Oct. 31, 1950 H. L. SPENCE ET AL 2,527,589

CUSHIONING MECHANISM FOR RAILWAY VEHICLES

Filed Aug. 3, 1946 3 Sheets-Sheet 1

Fig. 1.

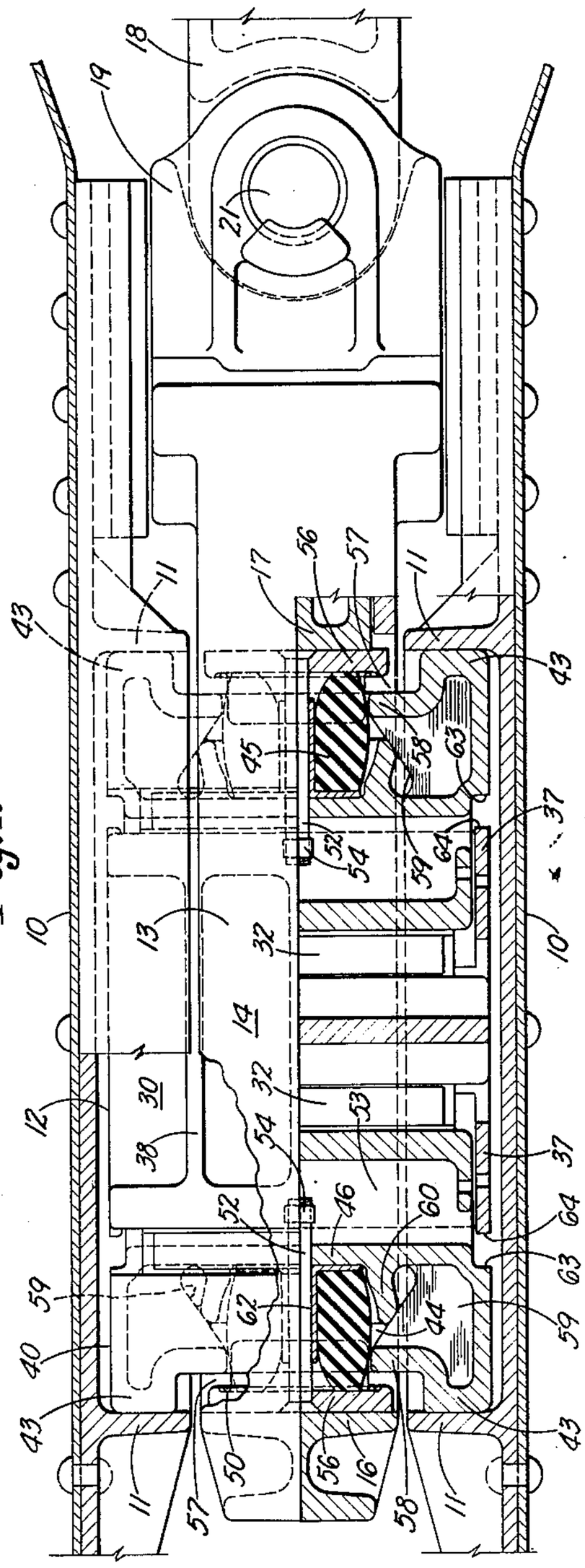
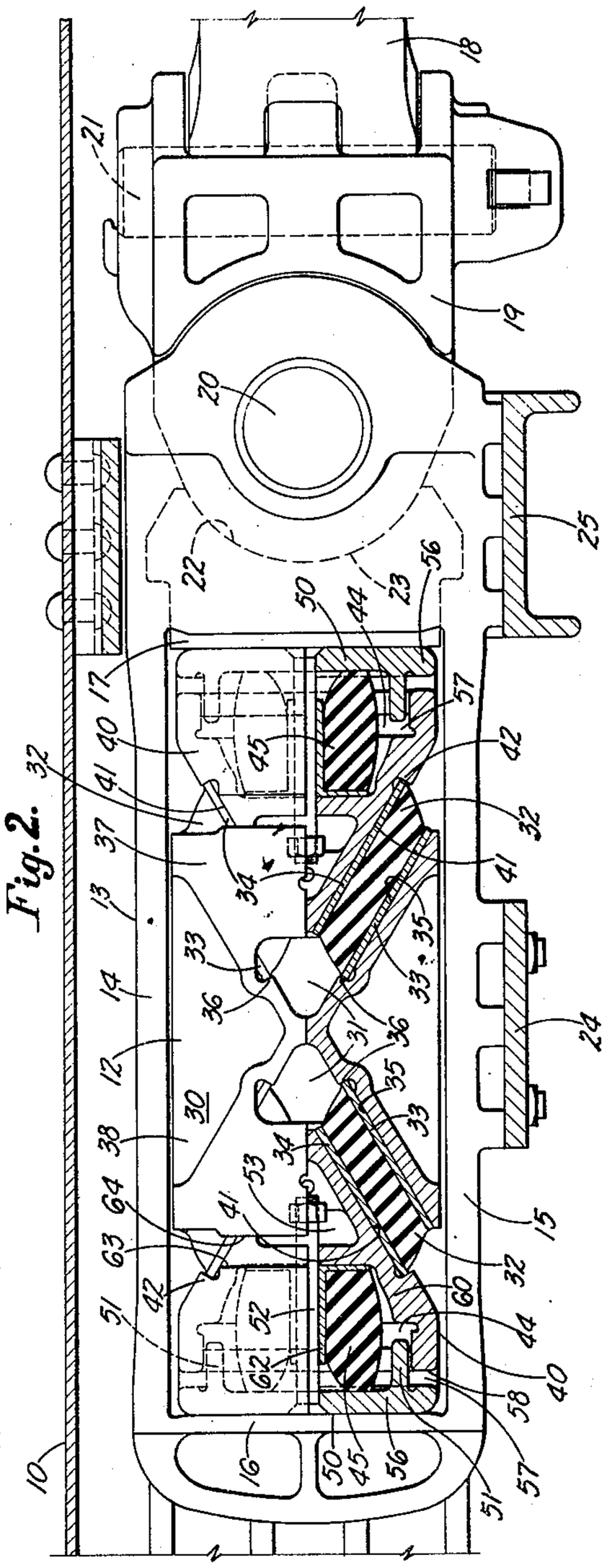


Fig. 2.



