

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	..	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