

Description

This invention relates to a vehicle axle beam and brake assembly of the kind in which an internal shoe drum brake is operated by a brake camshaft supported for rotation by two spaced bearing assemblies carried by the axle beam, one of the bearing assemblies being supported on the axle beam by a brake anchor bracket, and the brake camshaft having at one end nearest to the brake anchor bracket a cam by means of which brake shoes are caused to be actuated upon rotation of the brake camshaft. Such a vehicle axle beam and brake assembly is hereinafter referred to as "of the type described". The axle beam may, for example, be a trailer axle having S cam operated brakes.

Conventionally, the brake camshaft in an assembly of the type described is supported at the cam end in a plain bearing at the brake anchor bracket and in a spherical bearing adjacent its other end. One such construction is illustrated and described in British patent no. 1183469 of North American Rockwell Corporation. The spherical bearing is mounted on the axle beam and the brake anchor bracket, after machining, is secured on the axle beam as by welding.

Servicing of the bearing at the anchor bracket requires removal of the brake drum and the associated hub and bearing assembly to enable the brake camshaft to be withdrawn and so allow bearing removal. This is time consuming and introduces a risk that, on re-assembly, the hub and bearing assembly may not be adjusted correctly, so adversely affecting bearing assembly life.

Welding of the brake anchor bracket to the axle beam can introduce some distortion. Because of this a bush of the plain bearing in which the brake camshaft is received has to have appreciable clearance from the brake camshaft to allow for any misalignment at the anchor bracket. This results in many kilometres of use being required to bed in new brake linings before optimum brake performance is obtained, and this is undesirable. The clearance necessary also acts to promote more rapid wear of the plain bearing by allowing access of road dirt and wash out of lubricant because seals provided at each end of the bush cannot be properly effective, increasing the necessary frequency of servicing.

The present invention seeks to facilitate withdrawal of the brake camshaft and its bearings for servicing and maintenance.

According to the present invention there is provided a vehicle axle beam and brake assembly comprising an internal shoe drum having brake shoes operated by a brake camshaft supported for rotation by two spaced, first and second, bearing assemblies carried respectively by aligned first and second mountings carried on an axle beam, the first mounting being provided by a brake anchor bracket having op-

posite first and second sides, the brake camshaft having adjacent and remote ends respectively near to and remote from the brake anchor bracket and a cam at said adjacent end by means of which the brake shoes are caused to be actuated upon rotation of the brake camshaft, the first bearing assembly being releasably mounted on the first mounting which has an aperture through which the brake camshaft extends so that the cam is adjacent said first side of the brake anchor bracket and the brake camshaft extends from said second side to the second bearing assembly, and the second bearing assembly being releasably mounted on the second mounting which also has an aperture through which the brake camshaft extends, characterised in that the aperture of at least one of the mountings is open or openable laterally of the brake camshaft whereby when the bearing assemblies have been released from the mountings the brake camshaft, with both of the bearing assemblies thereon, can be manoeuvred out of engagement with the mountings by substantially lateral movement relative to the axle beam.

The apertures of both mountings may be open or openable laterally of the brake camshaft and enable the camshaft to be withdrawn laterally from the apertures. Where the aperture at only one of the mountings is open or openable that aperture is conveniently at the second mounting. The aperture at the first mounting may then be in the form of a slot through which the cam can be drawn when suitably orientated to disengage the camshaft from that mounting, either before or after the camshaft has been disengaged from the aperture at the second mounting. The required manoeuvring of the camshaft may comprise tilting to enable the end of the brake camshaft remote from the cam to be withdrawn from the second mounting through the open or openable aperture, and the cam to be drawn through the slot of the first mounting at the brake anchor bracket.

The slot of the first mounting at the brake anchor bracket may, for example, be an open slot, a slot open at one end with a removable closing member, or a closed slot. The slot may be of a keyhole shape having a part-circular portion with which the respective bearing assembly is registered and an extension portion with which the cam has to be aligned to allow withdrawal of the brake camshaft from the first mounting.

The slot of the first mounting may be open or openable to enable the brake camshaft to be tilted to allow its end remote from the cam to be withdrawn from the second mounting and to allow the brake camshaft to be drawn through it for disengagement from the first mounting.

The aperture at the second mounting may also be in the form of a slot which may similarly be of a keyhole shape with a part-circular portion with which the respective bearing assembly registers and an exten-

sion portion by way of which the brake camshaft is able to be moved laterally or tilted to be withdrawn from the second mounting.

