

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	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Adjustment controlled by a sliding axle under the same vehicle underframe
B61F 5/48	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Trailing or leading bogies for locomotives or motor- driven railcars (B61F 5/40 takes precedence)
B61F 5/50	<ul style="list-style-type: none"> Other details
B61F 5/52	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Bogie frames
B61F 5/523	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> {comprising parts made from fibre-reinforced matrix material}
B61F 5/526	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> {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 derailling, e.g. by use of guide wheels
B61F 9/005	<ul style="list-style-type: none"> {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	<ul style="list-style-type: none"> with journal bearings
B61F 15/04	<ul style="list-style-type: none"> <ul style="list-style-type: none"> for locomotives
B61F 15/06	<ul style="list-style-type: none"> <ul style="list-style-type: none"> for cars
B61F 15/08	<ul style="list-style-type: none"> <ul style="list-style-type: none"> the axle being slidable or tiltable in the bearings
B61F 15/10	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> and having springs opposing such movements
B61F 15/12	<ul style="list-style-type: none"> with roller, needle, or ball bearings
B61F 15/14	<ul style="list-style-type: none"> <ul style="list-style-type: none"> constructed for taking-up axial pressure
B61F 15/16	<ul style="list-style-type: none"> <ul style="list-style-type: none"> the axle being slidable or tiltable in the bearings
B61F 15/18	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> and having springs opposing such movements
B61F 15/20	<ul style="list-style-type: none"> Details
B61F 15/22	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Sealing means preventing entrance of dust or leakage of oil
B61F 15/24	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> preventing oil leakage when vehicle is tilted or inverted
B61F 15/26	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Covers; Sealing thereof
B61F 15/28	<ul style="list-style-type: none"> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> with oil
B61F 17/04	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Lubrication by stationary devices
B61F 17/06	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> by means of a wick or the like
B61F 17/08	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Devices for pressing the wick or the like against the rotating axle
B61F 17/10	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> by means of an oil bath

B61F 17/12	<ul style="list-style-type: none"> <ul style="list-style-type: none"> by gravity
B61F 17/14	<ul style="list-style-type: none"> Rotating lubricating devices
B61F 17/16	<ul style="list-style-type: none"> <ul style="list-style-type: none"> with rings
B61F 17/18	<ul style="list-style-type: none"> <ul style="list-style-type: none"> with chains
B61F 17/20	<ul style="list-style-type: none"> <ul style="list-style-type: none"> with scoops or the like attached to, or coupled with, the axle
B61F 17/22	<ul style="list-style-type: none"> <ul style="list-style-type: none"> with discs, rollers, or belts engaging the axle
B61F 17/24	<ul style="list-style-type: none"> by built-in lubricating pumps
B61F 17/26	<ul style="list-style-type: none"> by external feeding means, e.g. pneumatic devices
B61F 17/28	<ul style="list-style-type: none"> Applications of oil cleaners not otherwise provided for
B61F 17/30	<ul style="list-style-type: none"> with grease
B61F 17/32	<ul style="list-style-type: none"> by manually-operated lubricators, e.g. screw cups
B61F 17/34	<ul style="list-style-type: none"> by automatic means, e.g. with spring action
B61F 17/36	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Wheel guards
B61F 19/04	<ul style="list-style-type: none"> Bumpers or like collision guards
B61F 19/06	<ul style="list-style-type: none"> Nets, catchers, or the like for catching obstacles or removing them from the track (mailbag catchers B61K 1/02)
B61F 19/08	<ul style="list-style-type: none"> <ul style="list-style-type: none"> of the drop-down type
B61F 19/10	<ul style="list-style-type: none"> <ul style="list-style-type: none"> automatically operated by engagement with obstacle
B61F 99/00	Subject matter not provided for in other groups of this subclass