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Geyer et al.

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[54] **RESILIENT TRUCK SIDE BEARINGS**

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[52] **U.S. Cl.** .....**105/199 CB**, 267/3, 308/138

[51] **Int. Cl.**.....**B61f 5/14**, F16c 17/04, F16c 17/08

[58] **Field of Search**.....105/199, 199 CB; 308/137, 138; 267/3

[56] **References Cited**

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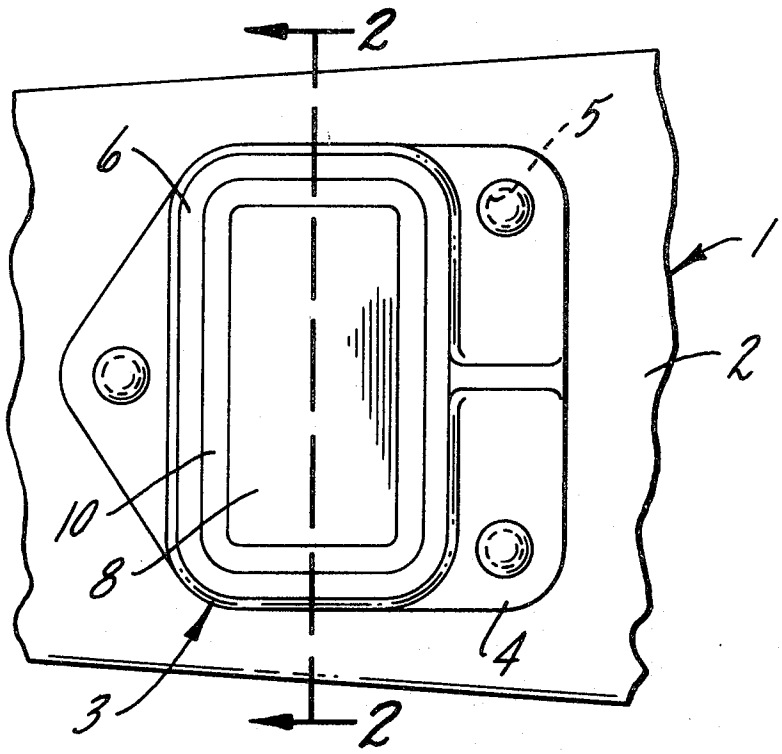
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[57] **ABSTRACT**

A side bearing for railroad car trucks having elements in constant contact and compressible at variable rates as the railroad car and truck side move relatively toward each other.

4 Claims, 3 Drawing Figures



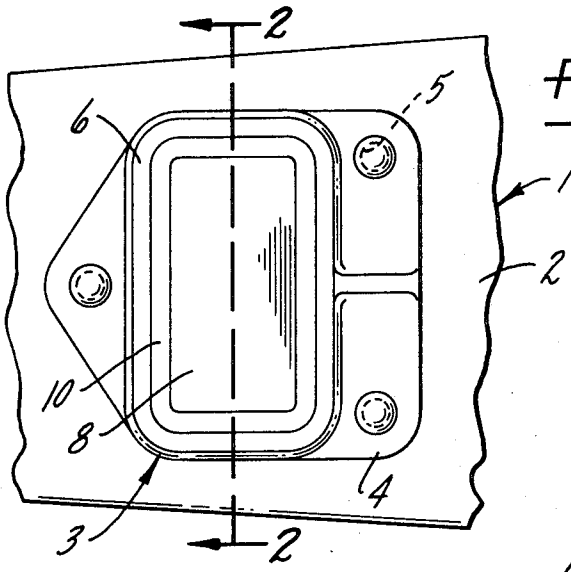


Fig. 1.

