

CPC**COOPERATIVE PATENT CLASSIFICATION****B60B****VEHICLE WHEELS; CASTORS; AXLES; INCREASING WHEEL ADHESION****NOTE**

Attention is drawn to the Explanatory Note following the class title ([B60](#))

Guidance heading: **Wheels** (wheels for roller skates [A63C 17/22](#); making wheels or wheel parts [B21D 53/26](#); by rolling [B21H 1/00](#); by forging, hammering, or pressing [B21K 1/28](#))

- B60B 1/00** **Spoked wheels; Spokes thereof** (non-metallic [B60B 5/00](#) {; spoked wheels comprising rail-engaging elements [B60B 17/001](#); making wheel spokes [B21F 39/00](#)})
- [B60B 1/003](#) . { specially adapted for bicycles ([B60B 1/041](#) takes precedence)}
- [B60B 1/006](#) . { specially adapted for light-weight wheels, e.g. of strollers or wheel-chairs ([B60B 1/003](#) takes precedence)}
- [B60B 1/02](#) . Wheels with wire or other tension spokes
- [B60B 1/0207](#) .. { characterised by non-standard number of spokes, i.e. less than 12 or more than 32 spokes}
- [B60B 1/0215](#) .. { characterised by specific grouping of spokes}
- [B60B 1/0223](#) ... { the dominant aspect being the spoke arrangement pattern}
- [B60B 1/023](#) { multiple exclusively parallel spokes arranged in a group}
- [B60B 1/0238](#) ... { the dominant aspect being the number of spokes per group}
- [B60B 1/0246](#) .. { characterised by cross-section of the spoke, e.g. polygon or elliptic shape}
- [B60B 1/0253](#) .. { the spoke being hollow}
- [B60B 1/0261](#) .. { characterised by spoke form}
- [B60B 1/0269](#) ... { the spoke being curved or deformed over substantial part of length}
- [B60B 1/0276](#) ... { the spoke being crooked in the middle and having double length}
- [B60B 1/0284](#) ... { the spoke being threaded at both ends}
- [B60B 1/0292](#) ... { the spoke being bent at both ends}
- [B60B 1/04](#) .. Attaching spokes to rim or hub
- [B60B 1/041](#) ... { of bicycle wheels (bicycle rims characterised by means for attaching spokes [B60B 21/062](#))}
- [B60B 1/042](#) ... { Attaching spokes to hub}
- [B60B 1/043](#) ... { Attaching spokes to rim}
- [B60B 1/044](#) { by the use of spoke nipples}
- [B60B 1/045](#) { characterised by their specific shape}
- [B60B 1/046](#) { characterised by adaptations of the nipple for tightening tools}
- [B60B 1/047](#) { the nipple comprising sealing means}
- [B60B 1/048](#) { by the use of screws}
- [B60B 1/06](#) . Wheels with compression spokes (wheels of high resiliency [B60B 9/00](#))

- B60B 1/08 .. formed by casting
- B60B 1/10 .. fabricated by sheet metal ([B60B 1/12](#), [B60B 3/08](#) take precedence)
- B60B 1/12 .. with tubular spokes ([B60B 1/08](#) takes precedence)
- B60B 1/14 .. Attaching spokes to rim or hub