Preferably both bearing assemblies for the brake camshaft are of a self-aligning, for example spherical, type able to accommodate any misalignment at the brake anchor bracket whilst maintaining a relatively reduced running clearance from the brake camshaft at the brake anchor bracket, and allowing for deflection of the axle beam in use without imparting corresponding loading between the brake camshaft and its bearing assemblies, thereby reducing wear and corresponding need for maintenance.

An embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 is a side elevation, partly in section, showing one end of an axle beam and a brake camshaft mounted in spherical bearing assemblies on the axle beam,

Figures 2 and 3 are similar to Figure 1 but showing successive stages in withdrawal of the camshaft and its bearing assemblies from the axle beam,

Figure 4 is a front elevation of a brake anchor bracket,

Figure 5 is a plan view on the brake anchor bracket of Figure 4,

Figure 6 is a section on line A-A of Figure 4,

Figure 7 is a front elevation of an open slotted bearing mounting bracket, and

Figure 8 is a scrap view of part of Figure 4, on a larger scale, modified to show an open slot mounting at the brake anchor bracket.

Referring to Figure 1 of the accompanying drawings, an axle beam 1, only one end of which is shown (the other end being a mirror image thereof), has at each end a spindle end 2 with machined surfaces 3, 4 on which is rotatably mounted by bearings (not illustrated) a hub 5 (only part of which is shown) carrying a wheel 6. A seal 7 is provided between the spindle end 2 and the hub 5. An elongated brake anchor bracket 8, for example of fabricated construction, is secured centrally of its length to the axle beam 1 by welding. A bearing mounting bracket 9 (best seen in Figure 7), also elongated and having an open keyhole slot 10 opening to one end, is secured to the axle beam 1 by welding, inboard of the brake anchor bracket 8.

Referring now to Figures 4 to 6 of the drawings, the brake anchor bracket 8 has two bushes 11, 12 to receive anchor pins on which brake shoes (not shown) are mounted for pivotal movement. The bracket 8 also has a keyhole slot 13 comprising a part-circular portion 14 and a parallel-sided extension portion 14'. Four holes 15 are drilled and tapped in the bracket adjacent to the keyhole slot 13 to receive bolts, not shown, which secure an outboard spherical

bearing assembly 16, Figure 1, to the bracket at that slot.

The bearing mounting bracket 9 is secured to the axle beam 1 so that a part-circular portion 17, Figure 7, of its open keyhole slot 10 is aligned with the part-circular portion 14 of the keyhole slot 13 in the brake anchor bracket 8. An open-ended parallel-sided extension 18 of the slot 10 extends from the part-circular portion 17 to the adjacent end of the bracket. The bracket 9 also has four drilled and tapped holes 19 around the part-circular portion 17 of the slot 10 by which an inboard spherical bearing assembly 21, Figure 1, is secured to the bracket 9, as by bolts, not shown.

Referring again to Figure 1, at each end of the axle beam 1 there is a brake camshaft 22 which extends parallel to the axle beam and has an S cam 23 at its outboard end and splines 24 at its inboard end. The camshaft 22 is supported in the outboard and inboard spherical bearing assemblies 16, 21 for rotation. The S cam 23 engages the ends of the brake shoes (not shown) opposite those ends which are pivotally mounted at the bushes 11, 12 of the brake anchor bracket 8. Rotation of the camshaft 22 by a lever (not shown) mounted on the splines 24 expands the brake shoes to engage a brake drum 25 carried by the hub 5. A dust cover 26 is secured, as by bolts, not shown, to the brake anchor bracket 8.

The outboard bearing assembly 16 on each brake anchor bracket comprises a housing 27 by which the bearing assembly is secured to the bracket and in which is tiltably located a part-spherical bush 28, Figure 1, having a central annulus 29 in the form of a groove in its bore 30. A corresponding annulus 31 is provided in the associated camshaft 22 and an oval-shaped snap ring 32 is engaged between the two annuli to locate the camshaft 22 in the bearing assembly. The inboard bearing assembly 21 on each bearing mounting bracket 9 similarly comprises a housing 33 which is secured to that bracket at the part-circular portion 17 of the keyhole slot 10 and in which a bush 34 with a bore 35 is tiltably located. The camshaft engages in the bore 34 but since it is located by the annuli and snap ring 32 of the associated outboard bearing assembly 16 further such retention at the inboard bearing assembly is unnecessary.

