# **CPC** COOPERATIVE PATENT CLASSIFICATION

## **B PERFORMING OPERATIONS; TRANSPORTING**

(NOTES omitted)

### **TRANSPORTING**

B61 RAILWAYS

(NOTE omitted)

## B61F RAIL VEHICLE SUSPENSIONS, e.g. UNDERFRAMES, BOGIES OR ARRANGEMENTS OF WHEEL AXLES; RAIL VEHICLES FOR USE ON TRACKS OF DIFFERENT WIDTH; PREVENTING DERAILING OF RAIL VEHICLES; WHEEL GUARDS, OBSTRUCTION REMOVERS OR THE LIKE FOR RAIL VEHICLES (for vehicles in general <u>B60</u>; axles or wheels <u>B60B</u>; vehicle tyres <u>B60C</u>)

#### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

1/00	<b>Underframes</b> (making railway vehicle underframes by forging or pressing <u>B21K 7/12</u> )	5/125	• • • {with rubber elements ( <u>B61F 5/08</u> takes precedence)}
1/02	• with a single central sill	5/127	• • • • {with fluid as a damping medium}
1/04	• of triangulated type	5/14	• Side bearings
1/06	• specially adapted for locomotives or motor-driven	5/142	• • • {made of rubber elements, graphite or the like}
	railcars	5/144	• • • {comprising fluid damping devices
1/08	• Details		$(\underline{B61F 5/146} \text{ takes precedence})\}$
1/10	• End constructions	5/146	• • • {of the oil bath type; Lubrication devices for
1/12	. Cross bearers		side bearings}
1/14	. Attaching or supporting vehicle body-structure	5/148	• • {between bolsterless bogies and underframes ( <u>B61F 5/142</u> - <u>B61F 5/146</u> take precedence)}
3/00	Types of bogies (B61F 5/00 takes precedence)	5/16	Centre bearings or other swivel connections
3/02	• with more than one axle		between underframes and bolsters or bogies
3/04	• • with driven axles or wheels	5/18	King-bolts
3/06	• • • with three or more axles	5/20	• • • with springs allowing transverse movements
3/08	• • without driven axles or wheels	5/22	• Guiding of the vehicle underframes with respect
3/10	• • • with three or more axles		to the bogies
3/12	<ul> <li>specially modified for carrying adjacent vehicle bodies of articulated trains</li> </ul>	5/24	• • Means for damping or minimising the canting, skewing, pitching, or plunging movements of
3/125	• • {with more than one axle or wheel set}		the underframes
3/14	. specially modified for reducing air resistance	5/245	•••• {by active damping, i.e. with means to vary
3/16	• with a separate axle for each wheel		the damping characteristics in accordance with track or vehicle induced reactions,
5/00	Constructional details of bogies; Connections		especially in high speed mode}
	between bogies and vehicle underframes; Arrangements or devices for adjusting or allowing	5/26	. Mounting or securing axle-boxes in vehicle or bogie
	self-adjustment of wheel axles or bogies when		underframes
5/02	rounding curves	5/28	• Axle-boxes integral with, or directly secured to, vehicle or bogie underframes
5/02	• Arrangements permitting limited transverse relative movements between vehicle underframe or bolster	5/30	• Axle-boxes mounted for movement under
	and bogie; Connections between underframes and		spring control in vehicle or bogie underframes {( <u>B61F 5/36</u> takes precedence over
	bogies		<u>B61F 5/305</u> - <u>B61F 5/34</u> )}
5/04	• • Bolster supports or mountings (side bearings	5/301	• • {incorporating metal springs}
	<u>B61F 5/14</u> )	5/302	{Leaf springs}
5/06	• • • incorporating metal springs	5/302	{Torsion-bar springs}
5/08	• • • incorporating rubber springs	5/305	<ul> <li> {incorporating rubber springs}</li> </ul>
5/10	incorporating fluid springs	5/307	<ul> <li> {incorporating fluid springs}</li> <li> {incorporating fluid springs}</li> </ul>
5/12	incorporating dampers	5/308	<ul> <li> {incorporating fluid springs}</li> <li> {incorporating damping devices}</li> </ul>
5/122	• • • {with friction surfaces}	5/32	Guides, e.g. plates, for axle-boxes
		3/32	• • • Guiues, e.g. plates, for axie-boxes

