

**CPC****COOPERATIVE PATENT CLASSIFICATION****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 [B60](#); axles or wheels [B60B](#); vehicle tyres [B60C](#))

**B61F 1/00**

**Underframes** (making railway vehicle underframes by forging or pressing [B21K 7/12](#))

- B61F 1/02 . with a single central sill
- B61F 1/04 . of triangulated type
- B61F 1/06 . specially adapted for locomotives or motor-driven railcars
- B61F 1/08 . Details
- B61F 1/10 . . End constructions
- B61F 1/12 . . Cross bearers
- B61F 1/14 . . Attaching or supporting vehicle body-structure

**B61F 3/00**

**Types of bogies** ([B61F 5/00](#) takes precedence)

- B61F 3/02 . with more than one axle
- B61F 3/04 . . with driven axles or wheels
- B61F 3/06 . . . with three or more axles
- B61F 3/08 . . without driven axles or wheels
- B61F 3/10 . . . with three or more axles
- B61F 3/12 . specially modified for carrying adjacent vehicle bodies of articulated trains
- B61F 3/125 . . {with more than one axle or wheel set}
- B61F 3/14 . specially modified for reducing air resistance
- B61F 3/16 . with a separate axle for each wheel

**B61F 5/00**

**Constructional details of bogies; Connections between bogies and vehicle underframes; Arrangements or devices for adjusting or allowing self-adjustment of wheel axles or bogies when rounding curves**

- B61F 5/02 . Arrangements permitting limited transverse relative movements between vehicle underframe or bolster and bogie; Connections between underframes and bogies
- B61F 5/04 . . Bolster supports or mountings ([side bearings B61F 5/14](#))
- B61F 5/06 . . . incorporating metal springs
- B61F 5/08 . . . incorporating rubber springs
- B61F 5/10 . . . incorporating fluid springs
- B61F 5/12 . . . incorporating dampers
- B61F 5/122 . . . . {with friction surfaces}

- B61F 5/125 . . . . {with rubber elements ([B61F 5/08](#) takes precedence)}
- B61F 5/127 . . . . {with fluid as a damping medium}
- B61F 5/14 . . Side bearings
- B61F 5/142 . . . {made of rubber elements, graphite or the like}
- B61F 5/144 . . . {comprising fluid damping devices ([B61F 5/146](#) takes precedence)}
- B61F 5/146 . . . {of the oil bath type; Lubrication devices for side bearings}
- B61F 5/148 . . . {between bolsterless bogies and underframes ([B61F 5/142](#) - [B61F 5/146](#) take precedence)}
- B61F 5/16 . . Centre bearings or other swivel connections between underframes and bolsters or bogies
- B61F 5/18 . . . King-bolts
- B61F 5/20 . . . with springs allowing transverse movements
- B61F 5/22 . . Guiding of the vehicle underframes with respect to the bogies
- B61F 5/24 . . . Means for damping or minimising the canting, skewing, pitching, or plunging movements of the underframes
- B61F 5/245 . . . . {by active damping, i.e. with means to vary the damping characteristics in accordance with track or vehicle induced reactions, especially in high speed mode}
- B61F 5/26 . Mounting or securing axle-boxes in vehicle or bogie underframes
- B61F 5/28 . . Axle-boxes integral with, or directly secured to, vehicle or bogie underframes
- B61F 5/30 . . Axle-boxes mounted for movement under spring control in vehicle or bogie underframes {([B61F 5/36](#) takes precedence over [B61F 5/305](#) - [B61F 5/34](#))}
- B61F 5/301 . . . {incorporating metal springs}
- B61F 5/302 . . . . {Leaf springs}
- B61F 5/304 . . . . {Torsion-bar springs}
- B61F 5/305 . . . {incorporating rubber springs}
- B61F 5/307 . . . {incorporating fluid springs}
- B61F 5/308 . . . {incorporating damping devices}
- B61F 5/32 . . . Guides, e.g. plates, for axle-boxes
- B61F 5/325 . . . . {The guiding device including swinging arms or the like to ensure the parallelism of the axles}
- B61F 5/34 . . . . Wedge mechanisms for adjusting clearance between underframes and axles
- B61F 5/36 . . . Arrangements for equalising or adjusting the load on wheels or springs, e.g. yokes
- B61F 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
- B61F 5/383 . . {Adjustment controlled by non-mechanical devices, e.g. scanning trackside elements}
- B61F 5/386 . . {fluid actuated}
- B61F 5/40 . . Bogies with side frames mounted for longitudinal relative movements
- B61F 5/42 . . Adjustment controlled by buffer or coupling gear
- B61F 5/44 . . Adjustment controlled by movements of vehicle body

