Nov. 6, 1934. O. R. WIKANDER 1,979,359

CAR CONSTRUCTION

Filed Aug. 22, 1931 3 Sheets-Sheet 1

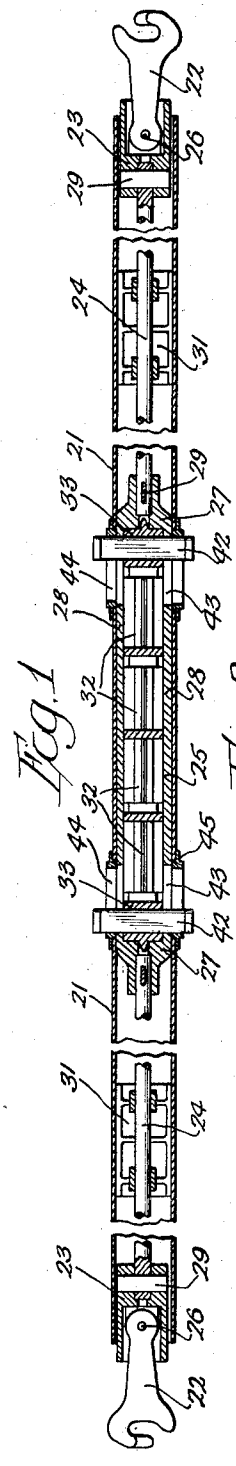


Fig. 1

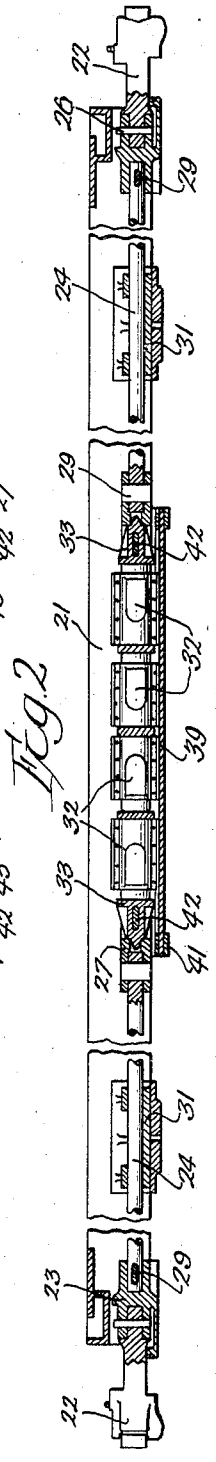


Fig. 2

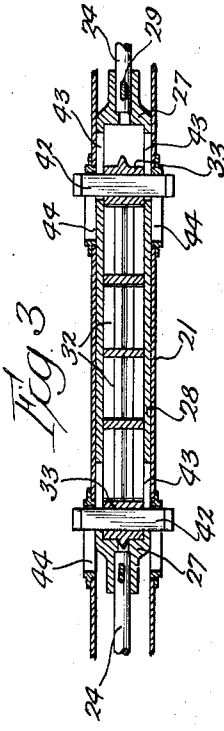


Fig. 3

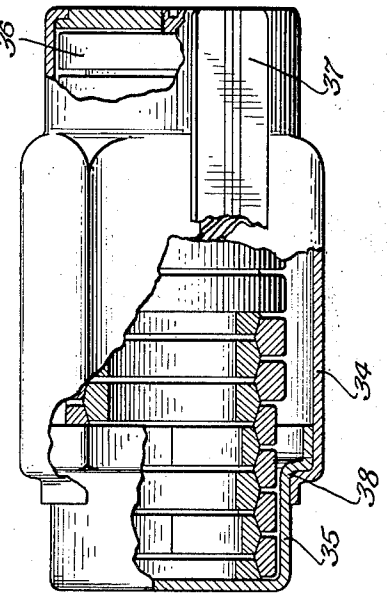


Fig. 5

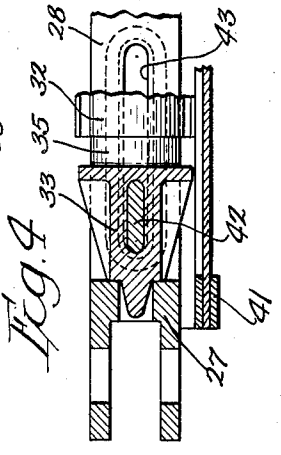


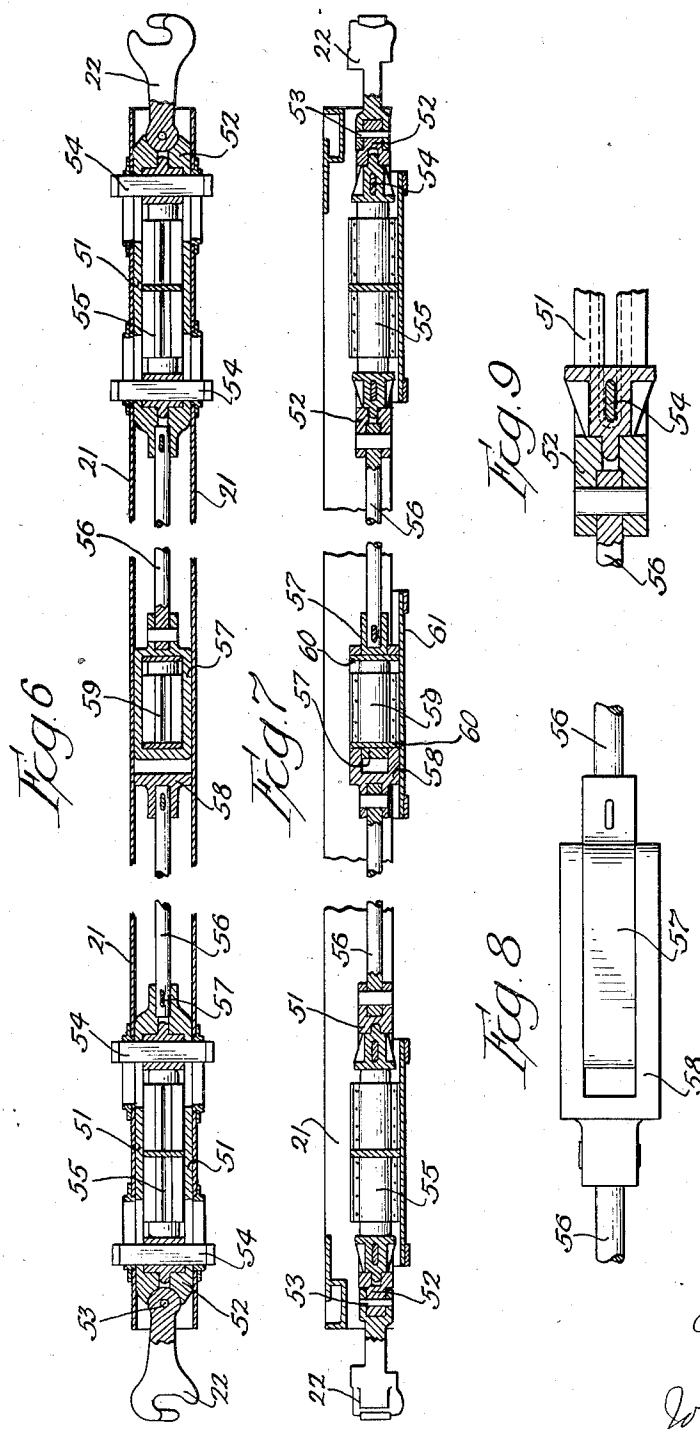
Fig. 4

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CAR CONSTRUCTION

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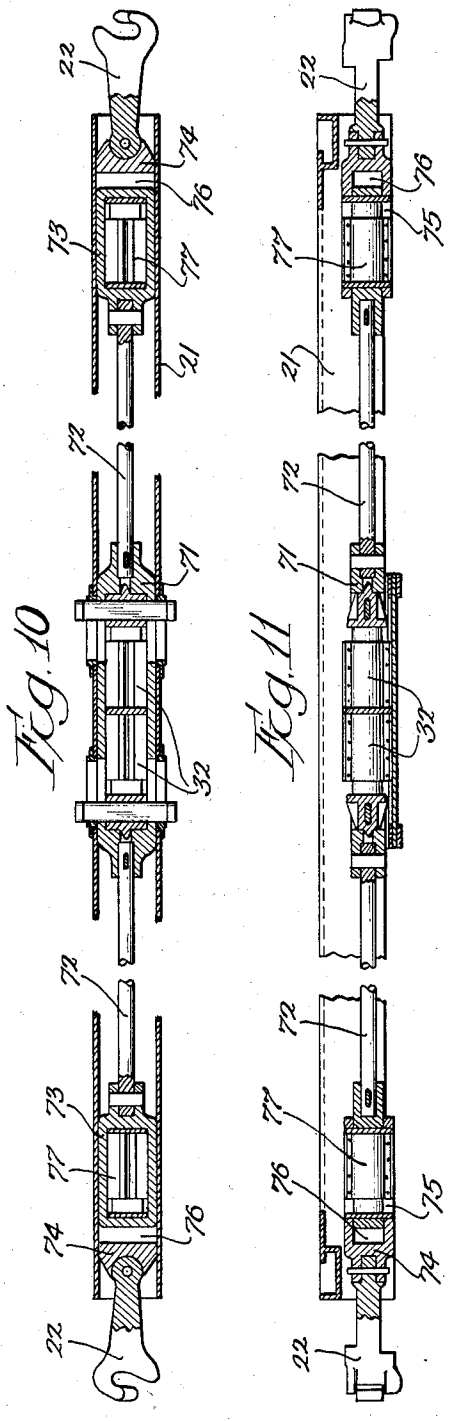


Fig. 10

Fig. 11

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UNITED STATES PATENT OFFICE

1,979,359

CAR CONSTRUCTION

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Application August 22, 1931, Serial No. 558,781

2 Claims. (Cl. 213—8)

This invention relates in general to car construction and has more particular reference to railway cars of the type wherein couplers at each end are connected together by a drawbar so that the draft and buffing strains and shocks are transmitted and sustained more or less directly from coupler to coupler as contradistinguished from being transmitted solely through the car body itself.