#### B61F

5/325	• • • {The guiding device including swinging arms or the like to ensure the parallelism of the axles}
5/34	• • • Wedge mechanisms for adjusting clearance between underframes and axles
5/36	• • Arrangements for equalising or adjusting the load on wheels or springs, e.g. yokes
5/38	• Arrangements or devices for adjusting or allowing self- adjustment of wheel axles or bogies when rounding curves, e.g. sliding axles, swinging axles
5/383	• • {Adjustment controlled by non-mechanical devices, e.g. scanning trackside elements}
5/386	• • {fluid actuated}
5/40	• Bogies with side frames mounted for longitudinal relative movements
5/42	• • Adjustment controlled by buffer or coupling gear
5/44	• Adjustment controlled by movements of vehicle body
5/46	• Adjustment controlled by a sliding axle under the same vehicle underframe
5/48	<ul> <li>Trailing or leading bogies for locomotives or motor- driven railcars (<u>B61F 5/40</u> takes precedence)</li> </ul>
5/50	• Other details
5/52	. Bogie frames
5/523	••• {comprising parts made from fibre-reinforced matrix material}
5/526	{comprising noise reducing devices}
7/00	Rail vehicles equipped for use on tracks of different width
0.000	
9/00	Rail vehicles characterised by means for preventing derailing, e.g. by use of guide wheels
<b>9/00</b> 9/005	
	<ul><li>preventing derailing, e.g. by use of guide wheels</li><li>{by use of non-mechanical means, e.g. acoustic or</li></ul>
9/005	<ul> <li>preventing derailing, e.g. by use of guide wheels</li> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> <li>Rail vehicles characterised by rail-engaging</li> </ul>
9/005 <b>11/00</b>	<ul> <li>preventing derailing, e.g. by use of guide wheels</li> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> <li>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</li> <li>Rail vehicles characterised by wheel arrangements,</li> </ul>
9/005 11/00 13/00	<ul> <li>preventing derailing, e.g. by use of guide wheels <ul> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> </ul> </li> <li>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</li> <li>Rail vehicles characterised by wheel arrangements, not otherwise provided for</li> <li>Axle-boxes (mounting or securing axle-boxes B61F 5/26; lubrication B61F 17/00; bearings in</li> </ul>
9/005 11/00 13/00 15/00	<ul> <li>preventing derailing, e.g. by use of guide wheels <ul> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> </ul> </li> <li>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</li> <li>Rail vehicles characterised by wheel arrangements, not otherwise provided for</li> <li>Axle-boxes (mounting or securing axle-boxes B61F 5/26; lubrication B61F 17/00; bearings in general F16C)</li> </ul>
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9/005 11/00 13/00 15/00 15/02 15/04	<ul> <li>preventing derailing, e.g. by use of guide wheels <ul> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> </ul> </li> <li>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</li> <li>Rail vehicles characterised by wheel arrangements, not otherwise provided for</li> <li>Axle-boxes (mounting or securing axle-boxes B61F 5/26; lubrication B61F 17/00; bearings in general F16C) <ul> <li>with journal bearings</li> <li>for locomotives</li> </ul> </li> </ul>
9/005 11/00 13/00 15/00 15/02 15/04 15/06	<ul> <li>preventing derailing, e.g. by use of guide wheels <ul> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> </ul> </li> <li>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</li> <li>Rail vehicles characterised by wheel arrangements, not otherwise provided for</li> <li>Axle-boxes (mounting or securing axle-boxes B61F 5/26; lubrication B61F 17/00; bearings in general F16C) <ul> <li>with journal bearings</li> <li>for locomotives</li> <li>for cars</li> </ul> </li> </ul>
9/005 11/00 13/00 15/00 15/02 15/04 15/06 15/08	<ul> <li>preventing derailing, e.g. by use of guide wheels <ul> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> </ul> </li> <li>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</li> <li>Rail vehicles characterised by wheel arrangements, not otherwise provided for</li> <li>Axle-boxes (mounting or securing axle-boxes B61F 5/26; lubrication B61F 17/00; bearings in general F16C) <ul> <li>with journal bearings</li> <li>for locomotives</li> <li>for cars</li> <li>the axle being slidable or tiltable in the bearings</li> </ul> </li> </ul>
9/005 11/00 13/00 15/00 15/02 15/04 15/06 15/08 15/10	<ul> <li>preventing derailing, e.g. by use of guide wheels <ul> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> </ul> </li> <li>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</li> <li>Rail vehicles characterised by wheel arrangements, not otherwise provided for</li> <li>Axle-boxes (mounting or securing axle-boxes B61F 5/26; lubrication B61F 17/00; bearings in general F16C) <ul> <li>with journal bearings</li> <li>for locomotives</li> <li>for cars</li> <li>the axle being slidable or tiltable in the bearings</li> <li>and having springs opposing such movements</li> </ul> </li> </ul>
9/005 11/00 13/00 15/00 15/02 15/04 15/04 15/06 15/08 15/10 15/12	<ul> <li>preventing derailing, e.g. by use of guide wheels <ul> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> </ul> </li> <li>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</li> <li>Rail vehicles characterised by wheel arrangements, not otherwise provided for</li> <li>Axle-boxes (mounting or securing axle-boxes B61F 5/26; lubrication B61F 17/00; bearings in general F16C) <ul> <li>with journal bearings</li> <li>for locomotives</li> <li>for cars</li> <li>the axle being slidable or tiltable in the bearings</li> <li>and having springs opposing such movements</li> <li>with roller, needle, or ball bearings</li> </ul> </li> </ul>