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CUSHIONING MECHANISM FOR RAILWAY VEHICLES

Filed Aug. 3, 1946 3 Sheets-Sheet 2

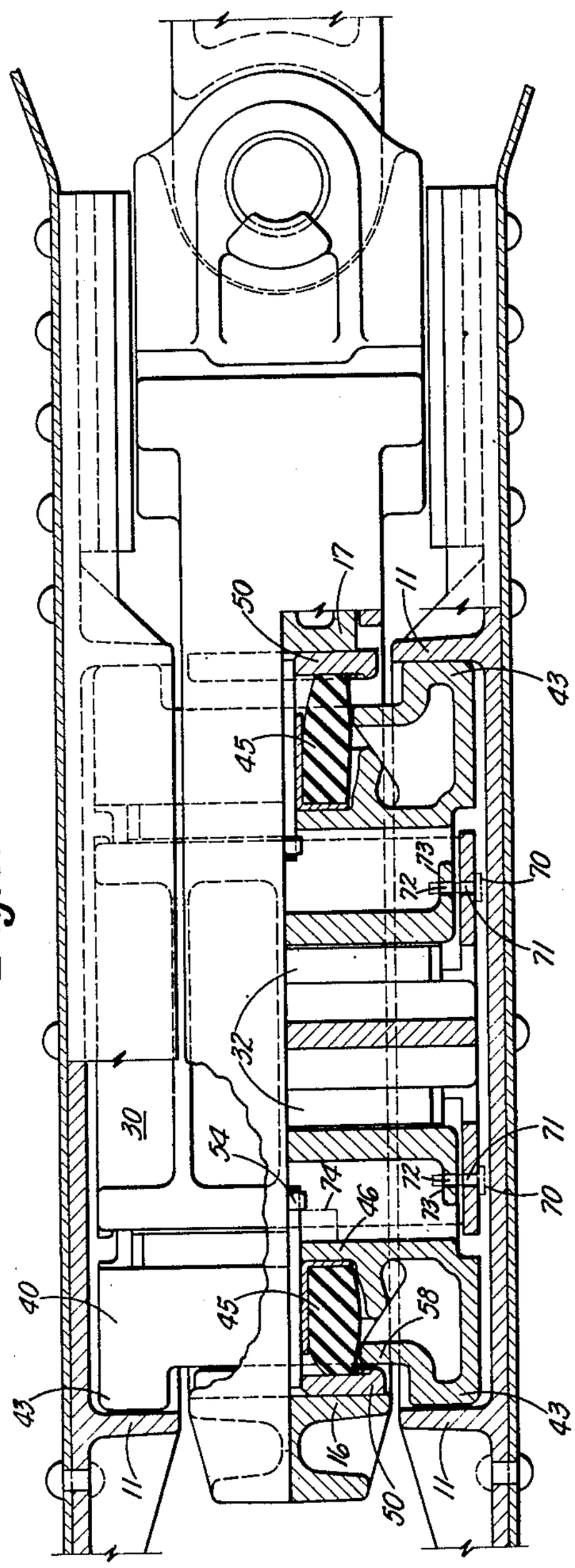

Fig. 3.

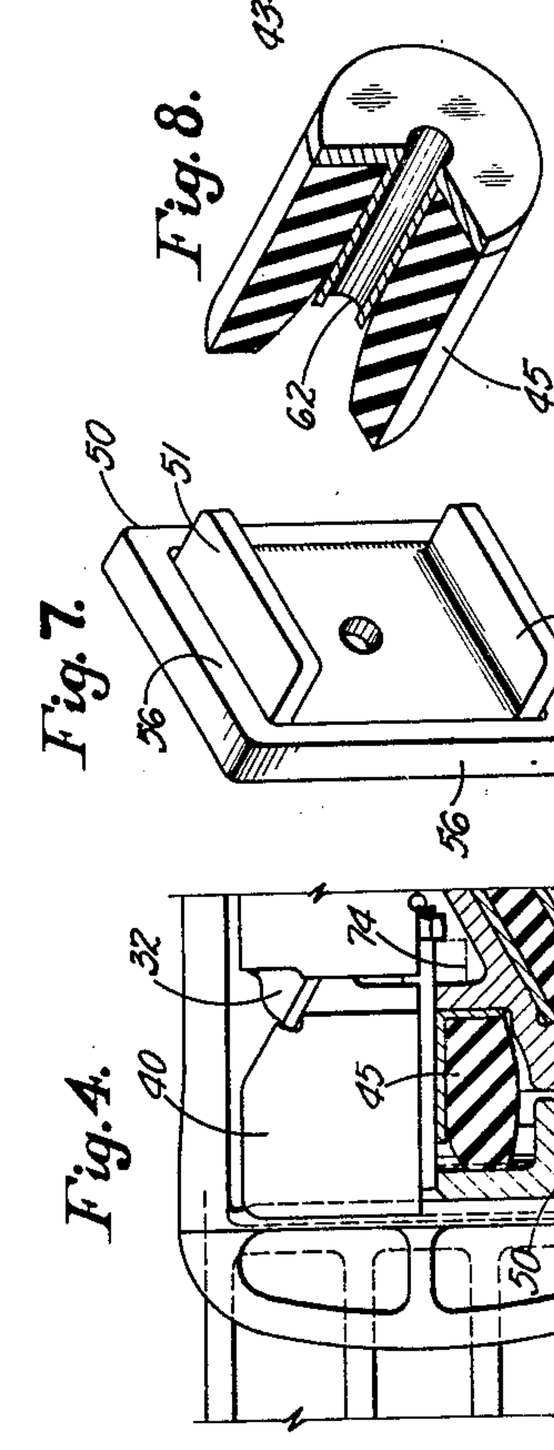

Fig. 7.