Each brake camshaft 22, with its associated bearing assemblies 16, 21, is readily removed from the axle beam 1 for servicing without (unlike the conventional practice) having to remove the hub 5. This is accomplished by removal of the dust cover 26 and brake drum 25 and release of the bearing assemblies 16, 21 from the brake anchor bracket 8 and the bearing mounting bracket 9 respectively. The open-ended portion 18 of the slot 10 then allows the camshaft 33 to be tilted so that its inboard end lifts out of the slot. Alignment of the S cam 23 with the parallel-sided portion 14' of the keyhole slot 13 in the brake anchor

bracket 8, by rotation of the camshaft allows the cam end of the camshaft, to be withdrawn from the brake anchor bracket so that the camshaft and bearing assemblies can be lifted clear for servicing. Re-assembly is the reverse of the removal operation. Successive stages in removal of the camshaft and bearing assemblies are shown in Figures 2 and 3 of the drawings.

It will be appreciated that the fitting of the two spherical bearing assemblies to each brake camshaft compensates for any slight misalignment of the respective brake anchor bracket 8 and mounting bracket 9 and also renders the camshaft and bearings assembly independent of any flexure of the axle beam which occurs in use. These factors enable new brake linings to "bed in" rapidly in use to give early optimum brake performance, help to reduce wear of the bearing assemblies and also facilitate the servicing and maintenance of the camshaft and bearing assemblies.

The clearances earlier referred to between the plain bearing bush and the camshaft in known constructions is of the order of 0.86 mm on diameter. The construction provided in the embodiment described enables the diametrical clearance at the bush of the bearing assembly at the brake anchor bracket to be reduced, typically to the order of 0.15 mm. In addition to the advantages already described this reduction in clearance also enables O-ring seals 36 on the brake camshaft provided in the housing 27 of each bearing assembly 16 at each end of the bush 28 to function efficiently.

Referring now to Figure 8, the brake camshaft bearing end of a brake anchor bracket 37 is shown which is generally similar to the brake anchor bracket 8 described above but has a modified keyhole slot 38. The keyhole slot 38 has been inverted and its extension portion 39 now opens to the adjacent edge of the brake anchor bracket 37 to allow withdrawal of the cam end of the brake camshaft. In this construction provision may be made to fit a removable member in the form of a bridge piece 40 to the brake anchor bracket 37 to enhance the structural integrity of the bracket. The bridge piece 40 may be secured by bolting, utilising the outer two holes provided for securing the bearing assembly 16 to the brake anchor bracket. With this modification the brake camshaft may be withdrawn, again with its bearing assemblies, from the slots of the two mountings by lateral movement without the need for tilting or for the cam to be aligned with the extension portion 39 of the keyhole slot 38 of the brake anchor bracket.

Claims

1. Vehicle axle beam and brake assembly comprising an internal shoe drum having brake shoes op-

erated by a brake camshaft (22) supported for rotation by two spaced, first and second, bearing assemblies (16;21) carried respectively by aligned first and second mountings carried on an axle beam (1), the first mounting being provided by a brake anchor bracket (8;37) having opposite first and second sides, the brake camshaft having adjacent and remote ends respectively near to and remote from the brake anchor bracket and a cam (23) at said adjacent end by means of which the brake shoes are caused to be actuated upon rotation of the brake camshaft, the first bearing assembly (16) being releasably mounted on the first mounting (8;37) which has an aperture through which the brake camshaft extends so that the cam is adjacent said first side of the brake anchor bracket and the brake camshaft extends from said second side to the second bearing assembly, and the second bearing assembly (21) being releasably mounted on the second mounting (9) which also has an aperture (10) through which the brake camshaft extends, characterised in that the aperture (10;38) of at least one of the mountings is open or openable laterally of the brake camshaft (22) whereby when the bearing assemblies (16;21) have been released from the mountings the brake camshaft (22), with both of the bearing assemblies thereon, can be manoeuvred out of engagement with the mountings by substantially lateral movement relative to the axle beam (1).