9/005 <b>11/00</b> <b>13/00</b> <b>15/00</b> 15/02 15/04 15/04 15/06 15/08 15/10 15/12 15/14	<ul> <li>preventing derailing, e.g. by use of guide wheels <ul> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> </ul> </li> <li>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</li> <li>Rail vehicles characterised by wheel arrangements, not otherwise provided for</li> <li>Axle-boxes (mounting or securing axle-boxes B61F 5/26; lubrication B61F 17/00; bearings in general F16C) <ul> <li>with journal bearings</li> <li>for locomotives</li> <li>for cars</li> <li>the axle being slidable or tiltable in the bearings</li> <li>and having springs opposing such movements</li> <li>with roller, needle, or ball bearings</li> <li>constructed for taking-up axial pressure</li> </ul> </li> </ul>
9/005 11/00 13/00 15/00 15/02 15/04 15/04 15/04 15/08 15/10 15/12 15/14 15/16	<ul> <li>preventing derailing, e.g. by use of guide wheels <ul> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> </ul> </li> <li>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</li> <li>Rail vehicles characterised by wheel arrangements, not otherwise provided for</li> <li>Axle-boxes (mounting or securing axle-boxes B61F 5/26; lubrication B61F 17/00; bearings in general F16C) <ul> <li>with journal bearings</li> <li>for locomotives</li> <li>for cars</li> <li>the axle being slidable or tiltable in the bearings</li> <li>with roller, needle, or ball bearings</li> <li>constructed for taking-up axial pressure</li> <li>the axle being slidable or tiltable in the bearings</li> </ul> </li> </ul>
9/005 11/00 13/00 15/00 15/02 15/04 15/06 15/08 15/10 15/12 15/14 15/16 15/18	<ul> <li>preventing derailing, e.g. by use of guide wheels <ul> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> </ul> </li> <li>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</li> <li>Rail vehicles characterised by wheel arrangements, not otherwise provided for</li> <li>Axle-boxes (mounting or securing axle-boxes B61F 5/26; lubrication B61F 17/00; bearings in general F16C) <ul> <li>with journal bearings</li> <li>for locomotives</li> <li>for cars</li> <li>the axle being slidable or tiltable in the bearings</li> <li>and having springs opposing such movements</li> <li>with roller, needle, or ball bearings</li> <li>constructed for taking-up axial pressure</li> </ul> </li> </ul>
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9/005 11/00 13/00 15/00 15/02 15/04 15/06 15/08 15/10 15/12 15/14 15/16 15/18 15/20	<ul> <li>preventing derailing, e.g. by use of guide wheels <ul> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> </ul> </li> <li>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</li> <li>Rail vehicles characterised by wheel arrangements, not otherwise provided for</li> <li>Axle-boxes (mounting or securing axle-boxes B61F 5/26; lubrication B61F 17/00; bearings in general F16C) <ul> <li>with journal bearings</li> <li>for locomotives</li> <li>for cars</li> <li>the axle being slidable or tiltable in the bearings</li> <li>constructed for taking-up axial pressure</li> <li>the axle being slidable or tiltable in the bearings</li> <li>constructed for taking-up axial pressure</li> <li>the axle being slidable or tiltable in the bearings</li> <li>constructed for taking-up axial pressure</li> <li>and having springs opposing such movements</li> <li>Details</li> <li>Sealing means preventing entrance of dust or</li> </ul> </li> </ul>
9/005 11/00 13/00 15/00 15/02 15/04 15/08 15/10 15/12 15/14 15/16 15/18 15/20 15/22	<ul> <li>preventing derailing, e.g. by use of guide wheels <ul> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> </ul> </li> <li>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</li> <li>Rail vehicles characterised by wheel arrangements, not otherwise provided for</li> <li>Axle-boxes (mounting or securing axle-boxes B61F 5/26; lubrication B61F 17/00; bearings in general F16C) <ul> <li>with journal bearings</li> <li>for locomotives</li> <li>for cars</li> <li>the axle being slidable or tiltable in the bearings</li> <li>constructed for taking-up axial pressure</li> <li>the axle being slidable or tiltable in the bearings</li> <li>constructed for taking-up axial pressure</li> <li>the axle being slidable or tiltable in the bearings</li> <li>sealing means preventing entrance of dust or leakage of oil</li> <li>with rolle is tilted or</li> </ul> </li> </ul>
9/005 11/00 13/00 15/00 15/02 15/04 15/04 15/08 15/10 15/12 15/14 15/16 15/18 15/20 15/22 15/24	<ul> <li>preventing derailing, e.g. by use of guide wheels <ul> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> </ul> </li> <li>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</li> <li>Rail vehicles characterised by wheel arrangements, not otherwise provided for</li> <li>Axle-boxes (mounting or securing axle-boxes B61F 5/26; lubrication B61F 17/00; bearings in general F16C) <ul> <li>with journal bearings</li> <li>for locomotives</li> <li>for cars</li> <li>the axle being slidable or tiltable in the bearings</li> <li>constructed for taking-up axial pressure</li> <li>the axle being slidable or tiltable in the bearings</li> <li>constructed for taking-up axial pressure</li> <li>the axle being slidable or tiltable in the bearings</li> <li>Sealing means preventing entrance of dust or leakage of oil</li> <li>when vehicle is tilted or inverted</li> </ul> </li> </ul>