Fig. 4.

Fig. 9.

Fig. 8.

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CUSHIONING MECHANISM FOR RAILWAY VEHICLES

Filed Aug. 3, 1946 3 Sheets-Sheet 3

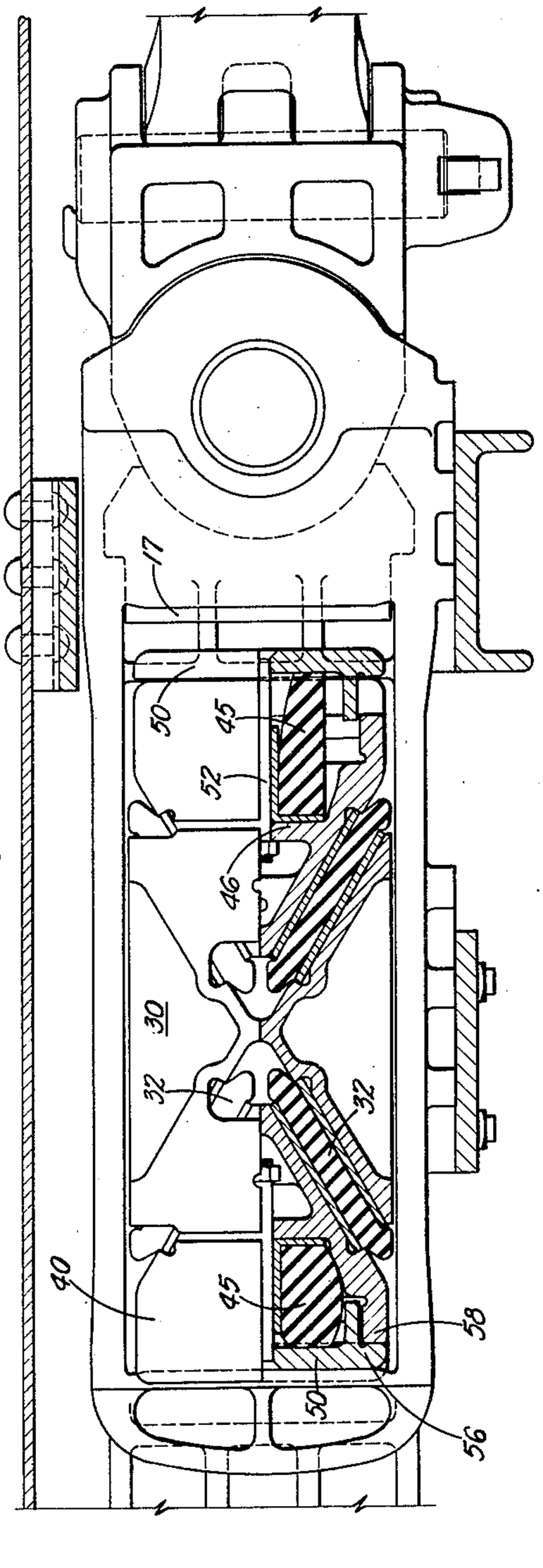

Fig. 5.