2. An assembly according to Claim 1 characterised in that the aperture (13;38) of the first mounting (8;37) is of a shape to allow the cam (22) to be passed therethrough, and the aperture (10;38) of at least one of the mountings is open or openable laterally of the brake camshaft (22), the construction and arrangement being such that when each bearing assembly has been released from its respective mounting the apertures enable the brake camshaft, with both of the bearing assemblies thereon, to be manoeuvred to pass the cam from said first side to said second side of the brake anchor bracket and withdraw the brake camshaft and the bearing assembly from the mountings.
3. An assembly according to Claim 1 or Claim 2 characterised in that the apertures (10;38) of both mountings are open or openable laterally of the brake camshaft (22) for disengagement of the brake camshaft from the mountings.
4. An assembly according to Claim 3 characterised in that the apertures (10;38) are each in the form of a slot which is open at one end, and that slot (38) which is at the first mounting has its open

bracket 8, by rotation of the camshaft allows the cam end of the camshaft, to be withdrawn from the brake anchor bracket so that the camshaft and bearing assemblies can be lifted clear for servicing. Re-assembly is the reverse of the removal operation. Successive stages in removal of the camshaft and bearing assemblies are shown in Figures 2 and 3 of the drawings.

It will be appreciated that the fitting of the two spherical bearing assemblies to each brake camshaft compensates for any slight misalignment of the respective brake anchor bracket 8 and mounting bracket 9 and also renders the camshaft and bearings assembly independent of any flexure of the axle beam which occurs in use. These factors enable new brake linings to "bed in" rapidly in use to give early optimum brake performance, help to reduce wear of the bearing assemblies and also facilitate the servicing and maintenance of the camshaft and bearing assemblies.

The clearances earlier referred to between the plain bearing bush and the camshaft in known constructions is of the order of 0.66 mm on diameter. The construction provided in the embodiment described enables the diametrical clearance at the bush of the bearing assembly at the brake anchor bracket to be reduced, typically to the order of 0.15 mm. In addition to the advantages already described this reduction in clearance also enables O-ring seals 36 on the brake camshaft provided in the housing 27 of each bearing assembly 16 at each end of the bush 28 to function efficiently.

Referring now to Figure 8, the brake camshaft bearing end of a brake anchor bracket 37 is shown which is generally similar to the brake anchor bracket 8 described above but has a modified keyhole slot 38. The keyhole slot 38 has been inverted and its extension portion 39 now opens to the adjacent edge of the brake anchor bracket 37 to allow withdrawal of the cam end of the brake camshaft. In this construction provision may be made to fit a removable member in the form of a bridge piece 40 to the brake anchor bracket 37 to enhance the structural integrity of the bracket. The bridge piece 40 may be secured by bolting, utilising the outer two holes provided for securing the bearing assembly 16 to the brake anchor bracket. With this modification the brake camshaft may be withdrawn, again with its bearing assemblies, from the slots of the two mountings by lateral movement without the need for tilting or for the cam to be aligned with the extension portion 39 of the keyhole slot 38 of the brake anchor bracket.

Claims

1. Vehicle axle beam and brake assembly comprising an internal shoe drum having brake shoes op-

erated by a brake camshaft (22) supported for rotation by two spaced, first and second, bearing assemblies (16;21) carried respectively by aligned first and second mountings carried on an axle beam (1), the first mounting being provided by a brake anchor bracket (8;37) having opposite first and second sides, the brake camshaft having adjacent and remote ends respectively near to and remote from the brake anchor bracket and a cam (23) at said adjacent end by means of which the brake shoes are caused to be actuated upon rotation of the brake camshaft, the first bearing assembly (16) being releasably mounted on the first mounting (8;37) which has an aperture through which the brake camshaft extends so that the cam is adjacent said first side of the brake anchor bracket and the brake camshaft extends from said second side to the second bearing assembly, and the second bearing assembly (21) being releasably mounted on the second mounting (9) which also has an aperture (10) through which the brake camshaft extends, characterised in that the aperture (10;38) of at least one of the mountings is open or openable laterally of the brake camshaft (22) whereby when the bearing assemblies (16;21) have been released from the mountings the brake camshaft (22), with both of the bearing assemblies thereon, can be manoeuvred out of engagement with the mountings by substantially lateral movement relative to the axle beam (1).

2. An assembly according to Claim 1 characterised in that the aperture (13;38) of the first mounting (8;37) is of a shape to allow the cam (22) to be passed therethrough, and the aperture (10;38) of at least one of the mountings is open or openable laterally of the brake camshaft (22), the construction and arrangement being such that when each bearing assembly has been released from its respective mounting the apertures enable the brake camshaft, with both of the bearing assemblies thereon, to be manoeuvred to pass the cam from said first side to said second side of the brake anchor bracket and withdraw the brake camshaft and the bearing assembly from the mountings.
3. An assembly according to Claim 1 or Claim 2 characterised in that the apertures (10;38) of both mountings are open or openable laterally of the brake camshaft (22) for disengagement of the brake camshaft from the mountings.
4. An assembly according to Claim 3 characterised in that the apertures (10;38) are each in the form of a slot which is open at one end, and that slot (38) which is at the first mounting has its open





end closed by a closing member (40) removably attached to the first mounting.

