

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