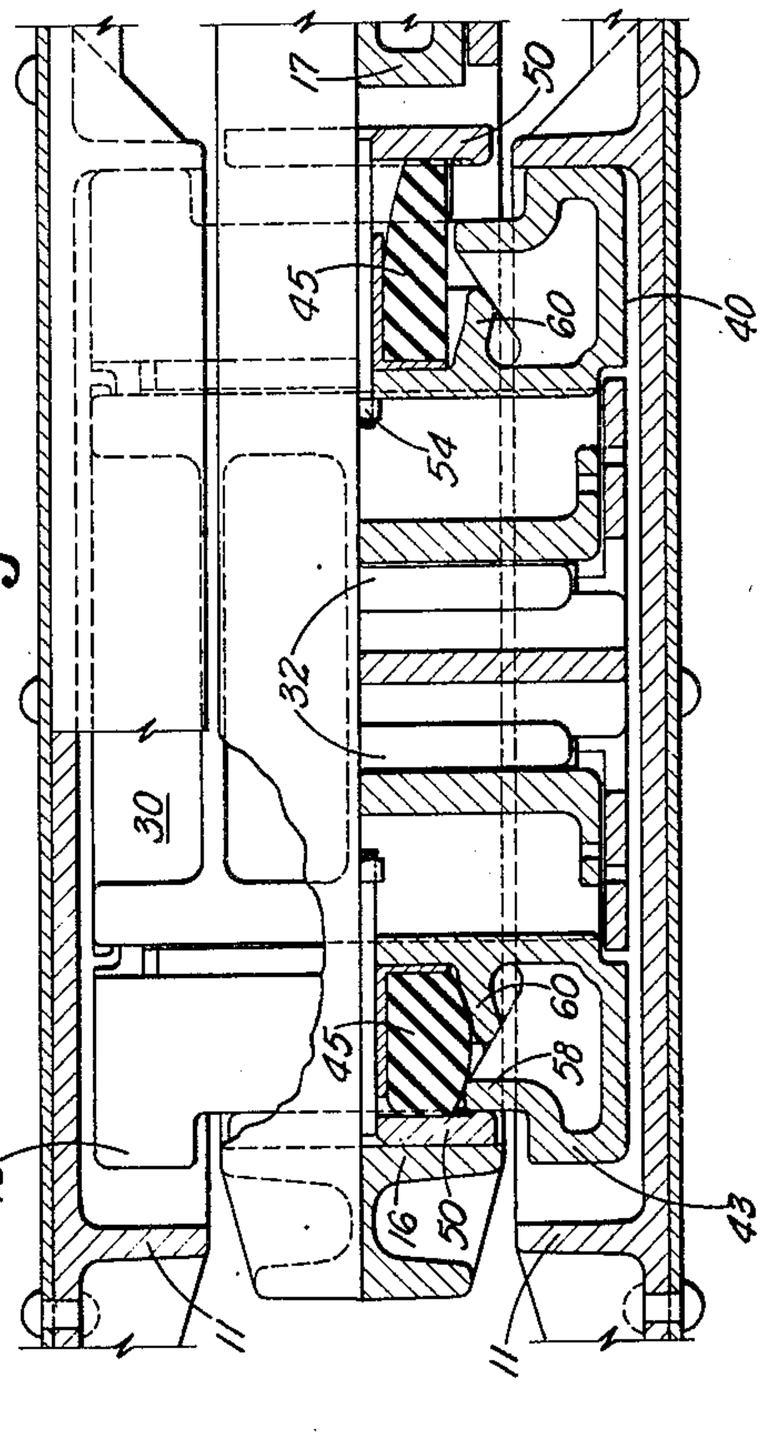

Fig. 6.

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Patented Oct. 31, 1950 2,527,589

UNITED STATES PATENT OFFICE

2,527,589

CUSHIONING MECHANISM FOR RAILWAY VEHICLES

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Application August 3, 1946, Serial No. 688,174

24 Claims. (Cl. 213—50)

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This invention relates to railway draft rigging and more particularly to the cushioning mechanism thereof.

Conventional type draft gears are normally installed under several thousand pounds initial compression, and the gear usually fits tightly either in the yoke or between the stops of the draft gear pocket, seldom in both simultaneously. This is due to the fact that the distance between the front and rear abutment walls of the yoke is rarely exactly equal to the distance between the front and rear stop lugs. Therefore, a certain amount of slack is always present and results in noise and shocks. While not particularly objectionable in freight service, such slack is undesirable in passenger service.

This condition exists by reason of the virtual impossibility, from a manufacturing standpoint, of making the yoke so that the front and rear abutment walls are spaced apart an exact specified distance. Also, it is difficult to space apart the stop lugs of the draft pocket accurately the specified distance. However, assuming that the gear does fit tightly within the yoke and draft pocket, before any cushioning action is obtainable, the initial compression of the gear must be overcome. This results in objectionable jarring and pounding. This type of action is entirely eliminated by our cushioning mechanism in which the cushioning units are arranged in a novel manner so that variations between the yoke and the draft pocket sizes are compensated for and the gear fits tightly in both the yoke and pocket.

An object of our invention is to provide a new and improved cushioning mechanism or draft gear which, while maintaining a tight fit within the confines of a yoke and between the associated draft lugs allows a predetermined amount of comparatively soft initial or preliminary cushioning action in draft and buff.

Another object of our invention is to provide a cushioning device which may be applied to a standard draft gear pocket and yoke to effect a slack-free fit between the associated parts and allow continuous cushioning movement to absorb intermittent shocks produced while the train is in motion. While providing a soft initial cushioning action, our improved device also has sufficient capacity to absorb heavy blows and shocks incident to normal service.

A further object of our invention is to provide a draft gear in which resilient material such as rubber is utilized in a novel arrangement of parts to obtain soft initial cushioning action in both draft and buff. This arrangement further provides freedom from slack when the gear is assembled within its associated yoke and draft gear pocket.

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Another object of our invention is to provide a draft gear having auxiliary rubber cushioning units associated with the main rubber cushioning unit thereof and so arranged that in either buff or draft the main unit absorbs heavy shocks while the auxiliary units absorb light shocks, intermediate shocks being cushioned by the combined action of the units. When the gear is assembled within a yoke and draft gear pocket, the auxiliary units are placed under initial compression at each end of the yoke, and the main unit is placed under initial compression between the draft stops of the pocket, thus providing a slack-free assembly. During absorption of light draft or buffing blows by the gear, one of the auxiliary units is compressed, and simultaneously the auxiliary unit at the other end of the gear expands a corresponding amount, thereby maintaining the tight fit within the yoke and providing continuous cushioning action. As the force on the gear increases, compression of the auxiliary unit increases until a point is reached at which its compression equals the initial compression of the main unit, after which both units are compressed until the auxiliary unit reaches the end of its travel. Thereupon, the main unit alone is compressed as the force on the gear increases, the transition from the auxiliary unit to the main unit having been smoothly effected.

Thus the gear provides smooth action in cushioning shocks varying in degree from light to heavy and is particularly effective in providing soft initial cushioning action in draft or buff while maintaining a tight fit within the yoke.

Other objects and advantages of our invention will be clear from the following description of an embodiment of the invention taken in conjunction with the following drawings in which:

Fig. 1 is a plan view partly in horizontal section of an embodiment of the invention, showing the parts in normal assembled relation.

Fig. 2 is a view in elevation, partly in vertical section of the arrangement shown in Fig. 1.

Fig. 3 is a view similar to Fig. 1 but showing the cushioning mechanism partly compressed in draft.

Fig. 4 is a partial view of the cushioning mechanism corresponding to the position of the parts as shown in Fig. 3.

Fig. 5 is a view similar to Fig. 2 but showing the cushioning mechanism compressed a substantial amount in draft.

Fig. 6 is a plan view partly in horizontal sec-

tion of the cushioning mechanism corresponding to the position of the parts as shown in Fig. 5.

Fig. 7 is an isometric view of one of the follower members of the mechanism.

Fig. 8 is an isometric view of one of the resilient cushions of the mechanism.

Fig. 9 is an isometric view of one of the wedge members of the mechanism.

