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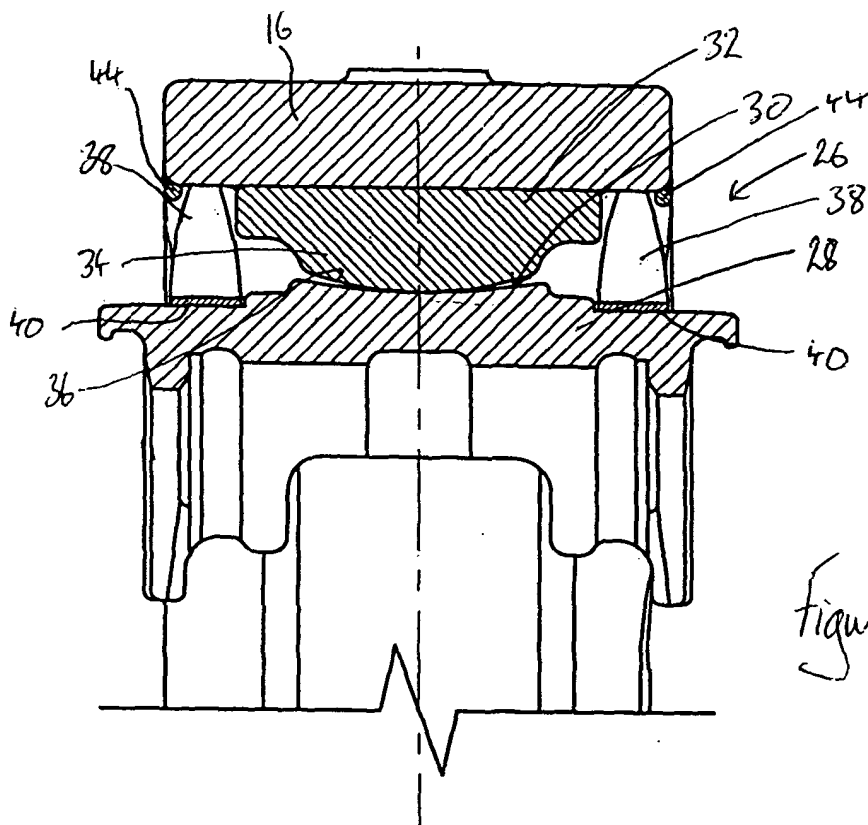
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(54) **Rocker arrangement**

(57) A rocker arrangement comprises a rocker member 32 and an adaptor member 28, the rocker member 32 and the adaptor member 28 having co-operating surfaces arranged to allow the rocker member

32 to tilt relative to the adaptor member 28, and a resiliently deformable component 38 arranged to apply a restoring force in the event of tilting of the rocker member 32 relative to the adaptor member 28.



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Description

[0001] This invention relates to a rocker arrangement suitable for use in a railway vehicle.

[0002] One design of railway vehicle includes a pair of side frames each of which defines a pair of pedestals. A saddle is associated with each pedestal, the pedestal being supported by the associated saddle through a number of suspension springs. Relative vertical and horizontal movement between the saddle and the associated pedestal is damped by means of friction wedges which are urged against angled surfaces of the pedestal by some of the suspension springs and bear against generally vertically extending surfaces of the saddle.

[0003] Each saddle is carried by an axle and wheel set through a rocker arrangement which typically comprises a component having a part-spherical surface mounted within the saddle, and an adaptor member arranged to co-operate with the axle or bearing of the wheelset and having a dished surface into which the said component extends and against which the part-spherical surface bears to allow the saddle and its associated springs to articulate relative to the adaptor member and wheelset. It is thought that it may be desirable to damp the operation of the rocker arrangement.

[0004] According to the present invention there is provided a rocker arrangement comprising a rocker member and an adaptor member, the rocker member and the adaptor member having co-operating surfaces arranged to allow the rocker member to tilt relative to the adaptor member, and a resiliently deformable component arranged to apply a restoring force in the event of tilting of the rocker member relative to the adaptor member. By this means lateral accelerations of the wheelset are better reacted by the tilting operation of the rocker and saddle.

[0005] The resiliently deformable component conveniently includes first and second deformable elements located on opposing sides of the co-operating surfaces. The deformable elements may be interconnected, for example by being mounted upon a common support plate. The elements are conveniently blocks of rubber or rubber-like material.