5. An assembly according to any preceding claim characterised in that the aperture (10) at the second mounting (9) is open or openable and the aperture (38) at the first mounting is a slot, the aperture (38) at the first mounting enabling the brake camshaft (22) to be tilted to allow its end remote from the cam (23) to be withdrawn from the second mounting, and the aperture (38) at the first mounting enables the cam to be drawn through it to disengage the brake camshaft from the first mounting. 5
6. An assembly according to Claim 5 characterised in that the aperture (10) at the second mounting is an open-ended slot. 10
7. An assembly according to any preceding claim characterised in that the aperture (13) at the first mounting is of a keyhole shape having a part-circular portion (14) with which the bearing assembly (16) at the brake anchor bracket (8) is registered, and an extension portion (14') with which the cam (23) has to be aligned to allow withdrawal of the brake camshaft from the first mounting. 15
8. An assembly according to any preceding claim characterised in that the aperture (10) at the second mounting (9) is of a keyhole shape having a part-circular portion (17) with which the respective bearing assembly (21) is registered, and an extension portion (18) by way of which the brake camshaft (22) is able to be tilted to be withdrawn from the second mounting. 20
9. An assembly according to any preceding claim characterised in that the aperture (13;38) of the first mounting (8;37) is open or openable laterally of the brake camshaft (22) to enable the brake camshaft to be manoeuvred laterally out of engagement with the first mounting when the first bearing assembly (16) has been released from the first mounting (8;37). 25
10. An assembly according to Claim 9 characterised in that the aperture (13;38) at the first mounting is an open or openable slot which enables the brake camshaft (22) to be tilted to allow its end remote from the cam (23) to be withdrawn from the second mounting (9) and allows the brake camshaft to be drawn through it for disengagement from the first mounting. 30
11. An assembly according to any preceding claim characterised in that both bearing assemblies (16;21) are self-aligning bearings and are adapted 35

ed to accommodate misalignment at the brake anchor bracket (8;37) and allow for deflection of the axle beam (1) in use without imparting corresponding loading between the brake camshaft (22) and the bearing assemblies.

12. An assembly according to Claim 11 characterised in that the bearing assemblies (16;21) are both of the spherical self-aligning type each comprising a housing (27;33) by which the bearing assembly is secured to the respective mounting, a part-spherical bush (28,34) which is tiltably located in the housing and receives the brake camshaft (22), and O-ring seals (36) on the brake camshaft provided in the housing at each end of the bush. 40

Patentansprüche

1. Fahrzeug-Achskörper- und Brems-Anordnung, mit einer inneren Bremstrommel mit Bremsbacken, die durch eine Bremsnockenwelle (22) betätigt werden, die zum Zwecke der Rotation durch zwei voneinander beabstandete, erste und zweite Lager-Anordnungen (16; 21) getragen ist, die jeweils durch ausgerichtete erste und zweite Befestigungsvorrichtungen getragen sind, die auf einem Achskörper (1) getragen sind, wobei die erste Befestigungsvorrichtung durch einen Bremsanker-Träger (8; 37) mit einander gegenüberliegenden ersten und zweiten Seiten vorgesehen ist, wobei die Bremsnockenwelle angrenzende bzw. entfernte Enden jeweils nahe bei bzw. entfernt von dem Bremsanker-Träger sowie eine Nocke (23) an dem genannten angrenzenden Ende aufweist, mittels der die Bremsbacken dazu veranlaßt werden, bei Rotation der Bremsnockenwelle betätigt zu werden, wobei die erste Lager-Anordnung (16) in lösbarer Weise an der ersten Befestigungsvorrichtung (8; 37) befestigt ist, welche eine Öffnung aufweist, durch welche sich die Bremsnockenwelle erstreckt, so daß sich die Nocke benachbart zu der genannten ersten Seite des Bremsanker-Trägers befindet und die Bremsnockenwelle sich von der genannten zweiten Seite aus zu der zweiten Lager-Anordnung hin erstreckt, und wobei die zweite Lager-Anordnung (21) in lösbarer Weise an der zweiten Befestigungsvorrichtung (9) angebracht ist, welche ebenfalls eine Öffnung (10) aufweist, durch welche sich die Bremsnockenwelle erstreckt, dadurch gekennzeichnet, daß die Öffnung (10; 38) von wenigstens einer der Befestigungsvorrichtungen seitlich von der Bremsnockenwelle (22) offen ist oder geöffnet werden kann, wodurch, wenn die Lageranordnungen (16; 21) von den Befestigungsvorrichtungen gelöst worden sind, die Bremsnockenwelle 45