Referring to the drawings, and more particularly to Figs. 1 and 2, the center sills **10** have associated therewith the usual draft or stop lugs **11**. Positioned in the pocket formed by the sills and stop lugs is the cushioning mechanism or draft gear designated generally by the numeral **12**. Positioned between sills **10** and surrounding the draft gear is yoke **13** of a type commonly used in service. The yoke is formed with upper and lower horizontal arms **14** and **15**, respectively, joined at their rear ends by a vertical abutment wall **16**. A followers block **17** forming the front abutment surface or wall is positioned in the forward end of the yoke.

The yoke has attached thereto a coupler shank **18** adapted to swivel both in a horizontal and in a vertical plane. An intermediate member **19** which permits universal angling of the coupler is pivotally connected to the yoke by means of a horizontal pivot pin **20**. The coupler shank is pivotally connected to member **19** by means of a vertical pivot pin **21**. Follower block **17** which forms the front abutment wall of the yoke has a cylindrical thrust surface **22** curved co-axially with pin **20**. Surface **22** engages the correspondingly curved surface **23** of member **19**, permitting vertical angling of the member without displacement of block **17**. The yoke is supported on two supports **24** and **25** secured to the center sills. While the construction shown provides for horizontal and vertical angling of the coupler and utilizes a follower block separate from the yoke to form the front abutment wall thereof, it is to be understood that the yoke may have an integral front abutment wall, and any suitable connecting means between the yoke and coupler shank may be used.

The cushioning mechanism or draft gear **12** comprises a central or main member **30** having a V-shaped pocket **31** at each end thereof adapted to receive a pair of cushioning units **32**, preferably made of a resilient material such as rubber. Each of units **32** comprises a block of rubber sandwiched between a pair of plates **33**, **34** preferably vulcanized thereto. The outwardly diverging plane surfaces **35** of pockets **31** have adjacent their inner ends shoulders **36** which engage plates **33** to limit inward movement thereof. The walls of pockets **31** are precluded from any tendency to spread during compression of the units by tie walls **37** which extend across the sides of the pockets. Walls **37** also serve to limit movement of units **32** laterally of member **30**. Reinforcing ribs **38** extending longitudinally between pockets **31** are provided on the upper and lower sides of member **30**.

Associated with central member **30** are wedge-shaped members **40** which are adapted to transmit draft and buffing forces to cushioning units **32** which are subjected to combined compression and shear. Each wedge **40** has plane surfaces **41** sloped to correspond with surfaces **35** of member **30** and is provided with shoulders **42**, similar to shoulders **36**, for engaging plates **34** and moving them with the wedge as it moves into pocket **31**. The ends of wedges **40** are formed with abutments **43** on each side thereof for engaging stops **11**. Members **30**, **40** and units **32** are so proportioned and arranged that during initial assembly in the draft gear pocket units **32** must be compressed a predetermined amount in order that the members may be inserted between stops **11**. The degree of initial compression of rubber units and the cooperation of wedges **40** in the operation of the device will be given in a succeeding part of the description.

Associated with each end of the main cushioning unit are the auxiliary cushioning units comprising wedge **40**, rubber unit **45**, and follower **50**. The end portion of each wedge **40** is recessed as at **44** to provide a pocket for receiving rubber cushion unit **45**. At the inner end of the pocket there is a wall **46** against which unit **45** bears. Follower members **50** which are movably associated with the wedge are adapted to compress unit **45**. Each follower has a pair of horizontal projections **51** adapted to extend into recess **44** for guiding the follower in its movements. The followers are tied to wedges **40** by means of bolts **52**, the threaded ends of which extend into hollow portions **53** of members **40**. Retaining nuts **54** are threaded onto bolts **52** at a distance which will permit the necessary expansion of cushion **45** during operation of the mechanism.

When followers **50** are assembled within the yoke, abutments **56** engage the rear and front abutment walls **16** and **17**, respectively, of the yoke, and are spaced from abutment walls **58** of the wedges as at **57**. Walls **58** suitably strengthened by horizontal ribs **59**, are formed adjacent walls **43** and are spaced inwardly therefrom an amount sufficient to allow the predetermined amount of clearance **57** between wall **56** and wall **58**. The amount of this clearance will be determined by the kind of cushioning action needed or desired in service. Each rubber unit **45** is placed under initial compression during assembly an amount at least equal to clearance **57** and preferably a greater amount so that in either draft or buff, whichever of the units is expanding will remain under a certain degree of compression after having expanded the full amount allowed by tie bolt **52**. This is shown in Fig. 5 where unit **45** in the forward end of the yoke is expanded to the fullest extent permitted by bolt **52**. It will be noted that units **45** act in opposition to each other, thus providing soft initial or preliminary cushioning action.

In pocket **44** of each wedge member **40** there is provided an annular flange **60** which surrounds part of cushion **45** and partly restrains expansion of the rubber during compression thereof. This serves to increase the load-carrying capacity of the rubber unit. Cushion **45** has a metal sleeve **62** passing through the center thereof and slidably receiving bolt **52**. This sleeve protects the rubber from possible damage due to adherence of the rubber to bolt **52** during compression of the unit in service.

Rubber units **32** are protected from damage by excessive compression by engagement of surfaces **63** on the wedges with surfaces **64** on member **30**.

It will thus be seen that our cushioning mechanism includes a main cushioning unit comprising member **30**, rubber units **32** and wedges **40**, and the auxiliary cushioning units comprising followers **50** and rubber units **45** in association with wedges **40**.

