies of known type and generally designated by the numeral **23**. Any suitable fifth wheel stand assembly may be used with the rack assembly of the present invention and the assemblies **23** will not be described in detail as they do not constitute a specific part of the invention. Such fifth wheel stand assemblies are preferably operatively connected solely to the rack assembly **19** for operation into and out of a raised position as illustrated in FIG. 1. In other words, the fifth wheel stand assemblies **23** are connected between the rail members **20** and **21** for pivotal operation therebetween and may be raised for cooperation with the king pin of a truck trailer or may be lowered into flat recessed condition between the rail members **20** and **21** to receive containers or other lading thereover in supported engagement with the top flat surfaces of the rail members **20** and **21**.

The rack assembly **19** is suitably attached to the deck **11** of the car **10** by a plurality of longitudinally spaced, bracket-like hold down and support means **24**. The hold down means are of special design as will be described in detail and constitute a part of the present invention in combination with the rack assembly **19**. These hold down means generally support the rail members **20** and **21** in engagement with their bottom flat surfaces in spaced relation above the deck **11** and permit relative longitudinal movement between the rack assembly **19** and car **10**. Controlling of the extent of such movement is afforded by a cushion assembly **25** having a substantial number of the elements thereof carried by the deck **11** of the car **10** and further including other elements, such as cover plate **26**, carried by the rack assembly **19** between the rails **20** and **21** thereof. The new and improved cushion assembly **25** will be described in detail and while only one such assembly is illustrated in FIG. 1, it will be understood that any suitable number of such assemblies may be used in a single car. Normally, two such assemblies are used.

FIGS. 2, 2A and 2B somewhat schematically illustrate certain aspects of the arrangement of the rack assembly **19** on the deck **11** of the car **10**. It will be noted that the rack assembly **19** is subdivided into a plurality of rack sections, each section being designated by the numeral **27** and each section being of any desirable length. The sections are intesconnected through means carried by adjacent ends of the rail members **20** and **21** thereof, such means preferably permitting limited independent stress functioning of each section longitudinally of the car. The interconnections further permit sectionalized fabrication and installation of the rack assembly.

In FIGS. 2, 2A and 2B it will be noted that the rail members **20** and **21** are spaced laterally from one another to permit clearance of the raised coupler housings **16** therebetween. The total length of the rack assembly **19** will vary depending upon the amount of travel provided by the cushion assembly **25**, bearing in mind that in making full utilization of the total travel provided, the rack assembly and lading attached thereto should preferably not project beyond opposite ends of the car. As illustrated in these figures, any number of transverse members **22** may be used to interconnect the rail members. The hold down means **24** may be located at any desired interval and preferably will be staggered for alternate engagement with the inner and outer bottom flange surfaces of the rail members **20** and **21**. The fifth wheel stand assemblies **23** and the cushion assembly **25** are not shown in FIGS. 2, 2A and 2B in order to better illustrate the general arrangement and mounting of the rack assembly **19** on a car **10**. However, it will be appreciated that the location of these assemblies is selective throughout the length of the rack assembly **19**.

FIGS. 3–7 illustrate the special cushion assembly **25** of the present invention. FIGS. 6 and 7 best illustrate the mounting of four transversely spaced and vertically extending plates **28** on the deck plate **11** between the rail members **20** and **21**. The plates **28** extend longitudinally of the car and are suitably fixed to the deck plate **11** to function as separator plates and strengthening members as will be described. Received between the two center plates **28** is a suitable constant force hydraulic cushion of known type including a cylinder **29** and piston rod **30**. Opposite ends of the cylinder and piston rod are provided with abutment discs **31** which also function as opposite end seats for a return coil spring **32** received about the cylinder and piston rod. Mounted inwardly of the outermost vertical plates **28** are a pair of return coil springs **33** having at opposite ends thereof abutment discs **34**. Each vertical plate **28** is formed with a raised center portion **35** and first and second progressively recessed top edge portions **36** and **37** to either side of the center portion. Thus, each vertical plate **28** includes a top edge defined by progressive step-like areas which increase in height toward the center of the plate from each end thereof. In this respect each vertical plate **28** is strengthened centrally to resist deflection when subjected to stress.

