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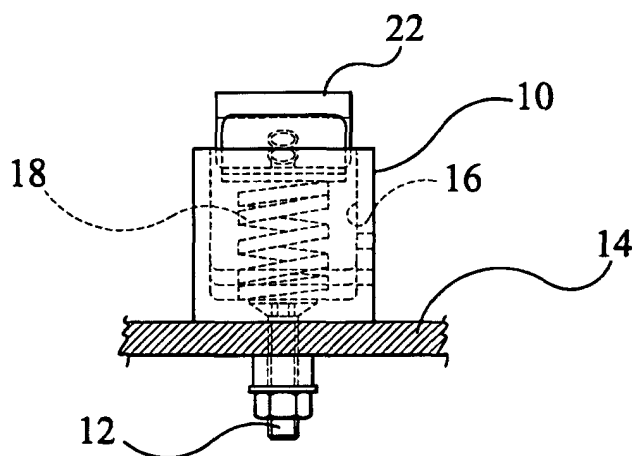
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(54) **Side bearer**

(57) A side bearer comprises a lower component 10, an upper component 20 guided for generally vertical movement relative to the lower component 10, and resilient biasing means 18 urging the upper component

20 away from the lower component 10, the resilient biasing means 18 further being arranged to resist horizontal or longitudinal relative movement between the upper and lower components 10, 20 by shearing thereof.

FIG 3



Description

[0001] This invention relates to a side bearer for use on a railway vehicle.

[0002] It is usual to mount side bearers between a railway bogie and the associated vehicle underframe to restrict or damp movement between the underframe and the bogie. A typical side bearer comprises a lower component secured to, for example, the bolster of the bogie, and an upper component parallel to the lower component and guided for movement in the vertical direction relative to the lower component, springs being located between the components. The upper component carries a bearing plate arranged to engage a surface of the vehicle underframe.

[0003] In use, two such side bearers are used on each bogie, the side bearers being located symmetrically upon the bolster of the bogie, one being located on each side of the central pivot of the bogie. The side bearers serve to control sideways tilting movement of the vehicle whilst at the same time allow the vehicle to pass around curves in the railway track.

[0004] In the event of pitching or rolling movement of the vehicle, the underframe may move at least partially out of contact with the associated side bearer, thus reducing friction between the bogie and the underframe of the vehicle, and this is thought to be undesirable. Additionally, if the bogie passes around a curve, the associated angular movement between the bogie and the vehicle underframe may not, at least initially, be damped whilst the various components of the side bearer move to take up any slack resulting from air spaces in the side bearer arrangement. Again, this is undesirable.

[0005] According to one aspect of the invention there is provided a side bearer comprising a lower component, an upper component guided for generally vertical movement relative to the lower component, and resilient biasing means urging the upper component away from the lower component, the resilient biasing means further being arranged to resist generally horizontal relative movement between the upper and lower components by shearing thereof.

[0006] It will be appreciated that such an arrangement ensures that there is constant damping of movement, in use, between a bogie and vehicle underframe with which the side bearer is used.

[0007] The lower component preferably defines a cavity within which a roller is located, the roller protruding from the cavity and being arranged to serve as a bump stop for example by contacting part of the vehicle underframe in the event of excessive movement, the roller being moveable within the cavity to react to yawing movement, in use.

[0008] The invention will further be described, by way of example, with reference to the accompanying drawings in which:

in accordance with one embodiment of the invention;

Figure 2 is a plan view of the arrangement of Figure 1; and

Figure 3 is a diagrammatic view of the side bearer of Figure 1 from one end thereof.

[0009] The side bearer illustrated in the accompanying drawings comprises a lower component 10 which is bolted by bolts 12, in use, to the upper surface of the bolster 14 of a bogie. Although bolts are used in the illustrated arrangement, it will be appreciated that other securing techniques may be used if desired. The lower component 10 is shaped to define a first cavity 16. Three linearly stiff springs 18 are located within the first cavity 16, the springs 18 being located side-by-side as shown in Figures 1 and 2, the springs 18 serving to support an upper component 20 which, as shown in Figure 1, is of multi-part form.