Operation of the mechanism is as follows: Starting from the neutral position shown in Figs. 1 and 2, as a force is applied to the coupler

which causes the yoke to move in one direction, one of rubber units **45** is compressed while the opposing unit **45** expands an equal amount, thereby maintaining followers **50** in continuous engagement with the yoke abutments **16** and **17**. If the force on the coupler reverses, causing the yoke to move in the opposite direction, the unit **45** which was expanding, instantly acts to resist in compression the movement of the yoke. Thus, as draft and buffing forces are transmitted in alternation through the yoke to the mechanism, units **45** act continuously to cushion those forces. Furthermore, since units **45** act in opposition to each other, soft cushioning action is provided. As heavy shocks are transmitted to the mechanism, the one of units **45** which is resisting the shocks will be compressed until its associated followerer **50** engages abutment **58**, after which units **32** will resist the shocks alone. However, at a predetermined point in the travel of follower **50** toward abutment **58**, the initial compression of rubber units **32** will have been overcome so that unit **45** and units **32** will act together to cushion the shocks. It will be apparent, therefore, that light shocks are cushioned by units **45**, heavy shocks by units **32** and intermediate shocks by the combined action of units **45** and **32**; the transition from units **45** to units **32** in cushioning the shocks being smoothly effected. Moreover, as the mechanism moves toward neutral position after having been subjected to a draft or buffing force sufficent to overcome the initial compression of units **32**, the transition in the cushioning action from units **32** back to units **45** is again smoothly effected. Thus, while the mechanism provides soft initial cushioning action, it provides smooth action in cushioning shocks varying in degree from light to heavy.

It is to be understood that the amount of travel of followers **50** during compression or expansion of units **45** may be varied as desired or is necessary, and the travel shown in the drawings is for the purpose of illustration only.

In Figs. 3 and 4 the mechanism has been subjected to a draft force which has compressed rubber unit **45** until rear follower **50** is nearly in engagement with abutments **58**. It will be observed that abutments **43** have moved slightly away from rear stop lugs **11**, indicating that the initial compression of rubber units **32** has been overcome. The draft force is now resisted by rear unit **45** and all of units **32**. Abutments **43** leave rear stops **11** at an appreciable time before follower **50** will engage abutments **58** in order that as the draft force increases, the cushioning action will be smooth. The compression characteristics of the rubber unit to achieve this result are determined by its shape, composition, as well as the degree of confinement of the rubber. Such characteristics have been obtained and are utilized in the mechanism.

Referring to the forward end of the mechanism in Fig. 3, it will be noted that front follower **50** is held in engagement with abutment **17** of the yoke by the expanded cushion **45**.

Referring to Figs. 5 and 6, the mechanism has been shown subjected to a draft force which has caused rear follower **50** to engage abutments **58** and wedges **40** to compress units **32** a considerable amount, as evidenced by the degree of separation between rear stop lugs **11** and wedge member abutments **43**. At the forward end of the mechanism unit **45** has expanded the entire amount permitted by bolt **52**. Front follower **50** is still being urged forwardly by unit **45**, although it no

longer engages the yoke front abutment **17**. It will be noted that the separation between front follower **50** and abutment **17** of the yoke is less than the separation between rear stop lugs **11** and abutments **43** of wedges **40**. This condition results from the fact that as the draft force was being applied, abutments **43** began to separate from stops **11** while front follower **50** was still in engagement with abutment **17** (Figs. 3 and 4). Follower **50** does not part from abutment **17** until an appreciable time after separation occurs between stops **11** and abutments **43**. Re-engagement between these members takes place in reverse order when a buffing force replaces the draft force. Therefore, when the draft force which has moved the members to the position shown in Figs. 5 and 6 is reversed, engagement will first occur between follower **50** and abutment **17** and thereafter between abutments **43** and rear stops **11**. The mechanism will therefore be in tight engagement between abutments **16** and **17** of the yoke at the time abutments **43** engage rear stops **11**, resulting in continuous cushioning action.

To facilitate assembly of the mechanism in the yoke and draft pocket, the mechanism is preferably precompressed the necessary amount. The main unit may conveniently be held precompressed by shear pins **70** (shown in dot-dash, Fig. 3) passing through holes **71** in walls **37** of member **30** and holes **72** in sidewall **73** of member **40**. The holes are in alignment to permit insertion of the shear pins when the mechanism is compressed the amount as shown in Fig. 3. Followers **50** may be held compressed an amount sufficient to permit insertion in the yoke by interposing a shim or block **74** (shown in dot-dash, Fig. 3) of suitable thickness between wall **46** of wedge **40** and nut **54**. The compressed cushioning unit may then be inserted in the yoke and both members raised to the correct position between the center sills, with the cushioning unit in the draft pocket. Thereafter, yoke supports **24** and **25** may be secured to the sills. Upon the application of substantial draft and buffing forces to the mechanism, blocks **74** will drop to the bottoms of recesses **53** and pins **70**, which are made of comparatively soft material, will be sheared off. The mechanism will thereupon be in tight engagement in the yoke and between front and rear stop lugs **11**, as shown in Figs. 1 and 2.

While the cushioning mechanism is particularly applicable to passenger cars where soft continuous cushioning action is desirable, it may be applied to freight cars.

The terms and expressions which we have employed are used as terms of description and not of limitation, and we have no intention, in the use of such terms and expressions, of excluding any equivalents of the features shown and described or portions thereof, but recognize that various modifications are possible within the scope of the invention claimed.

What we claim is:

1. A cushioning mechanism for railway vehicles adapted for assembly with a draft gear yoke and between the front and rear stop lugs of a draft gear pocket, comprising a central cushioning unit having longitudinally movable members for engagement with the front and rear stop lugs of the pocket, said unit being under predetermined initial compression to urge said members into tight engagement with the front and rear stop lugs of the pocket, end cushioning units engaging said central unit, said end units comprising followers for engagement with the

ends of the yoke, said end units being under predetermined initial compression to urge said followers into tight engagement with the ends of the yoke, said central unit and end units being so arranged that upon initial movement of the yoke in buff or draft one of said end units is compressed while the other of said end units expands a corresponding amount.