The recessed end portions **37** of each vertical plate **28** have attached thereto a transverse flat abutment plate **38** extending above the deck plate **11** between the rail members **20** and **21**. The plates **38** at each end of the cushion assembly are fixed to the vertical plates **28** and define therewith a tied-in beam structure. The inner edge of each plate **38** is in abutment with the adjacent abutment discs **31** and **34** of the spring and cylinder means defining the cushions. In this manner the cushion means are held in operative position between the vertical plates **28** and the cushion assembly. FIGS. 4 and 5 best illustrate the positioning of the abutment plates **38** in the slot-like recessed top edge portions **37** at the end of each vertical plate **28**.

As best shown in FIGS. 6 and 7, the rail members **20** and **21** have attached thereto opposite ends of a pair of longitudinally spaced, transversely extending flat abutment plates **39**. These plates closely overlie the abutment plates **38** with sufficient clearance therebetween for relative movement. Inner edges of the abutment plates **39** are in engagement with the abutment discs **31** and **34** at opposite ends of the cushion and spring means of the assembly. This assembly is completed by the provision of an inverted, generally U-shaped cover plate **26** which as best shown in FIG. 6 is provided with depending side marginal portions **40** flanged along the lower edges and extending downwardly between the abutment plates **39**. The side end portions **41** of the cover plate are flanged outwardly and are in engagement with the top surfaces of the abutment plates **39** and attached thereto by suitable fasteners **42**.

FIG. 1 generally illustrates the ease of installation of the cushion assembly **25**. The vertical plates **28** and abutment plates **38** are readily and easily assembled on the deck plate **11** without penetrating the deck plate **11** and thus possibly modifying its operational strength characteristics. The various cushion means are readily inserted between the vertical plates and abutment plates, and in this manner, that porion of the assembly carried by the car is fully installed. The rack assembly **19** is then installed on the car and the rack section **27** which carries the abutment plates **39** and cover plate **26** is merely placed over the elements assembled on the deck of the car. Upon completion of rack section attachment to the car, the entire rack assembly including the cushion assembly is ready for operation.

As described above, the structural elements of the cushion assembly are mounted externally of the deck plate

11 thus preventing penetration of the deck plate and the necessity of specific designing thereof to accommodate local stress variations and retain requisite basic strength characteristics. Thus, the cushion assembly can be mounted in any location along the car without particular heed to the design characteristics of the car. The special design and arrangement of the vertical plates **28** and abutment plates **38** perform a two-fold function. These plates operatively confine the cushion means relative to the car and further establish a fully accessible and readily installed reinforcing beam structure adapted to accommodate operational stresses resulting from cushioned travel.

The basic design characteristics of the cushion assembly **25** are readily adapted to utilization with any desired length of travel. In the form illustrated, it will be appreciated that the total travel is, in effect, measured by the longitudinal length of the recessed areas **36** of the vertical plates **28**. Thus, one of the abutment plates **39** during movement relative to the vertical plates **28** will be placed inwardly over a recessed area **36**. For increased travel, the effective operational lengths of the cushion must be selected and the vertical plates **28** then lengthened to accommodate such travel, the total travel being measured by the length of the recessed areas **36**.

FIGS. 8 and 9 illustrate one form of suitable rack section interconnection means permitting ready assembly of the cushioned frame on the car. The preferred connection permits at least limited pivotal movement between adjacent ends of adjacent rack sections to accommodate local stresses without resulting in deflection throughout the entire rail members over the full length of the car. Furthermore, the interconnection of the rack sections preferably confines relative movement within planes normal to the deck of the car. At one end of each rack section the rail members **20** and **21** are each provided with spacer plates **43** fixed to opposite surfaces of the thin vertical center portion of the rail member between the top and bottom lateral flange portions thereof. A connecting plate or bar **44** is fixedly attached to the outer surface of each of the spacer plates **43** and projects outwardly beyond the end of the rail member **21**. The outermost projecting ends of the paralleling connection plates **44** are formed with transversely aligned apertures and are received in overlying relation along spacer plates **45** fixedly mounted on opposite surfaces of the thin vertical intermediate portion of an adjacent rail member **21**. The spacer plates **45** and the central vertical portion of the adjacent rail member are also transversely apertured for alignment with the apertures in the connecting plates **44**. A pivot pin **46** is inserted through the aligned apertures and retaining means such as cotter pins **47** of known type are inserted through transverse holes in opposite ends of the pin **46** to retain the same and a pair of washers **48** in operative position.