In structures of this sort it is customary either to connect the couplers together by rigid or flexible drawbars and to interpose draft gears or cushioning means between the coupler and drawbar assembly and the car body or the car running gear. Repairs and replacements have been difficult in constructions of this character because of the arrangement of the parts and the spring cushioning means, it being generally required that a considerable number of parts be taken apart and reassembled to permit the repair or the replacement.

This invention has for a principal object the provision of a continuous coupling and drawbar construction provided with adequate draft gear and cushioning means, the parts of which will be so constructed and arranged as to permit the ready removal of any faulty or damaged part and its replacement without disturbance of any considerable number of associated parts.

The invention contemplates in this regard the provision of draft gear assemblies or units readily assembled and removed as occasion may require.

The invention has for a further object the provision of a drawbar construction for use in cars of the character described, wherein the draft gear or shock absorbing device is composed of a separate unit or units of simple construction and, if desired, of the character ordinarily available in railway repair shops.

Numerous other objects of the invention will be apparent as it is better understood from the following description, which, when taken in connection with the accompanying drawings, discloses preferred embodiments thereof.

Referring to the drawings:

Fig. 1 is a horizontal or plan section through an assembly embodying the present invention, only the center sills of the car body being illustrated;

Fig. 2 is a vertical longitudinal central section through the same, parts being shown in elevation;

Fig. 3 is a partial view, similar to Fig. 1, showing the relation of certain of the parts under compression;

Fig. 4 is an enlarged fragmentary section showing the means connecting the drawbar to the car body;

Fig. 5 is an enlarged partial elevation partial sectional view of one of the removable draft gear units;

Figs. 6 and 7 are views similar to Figs. 1 and 2, showing a modification of drawbar assembly;

Fig. 8 is a side elevation of the connecting means between the drawbar members provided in the embodiment of Figs. 6 and 7;

Fig. 9 is a detail fragmentary section showing the means of connecting the drawbar to the car body; and

Figs. 10 and 11 are sections, similar to Figs. 1 and 2 and 6 and 7, of a different embodiment of the invention and showing the interposition of draft gear members between the couplers and the drawbar itself.

The instant invention is manifestly capable of various embodiments and by way of illustration three different constructions are shown on the drawings.

Referring first to Figs. 1 to 3, reference characters 21 indicate the two longitudinally extending center sills usually provided to extend down beneath the car body and which form a part of the car body construction. A coupler 22 is arranged at each end of the car and is or may be of standard automatic type. These couplers in the instant embodiment shown in Figs. 1 to 3 are rigidly connected together so that draft or buffing strains sustained by one are transmitted directly to the other.

The drawbar connecting these couplers comprises generally drawbar heads 23, drawbar rods 24 and a draft gear cage 25. Each coupler 22 is pivotally mounted in its drawbar head 23 at 26 by usual or preferred construction. The cage 25 is or may be arranged near the center of the car and consists of two heads 27 and connecting vertical side walls 28, preferably cast integrally with the heads. The drawbar heads 23 and the cage heads 27 are provided with axial bores into which are arranged the ends of the associated connecting rods or bars 24. Wedges 29 are disposed through appropriately alined openings in the heads 23 and 27 to lock the entire drawbar into a single rigid unitary construction.

The drawbar and its couples are preferably arranged between the center sills 21 and are supported in place by cross bearing members 31 secured to the center sills and through which the

connecting rods or bars 24 are slidably arranged.

In the instant embodiment of the invention four draft gear units 32 are positioned in the draft gear cage of the drawbar. These draft gear units are arranged in series and between follower blocks 33 arranged at or adjacent the cage heads 27. Each unit comprises telescoping casing parts 34 and 35 housing and confining a spring assembly 36 preferably of the ring or friction type shown in Bell Patent No. 1,750,455. The outer casing part 34 is made up of two halves having connected side flanges 37 suitably bolted or riveted together. The two casing parts 34 and 35 are reduced in diameter at 38 to limit separating movement under action of the spring. If desired lubricant may be provided within the spring casing.

The draft gear units 32 are supported in position by a plate 39 removably held in horizontal position just beneath the drawbar by supporting cleats 41. The drawbar is connected to the body of the car or more particularly to its center sills to cushion the shocks of draft and buffing as will now be described.

