

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](#))

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 .. 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)
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	