With the arrangement described, each rack section **27** may be provided at one end thereof with the projecting connection plates **44** and at the other end thereof with the aligned apertures to receive the connecting pin **46** therethrough. Interconnection is readily obtained and limited pivotal action in a vertical direction normal to the deck of the car is provided. Such limited pivotal action is of value where loads are concentrated on one rack section as compared to an adjacent section and the rail members **20** and **21** thereof tend tend to deflect to a greater extent than the rail members of the adjacent rack section. This would occur in rack sections having the fifth wheel stand assembles **23** previously described attached thereto. A substantial part of the vertical load of a truck trailer would be concentrated through the fifth wheel stand assembly to the rack section carrying the same whereas the opposite end of the trailer would be supported through its axles directly by the deck plate **11** and car **10**. The rack section **27** carrying the fifth wheel stand assembly would tend to deflect to a greater extent than an adjacent rack section and this deflection may be readily accommodated and confined to the aforesaid rack section without requiring dissipation of the deflecting forces throughout the entire length of the rack assembly. Needless to say, the degree of deflection will vary along the length of the car and in areas of greater deflection the entire car structure will reflect this higher degree of deflection. By utilizing a rack assembly of continuous rail members the degree of deflection of the rail members may be greater at a point along the rack assembly than the degree of deflection of the deck plate **11** thus canting the rail members relative to the hold down means **24**. Such canting, if carried out to a substantial extent, would interfere with efficient cushioned travel of the rack assembly. In this regard it will be borne in mind that the rail members **20** and **21** throughout long lengths are less rigid than the deck plate and supporting car body structure.

The cooperating hold down means **24** forming a part of the improved arrangement of the present invention is illustrated in detail in FIGS. 10–12. Each hold down means is of bracket-like configuration including a block-like base member **49** having a flat bottom surface adapted for fixed attachment to the deck plate **11**. The top surface of the base member **49** is generally flat and has formed therein centrally thereof a concave or spheroidal recess **50**. This recess has received therein a bearing disc-like plate **51** provided with a spheroidal or convex bottom surface portion **52** and having formed in the top generally flat surface thereof a cylindrical recess **53**. A disc-like anti-friction pad **54** is received in the recess **53** and is of sufficient thickness to project substantially upwardly out of the same. The pad is preferably formed from self-lubricating material, such as polytetrafluoroethylene, and is adapted for supporting engagement with a strip-like bearing plate **55** (FIG. 10) suitably attached to the bottom flat surface **56** of a rail member such as the rail member **21**. The bearing plate **55** extends an adequate length along the bottom surface **56** of the rail member **21** to accommodate the extent of travel permitted by the cushion assembly **25**.

As is well known, each rail member forming a part of the rack assembly **19** is formed with a flanged bottom portion providing a pair of oppositely directed, longitudinally continuous flanges **57** and **58**. The rail member is recieved in resting engagement on the pad **54** and is retained thereon by an upwardly and laterally extending hold down member **59**. This member is of generally inverted L-shape having a laterally extending bottom surface area **60** arranged to overlie one of the flange portions **57** or **58** of the rail member. The surface **60** slopes upwardly to generally parallel the top surface of a flange portion **57** and **58** and to be retained thereover in closely spaced relation. The hold down member **59** is detachably connected to the base member **49** by vertically downwardly extending fasteners in the form of bolts **61**. These fasteners are received in spaced vertically downwardly extending bores **62** formed in the thick vertical portion of the hold down member **59** to one side of the **61** and the threaded bottom ends of the fasteners are engaged in threaded bores **64** formed in the base member **49** to one side of the recess **50**.

The hold down means **24** are assembled as illustrated in FIGS. 10 and 11 in association with a rail member **21**. The hold down means permit longitudinal relative movement between the car **10** and the rack assembly **19** accompanied by sliding engagement between the bearing plate **55** and the anti-friction pad **54**. The hold down member **59** prevents vertical and lateral displacement of the rack assembly from engagement with the pads **55**. In this respect the hold down means **24** are preferably staggered along opposite sides of each rail member as shown in FIGS. 2, 2A and 2B. The fasteners **61** are readily accessible for removal to disengage the hold down members **59** and permit ready removal of a rack section from the car. Also, it will be appreciated that each rack sec-

tion may be readily mounted on the car followed by efficient attachment of the hold down members **59** to their respective base members **49** by the fasteners **61**.