- B60B 3/00** **Disc wheels, i.e. wheels with load-supporting disc body** (non-metallic [B60B 5/00](#); wheel cover discs [B60B 7/00](#) {; disc wheels comprising rail-engaging elements [B60B 17/0006](#)})
- B60B 3/001 . { Lightweight wheels, e.g. for strollers or toys}
- B60B 3/002 . { characterised by the shape of the disc}
- B60B 3/004 .. { in the hub section}
- B60B 3/005 .. { in the section adjacent to rim}
- B60B 3/007 .. { in the intermediate section}
- B60B 3/008 . { by the form of wheel bolt mounting section}
- B60B 3/02 . with a single disc body integral with rim
- B60B 3/04 . with a single disc body not integral with rim, { i.e. disc body and rim being manufactured independently and then permanently attached to each other in a second step, e.g. by welding}
- B60B 3/041 .. { characterised by the attachment of rim to wheel disc}
- B60B 3/042 ... { characterised by circumferential position of attachment means}
- B60B 3/044 ... { characterised by cross-sectional details of the attachment, e.g. the profile}
- B60B 3/045 ... characterised by the attachment portions
- B60B 3/047 comprising specific torque transmitting means
- B60B 3/048 .. the rim being rotatably mounted to the wheel disc
- B60B 3/06 . formed by casting
- B60B 3/08 . with disc body formed by two or more axially spaced discs {(comprising rail-engaging elements formed by two or more axially spaced discs [B60B 17/0013](#))}
- B60B 3/082 .. {especially for light-weight wheels}
- B60B 3/085 .. { Discs having no mutual contact}
- B60B 3/087 .. { Discs having several mutual contact regions}
- B60B 3/10 . apertured to simulate spoked wheels
- B60B 3/12 . Means of reinforcing disc bodies
- B60B 3/14 . Attaching disc body to hub (resiliently [B60B 9/00](#); attaching rim to wheel body [B60B 23/00](#)) {Wheel adapters}
- B60B 3/142 .. { by central locking nut}
- B60B 3/145 .. { using washers or distance bushes}
- B60B 3/147 .. { using wheel adapters}
- B60B 3/16 .. by bolts or the like
- B60B 3/165 ... { with locking devices for the fixing means, e.g. screw or nut covers}
- B60B 3/18 .. by circlips or the like

B60B 5/00	Wheels, spokes, disc bodies, rims, hubs, wholly or predominantly made of non-metallic material (wheel cover discs B60B 7/00 ; wheels of high resiliency B60B 9/00 {;wheel bodies comprising rail-engaging elements characterised by use of non-metallic material B60B 17/0003 })
B60B 5/02	. made of synthetic material
B60B 5/04	. made of wood
B60B 7/00	Wheel cover discs, rings, or the like, for ornamenting, protecting, {venting,} or obscuring, wholly or in part, the wheel body, rim, hub, or tyre sidewall {e.g. wheel cover discs, wheel cover discs with cooling fins (wheels with cooling fins not provided on the wheel cover disc B60B 19/10 ; apparatus or tools for removing or attaching cover discs hub caps or the like B60B 31/06 })
B60B 7/0006	. {for cycle wheels or similar}
B60B 7/0013	. { Hub caps}
B60B 7/002	.. { being of the ventilated type}
B60B 7/0026	. { characterised by the surface}
B60B 7/0033	.. { the dominant aspect being the surface appearance}
B60B 7/004	... { the surface being painted}
B60B 7/0046	... { the surface being plated or coated}
B60B 7/0053	... { the surface being decorated}
B60B 7/006	... { the surface being reflective or including lighting}
B60B 7/0066	.. { the dominant aspect being the surface structure}
B60B 7/0073	... { being completely closed, i.e. having no cooling openings for the brakes}
B60B 7/008	... { having decorative holes or openings, i.e. openings going beyond mere cooling openings}
B60B 7/0086	... { having cooling fins}
B60B 7/0093	. { being reinforced against thermal deformation}
B60B 7/01	. Rings specially adapted for covering only the wheel rim or the tyre sidewall, e.g. removable tyre sidewall trim rings
B60B 7/02	. made essentially in one part ({ B60B 7/0006 ,} B60B 7/01 take precedence)
B60B 7/04	. built-up of several main parts (B60B 7/01 , B60B 7/20 take precedence)
B60B 7/06	. Fastening arrangements therefor (B60B 7/01 , B60B 7/20 take precedence)
B60B 7/061	.. { characterised by the part of the wheels to which the discs, rings or the like are mounted}
B60B 7/063	... { to the rim}
B60B 7/065	... { to the disc}
B60B 7/066	... { to the hub}
B60B 7/068	... { to the wheel bolts or wheel nuts}
B60B 7/08	.. having gripping elements consisting of formations integral with the cover
B60B 7/10	.. comprising a plurality of spaced spring clips individually mounted on the cover, e.g. riveted, welded or readily releasable
B60B 7/105	... {the spring clip mounted on the rim}