2. In a railway draft rigging, center sills and front and rear stop lugs forming a pocket, a draft gear under initial compression in said pocket, the ends of said gear being in engagement with said lugs, a yoke surrounding said gear, the ends of said gear having recessed portions, follower means adjacent said recessed portions, and resilient means compressed in said recessed portions urging said follower means into tight engagement with said yoke independently of the engagement between the ends of said gear and said stop lugs, either of said follower means being movable longitudinally away from the adjacent one of said recessed portions by the expansion of said associated resilient means from its initial compressed position during application of draft and buffing forces to said gear by said yoke.

3. A cushioning mechanism for railway vehicles adapted for assembly with a draft gear yoke and between the front and rear stop lugs of a draft gear pocket, said mechanism comprising spaced follower members for engagement with abutments carried by the front and rear ends of the yoke during draft and buffing movements of said cushioning mechanism, resilient means reacting against said members to urge said members against said abutments during said draft and buffing movements, abutment means for engagement with the front and rear stop lugs of said pocket, and resilient means between and reacting against said abutment means for urging the latter tightly against said front and rear stop lugs of the pocket.

4. A cushioning mechanism for railway vehicles adapted for assembly with a draft gear yoke and between the front and rear stop lugs of a draft gear pocket, said mechanism comprising a main cushioning unit having a plurality of resilient means under predetermined initial compression, and auxiliary cushioning units in engagement with said main unit, said auxiliary units being under predetermined initial compression for maintaining said mechanism tightly in said yoke, one of said auxiliary units being adapted to compress while the other of said auxiliary units expands a corresponding amount upon the application of draft and buffing forces to said yoke.

5. In a railway draft rigging, stop lugs, a yoke and a draft gear in said yoke, said gear comprising a main rubber cushioning unit and an auxiliary rubber cushioning unit in engagement with each end of said main unit, said main unit being under initial compression and urging said gear into tight engagement with said lugs, said auxiliary units being under initial compression and maintaining said gear tightly in said yoke, said auxiliary units being constructed and arranged so that in operation, one of said auxiliary units is adapted to be compressed while the other of said units is adapted to expand a corresponding amount.

6. In a railway car draft rigging, a main cushioning unit for assembly with a draft gear yoke, said unit having abutment means at each end thereof for engagement with draft and buffing stops on a car, at least one of said abutment means having a recess therein, and auxiliary cushioning means received in said recess and being under predetermined compression for tight engagement with said yoke, said auxiliary cushioning means being adapted to expand and compress from said predetermined compression in response to draft and buffing forces imposed upon said draft rigging.

7. In a railway draft rigging, a draft gear pocket having front and rear stop lugs, a yoke and a draft gear in said yoke, said gear comprising at each end thereof portions movable relative to each other in a direction lengthwise of said gear, rubber means under initial compression for urging certain of said portions into engagement with said stops, and other rubber means under initial compression for maintaining others of said portions in tight engagement with said yoke, said stop lug engaging portions being coextensive with said yoke engaging portions.

8. A railway draft gear adapted for assembly with a draft gear yoke and between the front and rear stop lugs of a draft gear pocket, said gear comprising stop lug and yoke engaging portions at each end thereof movable relative to each other in a longitudinal direction, rubber means under initial compression urging said stop lug engaging portions into tight engagement with said lugs, and other rubber means recessed into said stop lug engaging portions and being under initial compression for urging said yoke engaging portions into tight engagement only with said yoke.

9. A railway draft gear for assembly with a draft gear yoke and between the front and rear stop lugs of a draft gear pocket, said gear comprising a plurality of abutment members, resilient means compressed between said members for urging them into contact with said stop lugs, follower means disposed substantially in transverse alignment with said abutment members, and other resilient means received in pockets in said abutment members and being under initial compression for urging said follower means into tight engagement with said yoke.

10. A cushioning mechanism for railway vehicles comprising a central member having recesses in the ends thereof, wedge members extending into said recesses, rubber means in said recesses adapted to resist movement of said members into said recesses, follower members movable relative to said wedge members, said wedge members having recesses in the ends thereof, and rubber means in said last-named recesses adapted to oppose movement of said follower members toward said wedge members.

11. A cushioning mechanism comprising a member having recesses in the ends thereof, wedge members extending into said recesses, rubber means in said recesses adapted to resist movement of said wedge members into said recesses, said wedge members having recesses in the ends thereof, follower members movable relative to said wedge members, and rubber means in said last-named recesses adapted to oppose movement of said follower members toward said wedge members, said follower members having abutment means adapted to engage said wedge members to limit compression of said last-named rubber means.

12. In a cushioning mechanism for railway vehicles, a central member having V-shaped recesses in the ends thereof, the walls of said recesses diverging towards the ends of said member, wedge members extending into said recesses and having walls corresponding in slope to said walls of said recesses, rubber means interposed

between said walls of said recesses and said wedge members for resisting movement of said wedge members into said recesses, said wedge members having recesses in the ends thereof, follower means movable relative to said wedge members, and rubber means in said recesses of said wedge members for resisting movement of said follower members toward said wedge members.

13. In a cushioning mechanism for railway vehicles, a central member having V-shaped recesses in the ends thereof, the walls of said recesses diverging towards the ends of said member, wedge members extending into said recesses and having walls corresponding in slope to said walls of said recesses, rubber means interposed between said walls of said recesses and said wedge members for resisting movement of said wedge members into said recesses, said wedge members having recesses in the ends thereof, follower means movable relative to said wedge members, rubber means in said recesses of said wedge members for resisting movement of said follower members toward said wedge members, and retaining means for maintaining said follower members in assembled relation with said wedge members.

14. A draft gear for railway vehicles adapted for assembly with a draft gear yoke and between the front and rear stop lugs of a draft gear pocket, said gear having a main cushioning unit adapted to be placed under predetermined initial compression between said front and rear stop lugs, follower means at each end of said unit, resilient means at each end of said unit under predetermined initial compression interposed between said unit and said follower means and urging the latter into tight engagement with said yoke, abutment means on said unit for engagement with said follower means to limit movement of said follower means toward said unit, the relative compression of said main unit and said resilient means being such that in draft or buff said unit begins to compress before said follower means engages said abutment means.