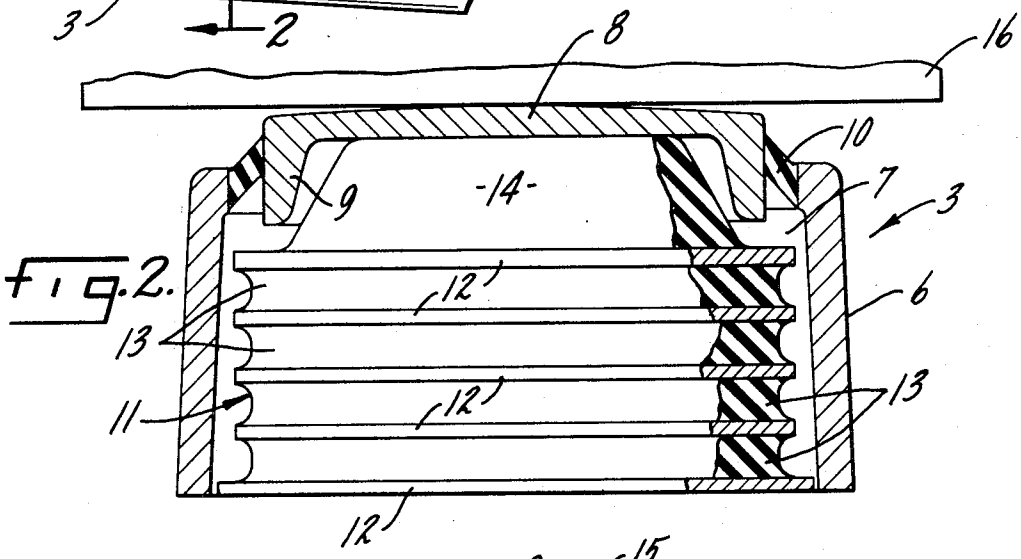


Fig. 2.

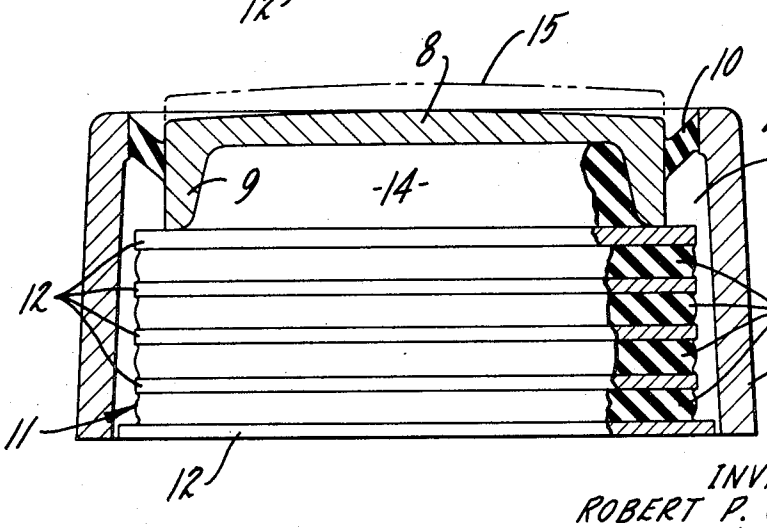


Fig. 3.

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RESILIENT TRUCK SIDE BEARINGS

OBJECTS OF THE INVENTION

This invention relates to railroad car trucks, and particularly for side bearings useful in controlling the relative movement between a railroad vehicle or car and its truck.

One purpose of the invention is to provide a side bearing assembly effective to produce a variable compression reaction as the car and truck move relatively toward each other.

Another purpose is to provide a side bearing assembly having a primary compression stage productive of less resistance per unit of deflection than secondary stages.

Proper tracking of railroad car trucks around curves, through switches, etc. require a low resistance to truck pivoting. Accordingly, it is another purpose of the invention to provide a side bearing productive of such low resistance under said conditions, while remaining effective to provide sufficient resistance to reduce a tendency toward excessive swiveling or truck hunting.

Another purpose is to provide a railroad truck side bearing assembly productive of low resistance permissive of truck tracking and a higher resistance effective to arrest car reactions from vertical input from track irregularities and the like.