- B60B 7/12
 - .. comprising an annular spring or gripping element mounted on the cover ([B60B 7/08](#) takes precedence)
- B60B 7/14
 - .. comprising screw-threaded means
- B60B 7/16
 - . Anti-theft devices
- B60B 7/18
 - . simulating spoked or wire wheel
- B60B 7/20
 - . having an element mounted for rotation independently of wheel rotation
- B60B 9/00**

Wheels of high resiliency {, e.g. with conical interacting pressure-surfaces (resilient wheels comprising rail-engaging elements [B60B 17/0027](#))}
- B60B 9/005
 - . {Comprising a resilient hub (hubs per se [B60B 27/00](#))}
- B60B 9/02
 - . using springs {resiliently mounted bicycle rims} (wheels comprising resilient spokes [B60B 9/26](#))
- B60B 9/04
 - .. in leaf form
- B60B 9/06
 - .. in helical form
- B60B 9/08
 - .. in flat coiled form
- B60B 9/10
 - .. of rubber or the like
- B60B 9/12
 - ... in the form of sleeves or rings concentric with the wheel axis
- B60B 9/14
 - ... with means limiting relative lateral movements between hub and remainder of wheel
- B60B 9/16
 - ... modified to ensure electric conductivity
- B60B 9/18
 - . using fluid ([within spokes B60B 9/26](#))
- B60B 9/20
 - .. in rings concentric with wheel axis
- B60B 9/22
 - ... inflatable
- B60B 9/24
 - .. with pistons and cylinders
- B60B 9/26
 - . comprising resilient spokes
- B60B 9/28
 - .. with telescopic action
- B60B 11/00**

Units comprising multiple wheels arranged side by side; Wheels having more than one rim or capable of carrying more than one tyre
- B60B 11/02
 - . Units of separate wheels mounted for independent or coupled rotation
- B60B 11/04
 - . Wheels with a rim capable of carrying more than one tyre
- B60B 11/06
 - . Wheels with more than one rim mounted on a single wheel body
- B60B 11/08
 - . Arrangements of balancing mechanisms enabling a uniform distribution of load to tyres
- B60B 11/10
 - . Emergency wheels ([collapsible tyres B60C 3/08](#); [tyres characterised by means enabling restricted operation in damaged or deflated condition B60C 17/00](#))
- B60B 15/00**

Wheels or wheel attachments designed for increasing traction ([vehicle tires B60C](#); [non-skid devices temporarily attachable to resilient tires or resiliently-tired wheels B60C](#))
- B60B 15/02
 - . Wheels with spade lugs
- B60B 15/021
 - .. {made of resilient material}
- B60B 15/023
 - .. {being of the broad form type}
- B60B 15/025
 - ... {with non-cylindrical shape}