A wedge member 42 is secured through each follower block 33 and extends through slots 43 in the side walls of the draft gear cage and through also slots 44 arranged through the center sills 21. The slots 44 are preferably provided in relatively thick plates 45 inserted in the center sills for the purpose. Upon impact the corresponding sudden movement of the draw bar in either position from the normal one shown in Figs. 1 and 2 is yieldingly transmitted to the car body by compression of the draft gear units as for example from the position shown in Figs. 1 and 2 to that shown in Fig. 3 thereby cushioning the shock to the car body and its contents. The construction just described provides a rigid drawbar extending between the couplings.

The embodiment of the invention shown in Figs. 6 and 7 illustrates the application of the invention to a drawbar of flexible type, i. e. a drawbar interrupted intermediate its ends to provide a yielding connection from coupler to coupler. In this embodiment of the invention a draft gear cage is provided at each end of the drawbar, as indicated at 51. In this embodiment of the invention the couplers 22 are or may be directly mounted in the outer heads 52 of the cages 51, as indicated at 53.

Each cage 51 is similar in construction to the cage 25 (already described in connection with the embodiment of the invention shown in Figs. 1 to 3) and is similarly connected by wedge blocks 54 with the center sills 21 to yieldingly transmit the shocks of impact to the car body. In this embodiment of the invention two draft gear units 55 are mounted in each cage 51 and may be oppositely arranged if desired. The adjacent ends of the rods or bars 56 are connected to mating loop members 57 and 58, the openings through the loops extending vertically and being of general rectangular section. A draft gear unit 59 is arranged within the loops and adapted to be compressed under force tending to separate the couplers. Plates 60 may be arranged to extend through both loops to form bearing members for the draft gear unit. The draft gear unit 59 is identical with that shown in Fig. 5 and earlier described, and is supported in place by a supporting plate 61 removably attached to the bottoms of the center sills.

It will be manifest that in this embodiment of the invention flexibility is provided in the drawbar by reason of the draft gear unit 59 and absorption of shock to the car body taken up by it and by the draft gear units in the end cages 51.

In the embodiment of the invention shown in Figs. 10 and 11 provision is made for yieldingly attaching the couplers to the drawbar and in this embodiment two draft gear units 32 are provided in a draft gear cage 71 mounted at the center of the car and connected to the drawbar rods or bars 72. Particular description of the construction and mounting of the units 32 at the center of the car is not thought necessary since it is or may be that already described in connection with the structure of Figs. 1 to 3. Each connecting rod 72 is provided at its end with an open rectangular loop member 73, the opening to which is arranged vertically and is generally of rectangular shape.

The coupler 22 at each end is mounted in a carrier 74 also having a vertical rectangular opening 75 extending through it. Carrier 74 is slotted at 76 at its rear end to take the head or loop member 73 of the drawbar into sliding relation, and a draft gear 77 is arranged in the loops or vertical openings of the two members 74 and 75 to provide a yielding connection between the coupler and the drawbar itself.

It will be manifest that in the several embodiments of the invention described the draft gear units are individually removable and replaceable without disturbing the arrangement of attendant parts, merely by removing the supporting plates.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the forms hereinbefore described being merely preferred embodiments thereof.

I claim:

1. In a railway car construction, the combination of a longitudinally extending sill member having two pairs of spaced abutments, a rigid continuous drawbar extending longitudinally throughout the length of the car, said drawbar being formed with a cage or housing intermediate its ends provided with a removable wall and with an opening adjacent each end thereof disposed in substantial alignment with the abutments on said sill member, a plurality of unitary self contained spring means removably disposed in said cage, followers slidably mounted in said cage for engagement with the ends of said spring means, and a transverse member carried by each of said followers and each extending through one of the openings in said cage and between the corresponding pair of abutments on said sill member, said transverse members being adapted to engage the innermost of the abutment on said sill member to limit relative movement between said drawbar and car whereby buffing and draft strains exerted on said followers from said cage are first transmitted to said spring means until a predetermined degree of compression is reached and said transverse members are moved into engagement with the abutment on said sill member and then through said transverse members and abutments directly to said sill member.

2. In a railway car construction, the combination of a longitudinally extending sill member having two pairs of spaced abutments, a rigid continuous drawbar extending longitudinally throughout the length of the car, said drawbar

being formed with a cage or housing intermediate its ends provided with a removable wall and with an opening adjacent each end thereof disposed in substantial alignment with the abutments on said sill member, a plurality of unitary self contained spring means removably disposed in said cage, followers slidably mounted in said cage for engagement with the ends of said spring means, and a transverse member carried by each of said followers and each extending through one of the openings in said cage and between the corresponding pair of abutments on said sill member.

OSCAR R. WIKANDER.