Another purpose is to provide a side bearing assembly including means insuring against wear of elements thereof.

Another purpose is to provide a side bearing assembly having wear-precluding means effective to assist in providing a variable compression.

Another purpose is to provide a side bearing having means automatically effective to preclude overcompression of elements thereof.

Another purpose is to provide a stabilizing contact between car and truck bearing elements.

Other purposes may appear from time to time during the course of the specification and claims.

BRIEF DESCRIPTION OF THE DISCLOSURE

The invention is illustrated more or less diagrammatically in the accompanying drawings, wherein:

FIG. 1 is a top plan view;

FIG. 2 is a view taken on the line 2—2 of FIG. 1 on an enlarged scale illustrating the side bearing assembly of the invention in its free state; and

FIG. 3 is a view similar to that of FIG. 2 and illustrating the side bearing of the invention in a compressed state.

Like parts are indicated by like numerals throughout the specification and drawings.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, the numeral 1 generally designates a bolster. Since the same is well known to those skilled in the art, only so much of the bolster 1 is shown as may be required for clarity. For a further understanding thereof, reference may be had, for example, to U.S. Pat. No. 3,295,463 issued Jan. 3, 1967 and entitled "Railroad Car Stabilizing Limit and Side Bearing Means."

Secured to the upper surface 2 of bolster 1 is the side bearing assembly 3 of the invention. The bearing 3 includes a horizontally disposed flange 4 apertured as at 5 for securing the assembly to the upper surface 2 of bolster 1.

A housing is formed of a continuous rectilinearly disposed wall 6 defining an upwardly open pocket or chamber 7. The wall 6 defines also a bottom opening for replacement of elements of the invention therethrough.

Secured within the upper inner periphery of wall 6 is a top plate or bearing plate member 8. While the upper surface of member 8 is preferably convex, as shown, the same may be flat without departing from the nature and scope of the invention. A depending structure, such as the peripheral skirt 9, extends from plate 8 downwardly into chamber 7. Secured to the outer surface of skirt 9 and the opposed inner surface of wall 6 is a ring 10 formed of elastomeric material, such as rubber or the like. Ring 10 may be secured by bonding as shown or by clamping or other suitable manner.

Located within chamber 7 is a compression member 11 comprised of a plurality of spaced rigid plates formed preferably of metal. Positioned between and secured to adjacent pairs of plates 12 are layers 13 of elastomeric material, such as rubber or the like, of a predetermined compression rate. It will be observed that the lowermost of plates 12 rests upon the upper surface 2 of bolster 1 within the lower opening defined by wall 6. The lowermost plate 12 may be of greater linear dimensions than the remaining plates 12 to substantially fill said opening. Shims (not shown) for adjustment may be applied between lowermost plate 12 and bolster surface 2 when needed.

Carried by the uppermost plate 12 and extending between said plate and the top or bearing plate 8 is a block 14 formed of elastomeric material, such as rubber or the like, and having a predetermined compression rate less than that of the layers 13.

It will be understood that a suitable car surface or plate 16 is carried by the undersurface of the railroad car or vehicle for engagement with the upper surface of the plate 8 and that the parts are so dimensioned as to maintain a substantially constant contact between said car plate and the plate 8 throughout the truck's horizontal rotation or swivel.

The top bearing plate member 8 may be constructed to provide a higher or lower frictional surface than the mating contact plate 16 on the car, without departing from the nature and scope of the invention.

The use and operation of the invention are as follows:

As shown in phantom lines as at 15 in FIG. 3, the plate 8 with its depending, peripheral skirt 9, is held in the position shown in the phantom line while the ring or bridge 10 is suitably secured, as by bonding for example, to the outer surface of skirt 9 and bonded to, or engaged with, and/or locked to the opposed inner surface of wall 6. The ring 10 is of continuous dimensions in its free state and just fills said space when installed, the upper surface of ring 10 paralleling the upper surfaces of wall 6 when installed.