- B60B 15/026 . . { characterised by mud deposit prevention}
- B60B 15/028 . . { characterised by active rotation of the lugs}
- B60B 15/04 . . with resiliently-mounted spade lugs
- B60B 15/06 . . with pivotally-mounted spade lugs
- B60B 15/08 . . with spade lugs axially displaced relatively to the tread surface of the tire
- B60B 15/10 . . with radially-adjustable spade lugs; Control mechanisms therefor
- B60B 15/12 . . . involving cams or eccentric hoops
- B60B 15/14 . . . involving an axially-displaceable cone
- B60B 15/16 . . . involving gearing, e.g. gear pinions acting upon threaded shafts on the spade lugs
- B60B 15/18 . Wheels with ground-engaging plate-like shoes
- B60B 15/20 . . with resiliently-mounted shoes, e.g. on a spider
- B60B 15/22 . . connected by links to the hub
- B60B 15/24 . Tread bands or rings for fairing lugs when travelling on the road
- B60B 15/26 . Auxiliary wheels or rings with traction-increasing surface attachable to the main wheel body
- B60B 15/263 . . { Traction increasing surface being located axially beside tire}
- B60B 15/266 . . { Traction increasing surface being located radially outside tire circumferential surface}
- B60B 15/28 . Wheel-ballasting weights; Their attachment
- B60B 17/00** **Wheels characterised by rail-engaging elements** ({wheel-axle combinations [B60B 37/00;](#) of model railways [A63H 19/22](#))
- B60B 17/0003 . {Wheel bodies characterised by use of non-metallic material ([B60B 17/0034](#) takes precedence)}
- B60B 17/0006 . {Construction of wheel bodies, e.g. disc wheels ([B60B 17/0003](#) takes precedence)}
- B60B 17/001 . . {Spoked wheels; Spokes thereof}
- B60B 17/0013 . . {formed by two or more axially spaced discs}
- B60B 17/0017 . . . {with insonorisation means}
- B60B 17/002 . . {with counter-balance}
- B60B 17/0024 . . { with noise reducing means ([B60B 17/0017](#) takes precedence)}
- B60B 17/0027 . {Resilient wheels, e.g. resilient hubs ([B60B 17/02](#) takes precedence)}
- B60B 17/0031 . . {using springs}
- B60B 17/0034 . . . {of rubber or other non-metallic material}
- B60B 17/0037 { of circular or elliptical cross section}
- B60B 17/0041 { of substantially rectangular cross section}
- B60B 17/0044 { single element arranged in V-form}
- B60B 17/0048 { pair of elements arranged in V-form}
- B60B 17/0051 . . {using fluid}
- B60B 17/0055 . {with non-elastic tyres (e.g. of particular profile or composition)}
- B60B 17/0058 . . {characterised by their fixing to wheel bodies}
- B60B 17/0062 . . { having teeth or protrusions on the circumference of the wheel}

- B60B 17/0065 . { Flange details}
- B60B 17/0068 . . { the flange being provided on a single side}
- B60B 17/0072 . . { the flange being provided on both sides}
- B60B 17/0075 . . { the flange being movable, for adaptation to variable rail or track widths}
- B60B 17/0079 . { the flange having a guide wheel}
- B60B 17/0082 . { Wheels designed to interact with a particular rail profile}
- B60B 17/0086 . . { H-type rail profiles, i.e. the wheels are arranged between upper and lower rail extensions}
- B60B 17/0089 . . { Circular rail profiles}
- B60B 17/0093 . . { Rectangular rail profiles}
- B60B 17/0096 . . { Triangular rail profiles}
- B60B 17/02 . with elastic tyres

B60B 19/00 **Wheels not otherwise provided for or having characteristics specified in one of the sub-groups of this group**

- B60B 19/003 . { Multidirectional wheels}
- B60B 19/006 . { Magnetic wheels}
- B60B 19/02 . convertible, e.g. from road wheel to rail wheel; Wheels specially designed for alternative use on road and rail
- B60B 19/04 . expansible
- B60B 19/06 . with compartments for fluid, packing or loading material; Buoyant wheels
- B60B 19/08 . with lubricating passages, channels, or reservoirs
- B60B 19/10 . with cooling fins
- B60B 19/12 . Roller-type wheels ([B60B 19/06](#) takes precedence)
- B60B 19/125 . . { with helical projections on radial outer surface translating rotation of wheel into movement along the direction of the wheel axle}
- B60B 19/14 . Ball-type wheels ([B60B 19/06](#) takes precedence)