[0010] The upper component 20 comprises a friction pad 22 of generally wedge-shaped form which is seated upon a support member 24. The friction pad 22 has a hardened wear surface, of slightly curved form. The support member 24 is seated, in turn, upon a seat 26 carried by the upper ends of the springs 18. The support member 24 is provided with a pair of openings 28 into which projections 30 formed on the lower surface of the friction pad 22 project to locate the friction pad relative to the support member 24.

[0011] The dimensions of the support member 24 relative to the first cavity 16 are such that the support member 24 is guided for generally vertical movement, in use. A small amount of horizontal movement of the support member 24 is also permitted.

[0012] The lower component 10 is further provided with a second cavity 32 of generally rectangular cross-section within which a roller 34 is provided. The diameter of the roller 34 is such that part of the periphery of the roller 34 protrudes from the second cavity 32 to a height such that if, in use, the springs 18 become compressed to a predetermined level, then the roller 34 will engage part of the underframe of the vehicle with which the side bearer is used to serve as a bump stop preventing further downward movement of the vehicle underframe.

[0013] In use, with the side bearer bolted to the bolster 14 of the bogie with which the side bearer is to be used, and with the upper, wear surface of the friction pad 22 engaging a friction surface forming part of the underframe of the vehicle supported by the bogie, the springs 18 hold the surface of the friction pad 22 in constant contact with the friction surface of the vehicle underframe, and vertical movement occurring as a result of pitch or roll of the vehicle can be accommodated by the springs 18 compressing forcing the friction pad 22 and other elements of the upper component 20 into or further into the first cavity 16. Constant damping between the bogie and the vehicle underframe is maintained in the longitudinal direction of the vehicle as yawing motion occurs

Figure 1 is a sectional view illustrating a side bearer

by shearing of the springs 18, rather than having to wait until slack in the system has been taken up. In the event that relative vertical movement between the bogie and vehicle underframe reaches a predetermined level, then the vehicle underframe will contact the periphery of the roller 34, the roller 34 serving as a bump stop preventing further relative vertical movement. Although vertical movement is prevented by the engagement of the vehicle underframe with the roller 34, yawing motion may continue, such movement being unimpeded by the engagement of the underframe with the roller 34 and simply results in the roller 34 rolling towards one end or the other of the second cavity 32.

[0014] It will be appreciated that although the description hereinbefore is of a specific arrangement of side bearer, modifications may be made thereto in accordance with the invention and this application covers any such modifications.

Claims

1. A side bearer comprising a lower component, an upper component guided for generally vertical movement relative to the lower component, and resilient biasing means urging the upper component away from the lower component, the resilient biasing means further being arranged to resist generally horizontal relative movement between the upper and lower components by shearing thereof.
2. A side bearer according to Claim 1, further comprising a bump stop.
3. A side bearer according to Claim 2, wherein the lower component defines a cavity within which a roller is located, the roller protruding from the cavity and being arranged to serve as the bump stop, the roller being moveable within the cavity to react to yawing movement, in use.
4. A side bearer according to any of the preceding claims, wherein the resilient biasing means comprises a plurality of coiled springs.
5. A side bearer according to any of the preceding claims, wherein the upper component comprises a support member having a wedge-shaped recess and a friction pad having a wedge-shaped surface received within the recess of the support member.
6. A side bearer according to Claim 5, wherein the friction pad has a curved wear surface.
7. A side bearer substantially as hereinbefore described with reference to the accompanying drawings.