The overall combination of the improved rack assembly features described above permit ease of assembly and improvements in operation. The various elements cooperate in this respect and are individually improved for use in other environments. In this respect it will be appreciated that the cushion assembly **25** is not limited for use with a rack assembly. The cushion assembly may be used with any suitable lading engaging means providing means for attachment of the abutment plates **39** thereto. Furthermore, a platform-type lading engaging means may actually constitute a cover plate for the cushion assembly thus eliminating the need for a separate cover plate **26**.

Obviously certain modifications and variations of the invention as hereinbefore set forth may be made without departing from the spirit and scope thereof, and therefore only such limitations should be imposed as are indicated in the appended claims.

I claim:

1. In a railway car provided with an open deck portion having mounted thereon a cushion rack assembly including longitudinally extending and laterally spaced and interconnected rail members attached to said car through cushion means providing for controlled longitudinal relative movement between said rack assembly and the car, said rail members being provided with top and bottom surface lateral flange portions, the improvement comprising said rack assembly being formed from a plurality of limitedly pivotally interconnected rack sections permitting vertical opposite directional relative movement between said sections, the interconnection of said sections being defined by means confining the relative movement within a plane normal to said deck portion, said interconnection means including a plate projecting beyond an end of each rail member in a plane normal to said open deck portion, the projecting end of each plate overlying a side surface portion of a rail member of an adjacent section within the vertical confines of said flange portions, and transverse means pivotally interconnecting the projecting end of the plate to the adjacent rail member.

2. In a railway car provided with an open deck portion having mounted thereon a cushion rack assembly including longitudinally extending and laterally spaced and interconnected rail members attached to said car through cushion means providing for controlled longitudinal relative movement between said rack assembly and the car, said rail members being provided with top and bottom surface lateral flange portions, the improvement comprising said rack assembly being formed from a plurality of limitedly pivotally interconnected rack sections permitting vertical opposite directional relative movement between said sections, the interconnection of said sections being defined by means confining the relative movement within a plane normal to said deck portion, said interconnection means including a plate projecting beyond an end of each rail member fixed to each intermediate side surface portion of said rail member in a plane normal to said open deck portion, the projecting end of each plate overlying a side surface portion of a rail member of an adjacent section within the vertical confines of said flange portions, and transverse means pivotally interconnecting the projecting ends of the cooperating plates to the adjacent rail member.

3. In a railway car provided with an open deck portion having mounted thereon a cushion rack assembly including longitudinally extending rail members attached to said car through cushion means providing for controlled longitudinal relative movement between said rack assembly and car, the improvement comprising said rack assembly being formed from a plurality of detachably pivotally interconnected rack sections permitting limited independent stress functioning of each section longitudinally of said car and sectionalized mounting thereof along said car, the interconnection of said sections being defined by means confining relative movement of said sections within a plane normal to said deck portions, each rail member including transversely projecting flange-like portions along the bottom thereof, and bracket-like rail member hold down and support means mounted on said deck portion and engaging the flange-like portions of said rail members to maintain said rail members spaced vertically from said deck portion, each hold down and support means comprising an anti-friction pad assembly on which the bottom surface of a rail member is received, and rail member hold down means removably attached to said anti-friction pad assembly and extending over the flange-like portion of a rail member in spaced relation to permit sliding of the rail member on said pad assembly but prevent displacement thereof from said pad assembly, said hold down and support means being spaced longitudinally along said rail members and staggered along inner and outer surfaces of said rail members.

4. In a railway car provided with an open deck portion having mounted thereon a cushion rack assembly including longitudinally extending rail members attached to said car through cushion means providing for controlled longitudinal relative movement between said rack assembly and car, the improvement comprising said rack assembly being formed from a plurality of detachably interconnected rack sections permitting sectionalized mounting thereof along said car, each rail member including transversely projecting flange-like portions along the bottom thereof, and bracket-like rail member hold down and support means mounted on said deck portion and engaging the flange-like portions of said rail members, each hold down and support means comprising an anti-friction pad assembly on which the bottom surface of a rail member is received, said assembly including an anti-friction pad mounted in a bearing member having a spheroidal surface received in a mating recess formed in a base member mounted on said deck portion, and rail member hold down means removably attached to said base member to one side of said pad and extending over the flange-like portion of a rail member in spaced relation to permit sliding of the rail member on said pad but prevent displacement thereof from said pad, said hold down and support means being spaced longitudinally along said rail members and staggered along inner and outer surfaces of said rail members.