B61F 5/46	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Adjustment controlled by a sliding axle under the same vehicle underframe</li> </ul> </li> </ul>
B61F 5/48	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Trailing or leading bogies for locomotives or motor- driven railcars (<a href="#">B61F 5/40</a> takes precedence)</li> </ul> </li> </ul>
B61F 5/50	<ul style="list-style-type: none"> <li>Other details</li> </ul>
B61F 5/52	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Bogie frames</li> </ul> </li> </ul>
B61F 5/523	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{comprising parts made from fibre-reinforced matrix material}</li> </ul> </li> </ul> </li> </ul>
B61F 5/526	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{comprising noise reducing devices}</li> </ul> </li> </ul> </li> </ul>
<b>B61F 7/00</b>	<b>Rail vehicles equipped for use on tracks of different width</b>
<b>B61F 9/00</b>	<b>Rail vehicles characterised by means for preventing derailling, e.g. by use of guide wheels</b>
B61F 9/005	<ul style="list-style-type: none"> <li>{by use of non-mechanical means, e.g. acoustic or electromagnetic devices}</li> </ul>
<b>B61F 11/00</b>	<b>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</b>
<b>B61F 13/00</b>	<b>Rail vehicles characterised by wheel arrangements, not otherwise provided for</b>
<b>B61F 15/00</b>	<b>Axle-boxes</b> ( <a href="#">mounting or securing axle-boxes B61F 5/26</a> ; <a href="#">lubrication B61F 17/00</a> ; <a href="#">bearings in general F16C</a> )
B61F 15/02	<ul style="list-style-type: none"> <li>with journal bearings</li> </ul>
B61F 15/04	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>for locomotives</li> </ul> </li> </ul>
B61F 15/06	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>for cars</li> </ul> </li> </ul>
B61F 15/08	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>the axle being slidable or tiltable in the bearings</li> </ul> </li> </ul>
B61F 15/10	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>and having springs opposing such movements</li> </ul> </li> </ul> </li> </ul>
B61F 15/12	<ul style="list-style-type: none"> <li>with roller, needle, or ball bearings</li> </ul>
B61F 15/14	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>constructed for taking-up axial pressure</li> </ul> </li> </ul>
B61F 15/16	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>the axle being slidable or tiltable in the bearings</li> </ul> </li> </ul>
B61F 15/18	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>and having springs opposing such movements</li> </ul> </li> </ul> </li> </ul>
B61F 15/20	<ul style="list-style-type: none"> <li>Details</li> </ul>
B61F 15/22	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Sealing means preventing entrance of dust or leakage of oil</li> </ul> </li> </ul>
B61F 15/24	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>preventing oil leakage when vehicle is tilted or inverted</li> </ul> </li> </ul> </li> </ul>
B61F 15/26	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Covers; Sealing thereof</li> </ul> </li> </ul>
B61F 15/28	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Axle-boxes modified to ensure electrical conductivity</li> </ul> </li> </ul>
<b>B61F 17/00</b>	<b>Lubrication specially adapted for axle-boxes of rail vehicles</b> ( <a href="#">lubrication in general F16N</a> )
B61F 17/02	<ul style="list-style-type: none"> <li>with oil</li> </ul>
B61F 17/04	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Lubrication by stationary devices</li> </ul> </li> </ul>
B61F 17/06	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>by means of a wick or the like</li> </ul> </li> </ul> </li> </ul>
B61F 17/08	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Devices for pressing the wick or the like against the rotating axle</li> </ul> </li> </ul> </li> </ul> </li> </ul>
B61F 17/10	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>by means of an oil bath</li> </ul> </li> </ul> </li> </ul>

B61F 17/12	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>by gravity</li> </ul> </li> </ul>
B61F 17/14	<ul style="list-style-type: none"> <li>Rotating lubricating devices</li> </ul>
B61F 17/16	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>with rings</li> </ul> </li> </ul>
B61F 17/18	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>with chains</li> </ul> </li> </ul>
B61F 17/20	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>with scoops or the like attached to, or coupled with, the axle</li> </ul> </li> </ul>
B61F 17/22	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>with discs, rollers, or belts engaging the axle</li> </ul> </li> </ul>
B61F 17/24	<ul style="list-style-type: none"> <li>by built-in lubricating pumps</li> </ul>
B61F 17/26	<ul style="list-style-type: none"> <li>by external feeding means, e.g. pneumatic devices</li> </ul>
B61F 17/28	<ul style="list-style-type: none"> <li>Applications of oil cleaners not otherwise provided for</li> </ul>
B61F 17/30	<ul style="list-style-type: none"> <li>with grease</li> </ul>
B61F 17/32	<ul style="list-style-type: none"> <li>by manually-operated lubricators, e.g. screw cups</li> </ul>
B61F 17/34	<ul style="list-style-type: none"> <li>by automatic means, e.g. with spring action</li> </ul>
B61F 17/36	<ul style="list-style-type: none"> <li>with other, e.g. mixed, lubricating agents</li> </ul>
<b>B61F 19/00</b>	<b>Wheel guards; Bumpers; Obstruction removers or the like (for vehicles in general <a href="#">B60R 19/00</a>)</b>
B61F 19/02	<ul style="list-style-type: none"> <li>Wheel guards</li> </ul>
B61F 19/04	<ul style="list-style-type: none"> <li>Bumpers or like collision guards</li> </ul>
B61F 19/06	<ul style="list-style-type: none"> <li>Nets, catchers, or the like for catching obstacles or removing them from the track (<a href="#">mailbag catchers B61K 1/02</a>)</li> </ul>
B61F 19/08	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>of the drop-down type</li> </ul> </li> </ul>
B61F 19/10	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>automatically operated by engagement with obstacle</li> </ul> </li> </ul>
<b>B61F 99/00</b>	<b>Subject matter not provided for in other groups of this subclass</b>