- (22), mit beiden der Lageranordnungen an ihr, durch eine im wesentlichen seitliche Bewegung relativ zu dem Achskörper (1) aus einem Ineingriffstehen mit den Befestigungsvorrichtungen herausmanövriert werden kann. 5
2. Eine Anordnung gemäß Anspruch 1, dadurch gekennzeichnet, daß die Öffnung (13; 38) der ersten Befestigungsvorrichtung (8; 37) von einer Gestalt ist, um es der Nocke (22) zu ermöglichen, durch diese hindurch zu gehen, und daß die Öffnung (10; 38) von wenigstens einer der Befestigungsvorrichtungen seitlich von der Bremsnockenwelle (22) offen ist oder geöffnet werden kann, wobei die Konstruktion und die Anordnung derart sind, daß, wenn eine jede Lageranordnung von ihrer jeweiligen Befestigungsvorrichtung gelöst worden ist, die Öffnungen es der Bremsnockenwelle ermöglichen, mit beiden der an ihr befindlichen Lageranordnungen, manövriert zu werden, um die Nocke von der genannten ersten Seite zu der genannten zweiten Seite des Bremsanker-Trägers zu bringen und um die Bremsnockenwelle und die Lageranordnung von den Befestigungsvorrichtungen zurückzuziehen. 10 15 20 25
3. Eine Anordnung gemäß Anspruch 1 oder gemäß Anspruch 2, dadurch gekennzeichnet, daß die Öffnungen (10; 38) von beiden Befestigungsvorrichtungen seitlich von der Bremsnockenwelle (22) zum Zwecke eines Ausrückens der Bremsnockenwelle von den Befestigungsvorrichtungen offen sind oder geöffnet werden können. 30 35
4. Eine Anordnung gemäß Anspruch 3, dadurch gekennzeichnet, daß jede der Öffnungen (10; 38) in der Form eines Schlitzes ist, der an einem Ende offen ist, und daß ein Schlitz (38), der sich an der ersten Befestigungsvorrichtung befindet, sein offenes Ende durch ein erstes Verschlüsselement (40) verschlossen hat, welches in abnehmbarer Weise an der ersten Befestigungsvorrichtung angebracht ist. 40 45
5. Eine Anordnung gemäß einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Öffnung (10) an der zweiten Befestigungsvorrichtung (9) offen ist oder geöffnet werden kann und daß die Öffnung (38) an der ersten Befestigungsvorrichtung ein Schlitz ist, wobei es die Öffnung (38) an der ersten Befestigungsvorrichtung der Bremsnockenwelle (22) ermöglicht, geneigt zu werden, um es ihrem von der Nocke (23) entfernten Ende zu erlauben, von der zweiten Befestigungsvorrichtung zurückgezogen zu werden, und daß es die Öffnung (38) an der ersten Befestigungsvorrichtung der Nocke ermöglicht, durch sie gezogen zu werden, um die Bremsnockenwelle von der ersten Befestigungsvorrichtung auszurücken. 50
6. Eine Anordnung gemäß Anspruch 5, dadurch gekennzeichnet, daß die Öffnung (10) an der zweiten Befestigungsvorrichtung ein erweiterbarer Schlitz ist. 55
7. Eine Anordnung gemäß einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Öffnung (13) an der ersten Befestigungsvorrichtung von einer Schlüsselloch-Form ist, die einen teilkreisförmigen Abschnitt (14), mit welchem die Lageranordnung (16) an dem Bremsanker-Träger (8) übereinstimmt, und einen Verlängerungs-Abschnitt (14') aufweist, mit welchem die Nocke (23) auszurichten ist, um das Zurückziehen der Bremsnockenwelle von der ersten Befestigungsvorrichtung zu ermöglichen. 60
8. Eine Anordnung gemäß einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Öffnung (10) an der zweiten Befestigungsvorrichtung (9) von einer Schlüsselloch-Form ist, die einen teilkreisförmigen Abschnitt (17), mit welchem die jeweilige Lageranordnung (21) übereinstimmt, und einen Verlängerungs-Abschnitt (18) aufweist, durch welchen die Bremsnockenwelle (22) dazu befähigt ist, geneigt zu werden, um von der zweiten Befestigungsvorrichtung zurückgezogen zu werden. 65
9. Eine Anordnung gemäß einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Öffnung (13; 38) der ersten Befestigungsvorrichtung (8; 37) seitlich von der Bremsnockenwelle (22) offen ist oder geöffnet werden kann, um es der Bremsnockenwelle zu ermöglichen, seitlich aus dem Ineingriffstehen mit der ersten Befestigungsvorrichtung herausmanövriert zu werden, wenn die erste Lageranordnung (16) von der ersten Befestigungsvorrichtung (8; 37) gelöst worden ist. 70
10. Eine Anordnung gemäß Anspruch 9, dadurch gekennzeichnet, daß die Öffnung (13; 38) an der ersten Befestigungsvorrichtung ein offener oder ein zu öffnender Schlitz ist, welcher es der Bremsnockenwelle (22) ermöglicht, geneigt zu werden, um es ihrem