5. In a railway car provided with an open deck portion having mounted thereon a cushion rack assembly including longitudinally extending rail members attached to said car through cushion means providing for controlled longitudinal relative movement between said rack assembly and car, the improvement comprising said rack assembly being formed from a plurality of detachably interconnected rack sections permitting sectionalized mounting thereof along said car, each rail member including transversely projecting flange-like portions along the bottom thereof, bracket-like rail member hold down and support means mounted on said deck portion and engaging the flange-like portion of said rail members, each hold down and support means comprising an anti-friction pad assembly on which the bottom surface of said rail member is received, and rail member hold down means removably attached to said anti-friction pad assembly and extending over the flange-like portion of a rail member in spaced relation to permit sliding of the rail member on said pad assembly but prevent displacement thereof from said pad assembly, said hold down and support means being spaced longitudinally along said rail members and staggered along inner and outer surfaces of said rail members, said cushion means including compressible spring means mounted on said deck portion between spaced opposite end first abutment means fixed to said deck portion, one of said rack sections having a pair of spaced second abutment means between the rail members thereof overlying said first abutment means for engagement with said spring means, and cover plate means for said cushion

means mounted between the rail members of said one rack section.

6. In a railway car provided with an open deck portion having mounted thereon a cushion rack assembly including longitudinally extending rail members attached to said car through cushion means providing for controlled longitudinal relative movement between said rack assembly and car, the improvement comprising said rack assembly being formed from a plurality of detachably pivotally interconnected rack sections permitting limited independent stress functioning of each section longitudinally of said car and sectionalized mounting thereof along said car, each rail member including transversely projecting flange-like portions along the bottom thereof, bracket-like rail member hold down and support means mounted on said deck portion and engaging the flange-like portions of said rail members, each hold down and support means comprising an anti-friction pad assembly on which the bottom surface of a rail member is received, and rail member hold down means removably attached to said anti-friction pad assembly and extending over the flange-like portion of a rail member in spaced relation to permit sliding of the rail member on said pad assembly but prevent displacement thereof from said pad assembly, said hold down and support means being spaced longitudinally along said rail members and staggered along inner and outer surfaces of said rail members, said cushion means including compressible spring means mounted on said deck portion between spaced opposite end first abutment means fixed to said deck portion, one of said rack sections having a pair of spaced second abutment means between the rail members thereof overlying said first abutment means for engagement with said spring means, and cover plate means for said cushioning means mounted between the rail members of said one rack section.

7. In a railway car provided with an open deck portion having mounted thereon a cushion rack assembly including longitudinally extending rail members attached to said car through cushion means providing for controlled longitudinal relative movement between said rack assembly and car, the improvement comprising said rack assembly being formed from a plurality of detachably pivotally interconnected rack sections permitting limited independent stress functioning of each section longitudinally of said car and sectionalized mounting thereof along said car, each rail member including transversely projecting flange-like portions along the bottom thereof, bracket-like rail member hold down and support means mounted on said deck portion and engaging the flange-like portions of said rail members, each hold down and support means comprising an anti-friction pad assembly on which the bottom surface of a rail member is received, said assembly including an anti-friction pad mounted in a bearing member having a spheroidal surface received in a mating recess formed in a base member mounted on said deck portion, and rail member hold down means removably attached to said base member to one side of said pad and extending over the flange-like portion of a rail member in spaced relation to permit sliding of the rail member on said pad but prevent displacement thereof from said pad, said hold down and support means being spaced longitudinally along said rail members and staggered along inner and outer surfaces of said rail members, said cushion means including compressible spring means mounted on said deck portion between spaced opposite end first abutment means fixed to said deck portion, one of said rack sections having a pair of spaced second abutment means between the rail members thereof overlying said first abutment means for engagement with said spring means, and cover plate means for said cushioning means mounted between the rail members of said one rack section.

8. A rail member hold down and support bracket assembly for use with cushion rack structures in a railway car, said bracket assembly comprising a base member having a concave recess formed in a generally flat top surface portion thereof, a spheroidal bearing plate having a generally flat top surface and a convex bottom surface seated in said base member recess, an anti-friction pad mounted on the top surface of said bearing plate, hold down means projecting upwardly from a marginal portion of said base member to one side of said bearing plate, the top portion of said hold down means extending inwardly at least partially over said pad in vertically spaced relation therewith, and at least one removable fastener extending through said hold down means into attaching engagement with said base member, said fastener being accessible from the top of said hold down means for ready detachment thereof from said base member.

