

CPC**COOPERATIVE PATENT CLASSIFICATION****B61F**

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

Guidance heading:

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](#))

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|------------|------|---|
| 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 } |

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|-------------------|-----|---|
| 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 | .. | Adjustment controlled by a sliding axle under the same vehicle underframe |
| B61F 5/48 | .. | Trailing or leading bogies for locomotives or motor- driven railcars (B61F 5/40 takes precedence) |
| B61F 5/50 | . | Other details |
| B61F 5/52 | .. | Bogie frames |
| B61F 5/523 | ... | {comprising parts made from fibre-reinforced matrix material } |
| B61F 5/526 | ... | {comprising noise reducing devices } |
| B61F 7/00 | | Rail vehicles equipped for use on tracks of different width |
| B61F 9/00 | | Rail vehicles characterised by means for preventing derailing, e.g. by use of guide wheels |
| B61F 9/005 | . | {by use of non-mechanical means, e.g. acoustic or electromagnetic devices } |
| B61F 11/00 | | Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls |
| B61F 13/00 | | Rail vehicles characterised by wheel arrangements, not otherwise provided for |
| B61F 15/00 | | Axle-boxes (mounting or securing axle-boxes B61F 5/26 ; lubrication B61F 17/00 ; bearings in general F16C) |
| B61F 15/02 | . | with journal bearings |
| B61F 15/04 | .. | for locomotives |
| B61F 15/06 | .. | for cars |
| B61F 15/08 | .. | the axle being slidable or tiltable in the bearings |
| B61F 15/10 | ... | and having springs opposing such movements |
| B61F 15/12 | . | with roller, needle, or ball bearings |
| B61F 15/14 | .. | constructed for taking-up axial pressure |
| B61F 15/16 | .. | the axle being slidable or tiltable in the bearings |
| B61F 15/18 | ... | and having springs opposing such movements |
| B61F 15/20 | . | Details |
| B61F 15/22 | .. | Sealing means preventing entrance of dust or leakage of oil |
| B61F 15/24 | ... | preventing oil leakage when vehicle is tilted or inverted |
| B61F 15/26 | .. | Covers; Sealing thereof |
| B61F 15/28 | .. | Axle-boxes modified to ensure electrical conductivity |
| B61F 17/00 | | Lubrication specially adapted for axle-boxes of rail vehicles (lubrication in general F16N) |

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|-------------------|---|
| B61F 17/02 | . with oil |
| B61F 17/04 | .. Lubrication by stationary devices |
| B61F 17/06 | ... by means of a wick or the like |
| B61F 17/08 | Devices for pressing the wick or the like against the rotating axle |
| B61F 17/10 | ... by means of an oil bath |
| B61F 17/12 | ... by gravity |
| B61F 17/14 | .. Rotating lubricating devices |
| B61F 17/16 | ... with rings |
| B61F 17/18 | ... with chains |
| B61F 17/20 | ... with scoops or the like attached to, or coupled with, the axle |
| B61F 17/22 | ... with discs, rollers, or belts engaging the axle |
| B61F 17/24 | .. by built-in lubricating pumps |
| B61F 17/26 | .. by external feeding means, e.g. pneumatic devices |
| B61F 17/28 | .. Applications of oil cleaners not otherwise provided for |
| B61F 17/30 | . with grease |
| B61F 17/32 | .. by manually-operated lubricators, e.g. screw cups |
| B61F 17/34 | .. by automatic means, e.g. with spring action |
| B61F 17/36 | . with other, e.g. mixed, lubricating agents |
| B61F 19/00 | Wheel guards; Bumpers; Obstruction removers or the like (for vehicles in general B60R 19/00) |
| B61F 19/02 | . Wheel guards |
| B61F 19/04 | . Bumpers or like collision guards |
| B61F 19/06 | . Nets, catchers, or the like for catching obstacles or removing them from the track (mailbag catchers B61K 1/02) |
| B61F 19/08 | .. of the drop-down type |
| B61F 19/10 | ... automatically operated by engagement with obstacle |
| B61F 99/00 | Subject matter not provided for in other groups of this subclass |