17/02	• with oil
17/02	Lubrication by stationary devices
17/04	<ul> <li>by means of a wick or the like</li> </ul>
	-
17/08	Devices for pressing the wick or the like against the rotating axle
17/10	• • • by means of an oil bath
	5
17/12	by gravity
17/14	• • Rotating lubricating devices
17/16	• • • with rings
17/18	• • with chains
17/20	• • • with scoops or the like attached to, or coupled with, the axle
17/22	• • • with discs, rollers, or belts engaging the axle
17/24	• • by built-in lubricating pumps
17/26	• • by external feeding means, e.g. pneumatic devices
17/28	<ul> <li>Applications of oil cleaners not otherwise provided for</li> </ul>
17/30	• with grease
17/32	• • by manually-operated lubricators, e.g. screw cups
17/34	• • by automatic means, e.g. with spring action
17/36	• with other, e.g. mixed, lubricating agents
19/00	Wheel guards; Bumpers; Obstruction removers or
	the like (for vehicles in general <u>B60R 19/00</u> )
19/02	• Wheel guards
19/04	Bumpers or like collision guards
19/06	. Nets, catchers, or the like for catching obstacles or
	removing them from the track (mailbag catchers B61K 1/02)
19/08	• of the drop-down type
19/10	• • • automatically operated by engagement with
17/10	obstacle
99/00	Subject matter not provided for in other groups of this subclass