As will be observed in FIG. 2, however, the ring 10 is placed in tension when the side bearing assembly of the invention is in its free or expanded state, the inner por-

tion of ring **10** being drawn upwardly. Similarly, when the assembly of the invention is in its maximum compressed state, as indicated in FIG. **3**, the ring **10** is again placed in tension, its inner portion being drawn below its outer portion.

Thus the ring **10** serves a triple function. It serves to seal the chamber **7** against the ingress of deleterious materials as the railroad car is operated. It serves as a buffer between the member **8,9** and the peripheral wall **6**, insuring against unintended lateral motion of the member **8,9** and against wear between said member and wall **6**. Thirdly, it contributes to the variable compression action of the assembly of the invention. As member **8,9** moves from its position shown in FIG. **2**, member **10** reduces in tension and in that sense assists in reducing the over-all resistance of the assembly of the invention. As member **8,9** continues its downward movement in response to motion of the car side toward the opposed side bearing, i.e., in response to tilting or rolling of the car about its longitudinal axis, the ring **10** moves past its normal unflexed position and thereafter is again placed in tension, adding to the compression resistance of the assembly of the invention.

Initial movement of the member **8,9** in a downward direction, as the parts are shown, is resisted initially by the block **14** having a lesser compression resistance rate. Further, such movement is thereafter resisted at a greater compression rate. Hence the resistance to pivoting, swiveling and the like when the car has moved relatively a limited distance toward the truck is low and the truck is permitted to pivot relatively easily as the railroad vehicle traverses curves, switches and the like. As the car moves further toward the truck in response to vibration, rocking or rolling of the car about its longitudinal axis, track irregularities and the like, the member **8,9** moves further into pocket **6**, the lower edge of skirt **9** contacting the opposed surface of the uppermost plate **12** as the parts are shown. Thereafter the block **14** is rendered inactive and the portion of the assembly consisting of plates **12** and layers **13**, having a greater resistance to compression, provides such greater resistance in response to the need created by such car movement.

It will be understood that the compression resistance could be further varied by providing layers **13** of a different number, and/or varying resistance, one from the other, without departing from the nature and scope of the invention. Similarly, one or more of the rigid plates **12** could be provided with depending skirts or legs positioned to contact an underlying plate **12** or bolster surface **2** in the manner reflected in the operation of member **8,9** and the uppermost plate **12**, as shown in FIG. **3**, without departing from the nature and scope of the invention.

It will be observed that the side edges of the layers **13** are bowed or expanded in response to compression. If desired, the parts could be dimensioned to provide for contact of said side edges with the opposed inner surface of wall **6**.

While the side bearing assembly of the invention has been described as located on the bolster and the car plate **16** as being mounted on the car, it will be understood that the parts could be reversed without departing from the nature and scope of the invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A railroad truck side bearing assembly including a housing having an open end, a variable, elastomeric compression member within said housing, a bearing plate member urged by said compression member into a position outwardly of said open end and movable inwardly of said housing against the resistance of said compression member, a ring member formed of elastomeric material and secured to said bearing plate member and said housing and extending therebetween, said ring member sealing the space between said bearing plate member and said housing and closing said housing against ingress of deleterious material.

2. The structure of claim **1**, wherein said ring is secured to said bearing plate member and said housing substantially in parallel with the plane occupied by said bearing plate member at a point intermediate its excursion, whereby said ring is placed in tension when said bearing plate member is positioned outwardly of said housing and inwardly of said housing.

3. The structure of claim **1**, wherein said compression member includes a first portion formed of a plurality of rigid plates and alternating layers of elastic material having a first rate of resistance to compression and a block of elastic material positioned between said first portion and said bearing plate, said block having a rate of resistance to compression less than that of said first portion.

4. The structure of claim **1**, wherein said compression member includes a first portion having a first rate of resistance to compression and a second portion having a lesser rate of resistance to compression, said second portion being positioned between said first portion and said bearing plate, said bearing plate having a depending segment positioned to contact said first portion when said second portion has been compressed.

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