

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](#))

- 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**