9. In a railway car provided with an open deck portion having mounted thereon lading engaging means attached to said car through a cushion assembly providing for controlled longitudinal relative movement between said lading engaging means and said car, the improvement comprising said deck portion having mounted thereon at least a pair of transversely spaced and longitudinally extending vertical plates projecting above said deck portions and receiving longitudinally extending spring means therebetween, first transverse flat plate means extending across said vertical plates at opposite ends thereof and fixed thereto in interconnecting relation, said first flat plate means defining abutment means for opposite ends of said spring means, and second transverse flat plate means overlying said first flat plate means and fixed to said lading engaging means, said second flat plate means being arranged for engagement with opposite ends of said spring means upon relative movement between said lading engaging means and said car and for movement into overlying relation with said vertical plates, said vertical plates and said first flat plate cooperatively defining a reinforcing beam structure for stresses resulting from cushioned travel.

10. The car of claim 9 wherein said lading engaging means is in the form of a rack assembly having longitudinally extending rail members, said cushion assembly being positioned between said rail members with said second flat plate means fixed to said rail members and extending transversely therebetween.

11. In a railway car provided with an open deck portion having mounted thereon lading engaging means attached to said car through a cushion assembly providing for controlled longitudinal relative movement between said lading engaging means and said car, the improvement comprising said deck portion having mounted thereon at least a pair of transversely spaced and longitudinally extending vertical plates projecting above said deck portions and receiving longitudinally extending spring means therebetween, first transverse flat plate means extending across said vertical plates at opposite ends thereof and fixed thereto in interconnecting relation, said first flat plate means defining abutment means for opposite ends of said spring means, second transverse flat plate means overlying said first flat plate means and fixed to said lading engaging means, said second flat plate means being arranged for engagement with opposite ends of said spring means upon relative movement between said lading engaging means and said car and for movement into overlying relation with said vertical plates, and cover plate means attached to said second flat plate means in overlying relation with said vertical plates and spring means, said vertical plates and first flat plate means cooperatively defining a reinforcing beam structure for stresses resulting from cushioned travel.

12. In a railway car provided with an open deck portion having mounted thereon lading engaging means attached to said car through a cushion assembly providing for controlled longitudinal relative movement between said lading engaging means and said car, the improvement comprising said deck portion having mounted thereon at least a pair of transversely spaced and longitudinally extending vertical plates projecting above said deck portions

and receiving longitudinally extending spring means therebetween, each plate including a raised center portion and first and second progressively recessed top edge portions to either side of said center portion, first transverse flat plate means extending across the second recessed portions of said vertical plates at opposite ends thereof and fixed thereto in interconnecting relation, said first flat plate means defining abutment means for opposite ends of said spring means, and second transverse flat plate means overlying said first flat plate means and fixed to said lading engaging means, said second flat plate means being arranged for engagement with opposite ends of said spring means upon relative movement between said lading engaging means and said car and for movement into overlying relation with said first recessed portions of said vertical plates, said vertical plates and first flat plate means cooperatively defining a reinforcing beam structure for stresses resulting from cushioned travel.

13. The car of claim **12** wherein said lading engaging means is in the form of a rack assembly having longitudinally extending rail members, said cushion assembly being positioned between said rail members with said second flat plate means fixed to said rail members and extending transversely therebetween.

14. In a railway car provided with an open deck portion having mounted thereon lading engaging means attached to said car through a cushion assembly providing for controlled longitudinal relative movement between said lading engaging means and said car, the improvement comprising said deck portion having mounted thereon at least a pair of transversely spaced and longitudinally extending vertical plates projecting above said deck portions and receiving longitudinally extending spring means therebetween, each plate including a raised center portion and first and second progressively recessed top edge portions to either side of said center portion, first transverse flat plate means extending across the second recessed portions of said vertical plates at opposite ends thereof and fixed thereto in interconnecting relation, said first flat plate means defining abutment means for opposite ends of said spring means, second transverse flat plate means overlying said first flat plate means and fixed to said lading engaging means, said second flat plate means being arranged for engagement with opposite ends of said spring means upon relative movement between said lading engaging means and said car and for movement into overlying relation with said first recessed portions of said vertical plates, and cover plate means attached to said second flat plate means in overlying relation with said vertical plates and spring means, said vertical plates and first flat plate means cooperatively defining a reinforcing beam structure for stresses resulting from cushioned travel.

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