[0006] The rocker member is conveniently shaped to define a part-spherical projection arranged to extend into a dished part of the adaptor member.

[0007] The invention will further be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a view illustrating part of a railway vehicle incorporating a rocker arrangement in accordance with an embodiment of the invention; and
Figures 2 and 3 are sectional and side views illustrating the rocker arrangement of the vehicle of Figure 1.

[0008] The railway vehicle illustrated in Figure 1 comprises

a pair of side frames 10, part of only one of which is illustrated, each side frame 10 being shaped to include a pair of pedestals 12. Each pedestal includes a pair of inclined surfaces 14 defining therebetween a cavity into which part of a saddle 16 extends. Suspension springs 18 are provided between the saddle 16 and the pedestal 12 to support the pedestal 12 the suspension springs 18 allowing some vertical and horizontal movement of the pedestal 14 relative to the saddle 16.

[0009] A pair of friction wedges 20 are provided, each wedge 20 being urged by some of the suspension springs 18 into engagement with the angled surfaces 14 of the pedestal 12, the arrangement being such that the friction wedges 20 are urged into engagement with substantially vertical surfaces 22 of the saddle 16, the friction wedges 20 serving to damp vertical and horizontal movement between the pedestal 12 and the saddle 16.

[0010] The saddle 16 is carried by an axle 24 of a wheelset of the vehicle through a rocker arrangement 26.

[0011] As shown most clearly in Figures 2 and 3, the rocker arrangement 26 comprises an adaptor member 28 arranged to co-operate with the axle 24 in the usual manner. The upper surface of the adaptor member 28 is shaped to define a dished region 30. A rocker member 32 is bolted or otherwise rigidly secured to the saddle 16, the rocker member 32 including, on its underside, a projection 34 having a part-spherical surface 36 located, at least in part, within the dished region 30 of the adaptor member 28. The rocker arrangement 26 thus allows a degree of articulation between the saddle 16 and the axle 24.

[0012] In accordance with the invention, resiliently deformable components 38 in the form of blocks of a rubber or rubber-like material are located on opposite sides of the rocker member 32, the resiliently deformable components being located between the saddle 16 and the adaptor member 28 and arranged such that in the event of relative tilting occurring between the saddle 16 and the adaptor member 28, as permitted by the rocker arrangement 26, at least part of at least one or the other of the components 38 will be compressed, such compression serving to damp the relative tilting motion and further serving to apply a restoring force urging the saddle 16 and adaptor member 28 towards their original positions. In the arrangement illustrated in the accompanying drawings, the components 38 are mounted upon respective support plates 40 which are interconnected by a cross-member 42 so as to adopt an H configuration. However, it will be appreciated that other configurations may be used, if desired. Further, retainer members 44 are secured to the saddle 16 in order to securely retain the components 38 in position, in use.

[0013] Although one specific embodiment of the invention has been described herein, it will be appreciated that the invention may be modified in numerous ways without departing from the scope of the invention. For example, the rocker member 32 may be modified to in-

clude flanges with which the components 38 engage rather than the components 38 co-operating directly against the saddle 16. It may further be possible to modify the shape of the components 38, or possible to include, for example, a greater number of components 38 in the rocker arrangement 26. 5

Claims

1. A rocker arrangement comprising a rocker member and an adaptor member, the rocker member and the adaptor member having co-operating surfaces arranged to allow the rocker member to tilt relative to the adaptor member, and at least one resiliently deformable component arranged to apply a restoring force in the event of tilting of the rocker member relative to the adaptor member. 10 15
2. An arrangement according to Claim 1, wherein the resiliently deformable component includes first and second deformable elements located on opposing sides of the co-operating surfaces. 20
3. An arrangement according to Claim 2, wherein the deformable elements are connected. 25
4. An arrangement according to Claim 3, wherein the deformable elements are mounted on a common support plate. 30
5. An arrangement according to any of Claims 2 to 4, wherein the elements are blocks of rubber or rubber-like material. 35
6. An arrangement according to any of the preceding claims, wherein the rocker member is shaped to define a part-spherical projection arranged to extend into a dish part of the adaptor member. 40
7. An arrangement according to any of Claims 2 to 5, further comprising retainer members to retain the elements in position. 45