von der Nocke (23) entfernten Ende zu erlauben, von der zweiten Befestigungsvorrichtung (9) zurückgezogen zu werden, und welcher es der Bremsnockenwelle erlaubt, durch ihn zum Zwecke des Ausrückens aus der ersten Befestigungsvorrichtung hindurchgezogen zu werden.

11. Eine Anordnung gemäß einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß beide Lageranordnungen (16; 21) Pendellager sind und dazu befähigt sind, sich an eine Versetzung (oder Fehlausrichtung) bei dem Bremsanker-Träger (8; 37) anzupassen und bei der Anwendung eine Auslenkung (oder Ablenkung) des Achskörpers (1) zu erlauben, ohne eine entsprechende Belastung zwischen der Bremsnockenwelle (22) und den Lageranordnungen aufzuerlegen.

12. Eine Anordnung gemäß Anspruch 11, dadurch gekennzeichnet, daß beide Lageranordnungen (16; 21) von einem selbsteinstellenden Typ mit Kugelbewegung (Kugelleitlager) sind, wobei eine jede aufweist: ein Gehäuse (27; 33), durch welches die Lageranordnung mit der jeweiligen Befestigungsvorrichtung befestigt ist, eine teilkugelförmige Buchse (28, 34,) welche in einer neigbaren und schräg stellbaren Art und Weise in dem Gehäuse angeordnet ist und die Bremsnockenwelle (22) aufnimmt, und O-Ring-Dichtungen (36) an der Bremsnockenwelle, die in dem Gehäuse an einem jeden Ende der Buchse vorgesehen sind.

Revendications

1. Ensemble de corps d'essieu et frein de véhicule comprenant un tambour intérieur à mâchoires comportant des mâchoires de frein actionnées par un arbre à came (22) du frein supporté de manière à pouvoir tourner par deux ensembles de paliers espacés, à savoir des premier et second ensembles de paliers (16;21) portés respectivement par des premier et second supports alignés portés sur un corps d'essieu (1), le premier support étant formé par une console (8;37) de fixation du frein, comportant des premier et second côtés opposés, l'arbre à came du frein possédant une extrémité adjacente et une extrémité distante situées respectivement à proximité et en position éloignée de la console de fixation du frein, et une came (23) située sur ladite extrémité adjacente et grâce à laquelle les mâchoires de frein sont actionnées lors d'une rotation de l'arbre à came du frein, le premier ensemble de palier (16) étant monté de façon amovible sur le premier

support (8;37), qui possède une ouverture que traverse l'arbre à came du frein de telle sorte que la came est adjacent audit premier côté de la console de fixation du frein, et l'arbre à came du frein s'étend depuis le second côté jusqu'au second ensemble de palier, et le second ensemble de palier (21) étant monté de façon amovible sur le second support (9), qui possède également une ouverture (10), que traverse l'arbre à came du frein, caractérisé en ce que l'ouverture (10;38) d'au moins l'un des supports est ouverte ou peut être ouverte latéralement par rapport à l'arbre à came (22) du frein, ce qui a pour effet que, lorsque les ensembles de paliers (16;21) ont été dégagés des supports, l'arbre à came (22) du frein peut, conjointement avec les deux ensembles de paliers qu'il porte, être dégagé des supports sous l'effet d'un déplacement sensiblement latéral par rapport au corps d'essieu (1).