15. A cushioning mechanism for railway vehicles comprising rubber means, end members for compressing said means, follower means movable relative to said members, and other rubber means interposed between said follower means and members, adapted to resist movement of said follower means toward said members, said members having abutments for engaging the front and rear stop lugs of a draft gear pocket of a railway vehicle to maintain said first named rubber means under predetermined initial compression, said members having other abutment means being adapted to engage said follower means upon a predetermined amount of movement of said follower means toward said end members.

16. A cushioning mechanism for railway vehicles comprising a main cushioning unit, a relatively movable member positioned at each end of said unit for transmitting draft and buffing forces thereto, each of said members having laterally extending abutments for engagement with the front and rear stop lugs of a draft gear pocket of a railway vehicle to place said unit under predetermined initial compression, each of said members having a recess in the outer end thereof, resilient means in said recess, and follower means movable relative to each of said members and engaging said resilient means, said follower means being adapted for engagement with an abutment on the adjacent end of a draft gear yoke, said resilient means at one end of said unit being adapted to compress while said resilient means at the other end expands a corresponding amount upon the application of draft and buffing forces to said cushioning mechanism through said yoke.

17. A draft gear comprising a central rubber cushioning unit, movable members at the ends of said unit and adapted to place said unit under predetermined compression when said draft gear is inserted between the stops of a draft gear pocket, said members having outwardly facing recesses, and other members movable with respect to said members and extending into said recesses, and resilient means in said recesses for cushioning relative movement between said members, said members for engagement with said stops being coextensive with said last named members.

18. A draft gear for railway vehicles adapted for assembly with a draft gear yoke and between the front and rear stop lugs of a draft gear pocket, comprising a central cushioning unit having stop lug engaging members and an auxiliary cushioning unit carried by each end of said central unit, said central unit being under initial compression and urging said members into tight engagement with the stop lugs of the pocket, said auxiliary units being under initial compression so as to be in tight contact with abutments carried by the yoke, said auxiliary units being so arranged that one of said auxiliary units is adapted to be compressed while the other of said auxiliary units expands a corresponding amount upon the application of draft and buffing forces to said draft gear.

19. A railway draft gear adapted for assembly with a draft gear yoke and between the front and rear stop lugs of a draft gear pocket, said draft gear comprising a cushioning unit for engagement with said front and rear stop lugs, and a yoke engaging cushioning unit also for engagement with said first named cushioning unit and operating in series therewith, one of said cushioning units being assembled under greater initial compression than the other of said cushioning units, the resistance to further compression of said cushioning unit which is under lesser initial compression being such that during said further compression it exceeds the initial compression of said other cushioning unit.

20. A railway draft gear adapted for assembly with a draft gear yoke and between the front and rear stop lugs of a draft gear pocket, said draft gear comprising a central resilient unit having end portions arranged to place said unit under predetermined initial compression when said draft gear is assembled between said front and rear stop lugs, and other resilient units engaging said end portions and being arranged to be placed under predetermined initial compression upon assembly of said draft gear in the yoke, said units being so arranged that during initial actuation of said gear by said yoke in either buff or draft one of said other units is compressed while another of said other units expands, and one of said other units and said central unit are compressed in unison during a succeeding part of the actuation of said gear.

21. A railway draft gear adapted for assembly with a draft gear yoke and between the front and rear stop lugs of a draft gear pocket, said draft gear comprising a central resilient unit having end portions arranged to place said unit under predetermined initial compression when said draft gear is assembled between said front and rear stop lugs, and other resilient units engaging said end portions and being arranged to

be placed under predetermined initial compression upon assembly of said draft gear in the yoke, said units being so arranged that during initial actuation of said gear by said yoke in either buff or draft one of said other units is compressed while another of said other units expands, one of said other units and said central unit are compressed in unison during an intermediate part of the actuation of said draft gear, and said central unit is compressed alone during the remainder of the actuation of said gear .

22. A cushioning mechanism for railway vehicles adapted for assembly with a draft gear yoke and between the front and rear stop lugs of a draft gear pocket, said mechanism comprising abutment members having portions for engagement with the front and rear stop lugs of said pocket, resilient means reacting against said members for urging the latter tightly against said front and rear stop lugs, follower means having a portion for engagement with an end of the yoke, at least one of said members having an outwardly facing pocket, and resilient means in said pocket reacting against said follower means to urge the latter tightly against the yoke, said yoke engaging portion of said follower means being in transverse alignment with the stop lug engaging portions of the adjacent one of said abutment members.

23. A draft gear comprising a resilient cushioning unit, members engaging the ends of said cushioning unit arranged for movement in a direction to compress said unit and to maintain said unit under predetermined initial compression when said draft gear is inserted between the stops of a draft gear pocket, one of said members having an outwardly facing recess, resilient cushioning means in said recess, and a follower member engaging said resilient cushioning means for compressing the same, said follower member and one of said first named members being arranged to maintain said last named cushioning means under predetermined initial compression when

said draft gear is assembled within a draft gear yoke and to provide for the compression and expansion of said last named cushioning means in response to draft and buffing forces imposed upon said draft gear.

24. A cushioning mechanism for railway vehicles adapted for assembly with a draft gear yoke and between the front and rear stop lugs of a draft gear pocket, said mechanism comprising a pair of members for engagement with said front and rear stop lugs, resilient means interposed between said members and being under initial compression for urging said members into engagement with said stop lugs, a pair of resilient units engaging said members and arranged so as to act in opposition to each other, each of said units comprising a follower member for engagement with the adjacent end of the yoke, and resilient means under initial compression between each of said first named members and said follower member for urging said follower members into engagement with the ends of the yoke, one of said units being adapted to compress while the other expands a corresponding amount upon the application of draft and buffing forces to said mechanism through said yoke.

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