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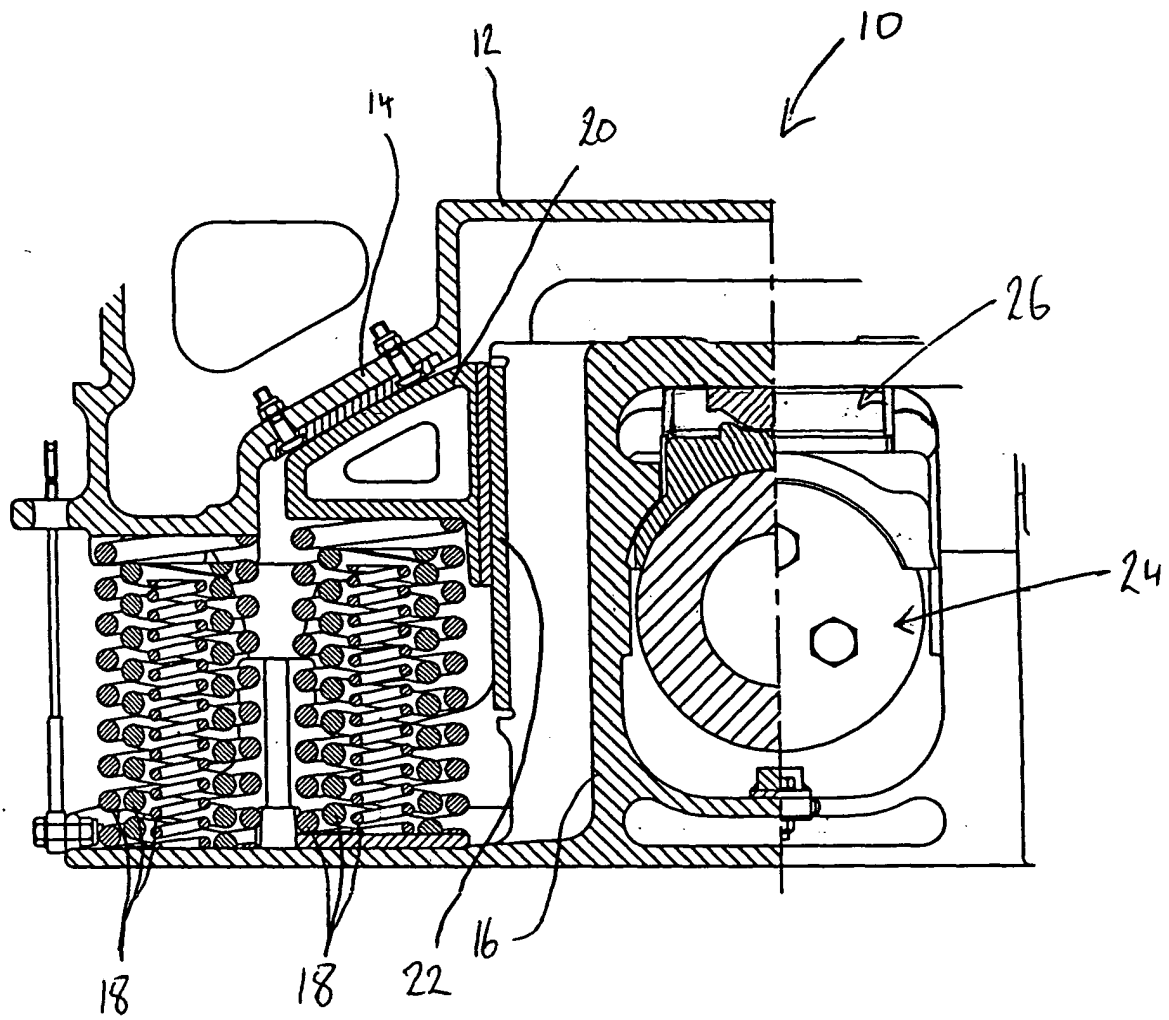


