

**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 ( <a href="#">B61F 5/40 takes precedence</a> )
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}
<b>B61F 7/00</b>	<b>Rail vehicles equipped for use on tracks of different width</b>
<b>B61F 9/00</b>	<b>Rail vehicles characterised by means for preventing derailing, e.g. by use of guide wheels</b>
B61F 9/005	. {by use of non-mechanical means, e.g. acoustic or electromagnetic devices}
<b>B61F 11/00</b>	<b>Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls</b>
<b>B61F 13/00</b>	<b>Rail vehicles characterised by wheel arrangements, not otherwise provided for</b>
<b>B61F 15/00</b>	<b>Axle-boxes</b> ( <a href="#">mounting or securing axle-boxes B61F 5/26</a> ; <a href="#">lubrication B61F 17/00</a> ; <a href="#">bearings in general F16C</a> )
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**