FIG 1

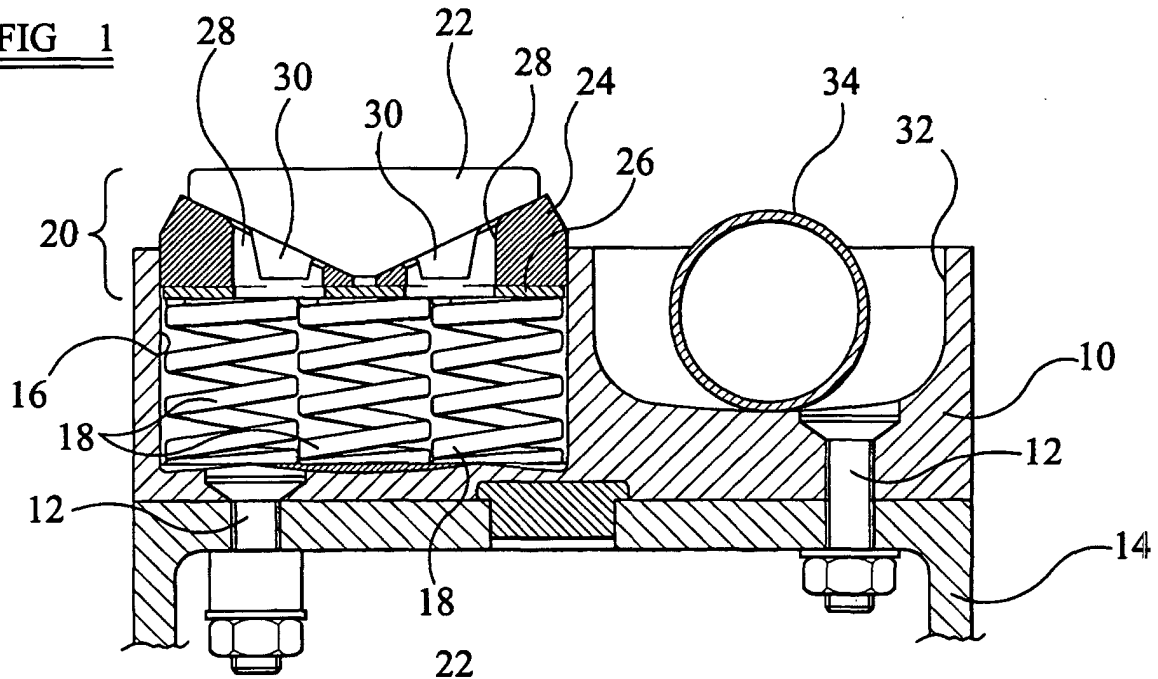


FIG 2

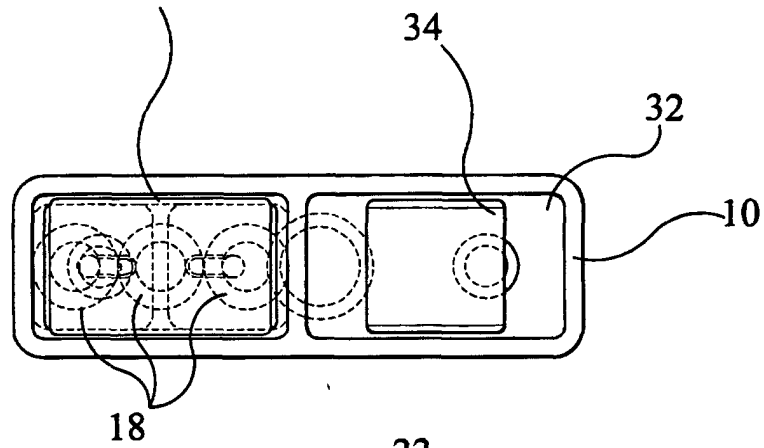
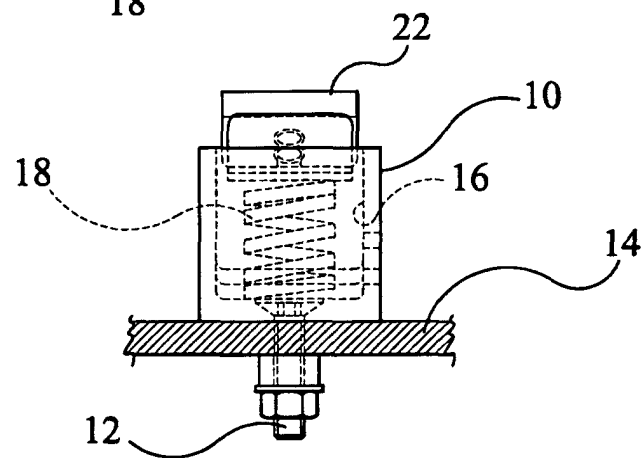


FIG 3





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EUROPEAN SEARCH REPORT

Application Number
EP 04 25 3373

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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Place of search		Date of completion of the search	Examiner
The Hague		3 September 2004	Chlosta, P
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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