Figure 1

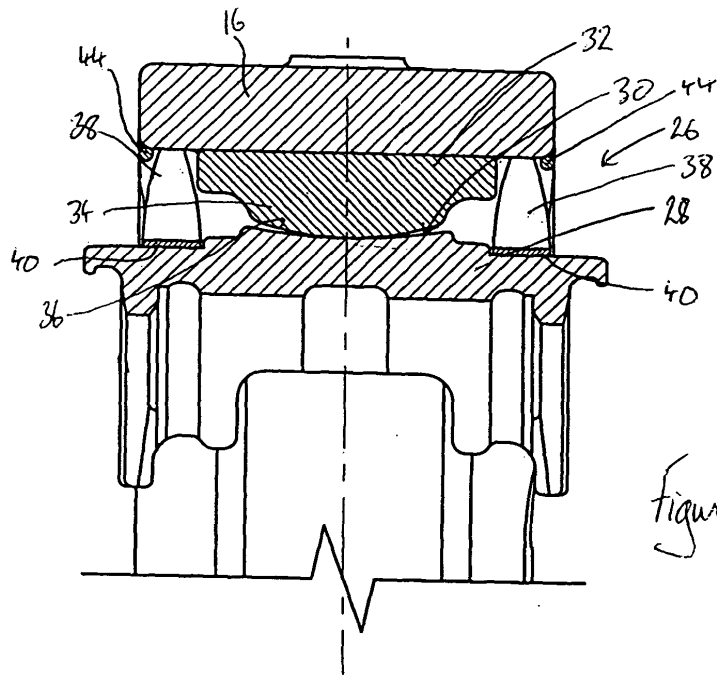


Figure 2

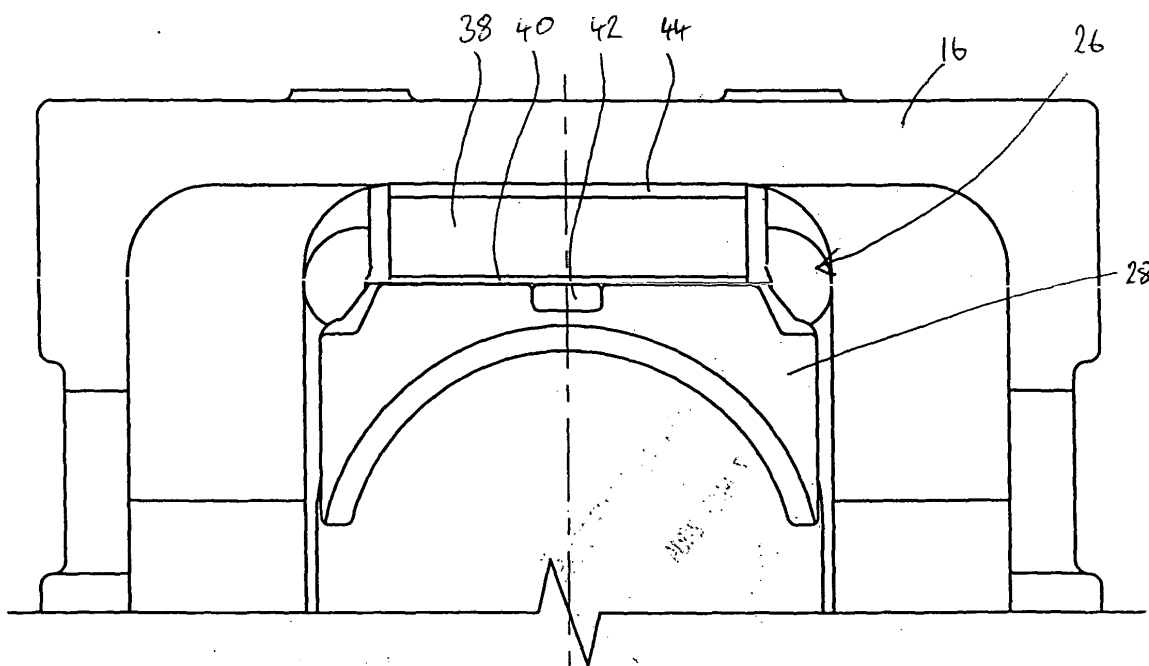


Figure 3



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EUROPEAN SEARCH REPORT

Application Number
EP 04 25 3146

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 6 142 081 A (LONG JACK R ET AL) 7 November 2000 (2000-11-07) * column 6, line 31 - column 8, line 8; figures 12-22 *	1	B61F5/30
A	-----	2-6	
X	US 5 463 964 A (LONG JACK R ET AL) 7 November 1995 (1995-11-07) * column 3, line 61 - column 4, line 38; figure 4 *	1	
A	-----	2-6	
A	GB 823 090 A (VICKERS ELECTRICAL CO LTD) 4 November 1959 (1959-11-04) * page 2, line 31 - page 3, line 32; figures 1-4 *	1-6	

The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B61F
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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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 04 25 3146

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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03-09-2004

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82