2. Ensemble selon la revendication 1, caractérisé en ce que l'ouverture (13;38) du premier support (8;37) possède une forme permettant à la came (22) de le traverser, et l'ouverture (10;38) d'au moins l'un des supports est ouverte ou peut être ouverte latéralement par rapport à l'arbre à came (22) du frein, la construction et l'agencement étant tels que, lorsque chaque ensemble de palier a été dégagé de son support respectif, les ouvertures permettent de manoeuvrer l'arbre à came du frein, conjointement avec les ensembles de paliers qu'il porte, de manière à faire passer la came dudit premier côté audit second côté de la console de fixation du frein et de retirer l'arbre à came du frein et l'ensemble de palier à partir des supports.

3. Ensemble selon la revendication 1 ou 2, caractérisé en ce que les ouvertures (10;38) des deux supports sont ouvertes ou peuvent être ouvertes latéralement par rapport à l'arbre à came (22) du frein pour le dégagement de l'arbre à came du frein à partir des supports.

4. Ensemble selon la revendication 3, caractérisé en ce que les ouvertures (10;38) possèdent chacune la forme d'une fente qui est ouverte à une extrémité, et que l'extrémité ouverte de la fente (38), qui est située dans le premier support, est fermée par l'élément de fermeture (40) fixé de façon amovible au premier support.

5. Ensemble selon l'une quelconque des revendications précédentes, caractérisé en ce que l'ouverture (10) présente dans le second support (9) est ouverte ou peut être ouverte et l'ouverture (38) située dans le premier support est une fente, l'ouverture (38) présente dans le premier support



- permettant d'incliner l'arbre à came (22) du frein de manière à permettre le retrait de son extrémité distante de la came (23), hors du second support, et l'ouverture (38) située dans le premier support permet de retirer la came à, travers cette ouverture afin de dégager l'arbre à came du frein à partir du premier support.
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6. Ensemble selon la revendication 5, caractérisé en ce que l'ouverture (10) présente dans le second support est une fente à extrémités ouvertes.
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7. Dispositif selon l'une quelconque des revendications précédentes, caractérisé en ce que l'ouverture (13) située dans le premier support est une fente en forme de trou de serrure possédant une partie partiellement circulaire (14), avec laquelle est aligné l'ensemble de palier (16) situé sur la console (8) de fixation du frein, et une partie d'extension (14'), au moyen de laquelle la came (23) peut être alignée de manière à permettre le retrait de l'arbre à came du frein à partir du premier support.
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8. Ensemble selon l'une quelconque des revendications précédentes, caractérisé en ce que l'ouverture (10) située dans le second support (9) possède la forme d'un trou de serrure possédant une partie partiellement circulaire (17), avec laquelle est aligné l'ensemble de palier respectif (21), et une partie d'extension (18), au moyen de laquelle l'arbre à came (22) du frein doit pouvoir être incliné pour être retiré du second support.
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9. Ensemble selon l'une quelconque des revendications précédentes, caractérisé en ce que l'ouverture (13; 38) du premier support (8;37) est ouverte ou peut être ouverte latéralement par rapport à l'arbre à came (22) du frein afin de permettre de manoeuvrer l'arbre à came du frein en le dégageant latéralement du premier support, lorsque le premier ensemble de palier (16) a été dégagé du premier support (8;37).
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10. Ensemble selon la revendication 9, caractérisé en ce que l'ouverture (13;38) située dans le premier support est une ouverture pouvant être ouverte, qui permet d'incliner l'arbre à came (22) du frein de manière à permettre le retrait de son extrémité distante de la came (23) à partir du second support (9), et permet de retirer l'arbre à came du frein à travers la fente de manière à le dégager du premier support.
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11. Ensemble selon l'une quelconque des revendications précédentes, caractérisé en ce que les deux ensembles de paliers (16;21) sont des paliers à auto-alignement et sont adaptés pour absorber le
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- défaut d'alignement au niveau de la console (8;37) de fixation du frein et permettre un fléchissement du corps d'essieu (1) en utilisation sans qu'une charge soit appliquée entre l'arbre à came (22) du frein et les ensembles de paliers.
12. Ensemble selon la revendication 11, caractérisé en ce que les ensembles de paliers (16;21) sont tous deux de type sphérique à auto-alignement et comprennent chacun un carter (27;33) grâce auquel l'ensemble de palier est fixé au support respectif, un manchon partiellement sphérique (28;34), qui est situé de manière à pouvoir incliner dans le carter et loge l'arbre à came (25) du frein, et des joints toriques (36) situés sur l'arbre à came du frein et disposés dans le carter, à chaque extrémité du manchon.