Guidance heading: Rims; Hubs

- B60B 21/00** **Rims** (non-metallic [B60B 5/00](#); of high resiliency [B60B 9/00](#); capable of carrying more than one tyre [B60B 11/04](#); multiple rims on a single wheel body [B60B 11/06](#); of multi-part type [B60B 25/00](#); metal tyres [B60C](#))
- B60B 21/02 . characterised by transverse section
- B60B 21/021 . . {with inwardly directed flanges, i.e. the tyre-seat being reversed}
- B60B 21/023 . . { the transverse section being non-symmetrical}
- B60B 21/025 . . { the transverse section being hollow}
- B60B 21/026 . . { the shape of rim well}
- B60B 21/028 . . { the shape of hump}
- B60B 21/04 . . with substantially radial flanges (with rail-engaging flanges [B60B 17/00](#)) {([B60B 21/021](#) takes precedence)}
- B60B 21/06 . characterised by means for attaching spokes {, i.e. spoke seats}
- B60B 21/062 . . {for bicycles}

- B60B 21/064 .. { characterised by shape of spoke mounting holes, e.g. elliptical or triangular}
- B60B 21/066 .. { the spoke mounting means being located on a flange oriented radially and formed on the radially inner side of the rim well}
- B60B 21/068 .. { the spoke seat comprising sealing means, e.g. for tubeless racing bike tyres}
- B60B 21/08 . characterised by having braking surfaces
- B60B 21/10 . characterised by the form of tyre-seat or flange, e.g. corrugated ([B60B 21/02](#) takes precedence)
- B60B 21/102 .. { the shape of bead seats}
- B60B 21/104 .. { the shape of flanges}
- B60B 21/106 ... { the shape of flange end-sections}
- B60B 21/108 .. { the surface of bead seats}
- B60B 21/12 . Appurtenances, e.g. lining bands
- B60B 21/125 .. Bead clamping elements

B60B 23/00

Attaching rim to wheel body (attaching spokes to rim [B60B 1/04](#), [B60B 1/14](#); attaching rims resiliently to wheel body [B60B 9/00](#); { devices for fastening or securing constructional elements or machine parts together [F16B](#)})

NOTE

Group [B60B 23/12](#) takes precedence over groups [B60B 23/02](#) to [B60B 23/10](#)

- B60B 23/02 . by split or other expansible ring devices
- B60B 23/04 . by bayonet joint, screw-thread, or like attachments
- B60B 23/06 . by screws, bolts, pins, or clips
- B60B 23/08 .. arranged radially
- B60B 23/10 .. arranged axially
- B60B 23/12 . by devices arranged to permit variation of axial position of rim relative to wheel body for track width adjustment

B60B 25/00

Rims built up of several main parts {**Locking means for the rim parts**} (tools for assembling divided rims [B60B 31/04](#))

- B60B 25/002 . { Rims split in circumferential direction}
- B60B 25/004 .. { one rim part comprising the wheel disc}
- B60B 25/006 .. { Rims split symmetrically}
- B60B 25/008 .. { comprising spacer means}
- B60B 25/02 . Segmented rims, e.g. with segments arranged in sections; Connecting equipment, e.g. hinges; Insertable flange rings therefor
- B60B 25/04 . Rims with dismountable flange rings, seat rings, or lock rings
- B60B 25/045 .. on both sides
- B60B 25/06 .. Split flange rings, e.g. transversely split; Connecting equipment for overlapping the slot
- B60B 25/08 .. Continuous flange rings; Arrangement of recesses enabling the flange rings to be slipped over the rim body
- B60B 25/10 .. Seat rings for the tyre bead part, e.g. split

- B60B 25/12 . . . with integral flange part
- B60B 25/14 . . Locking means for flange rings or seat rings
- B60B 25/16 . . . Arrangement of bayonet catches
- B60B 25/18 . . . Arrangement of split rings
- B60B 25/20 . . . Arrangement of screws, bolts, or shouldered pins
- B60B 25/22 . Other apurtenances, e.g. for sealing the component parts enabling the use of tubeless tyres

B60B 27/00**Hubs** (non-metallic [B60B 5/00](#); of high resiliency [B60B 9/00](#))

- B60B 27/0005 . {with ball bearings}
- B60B 27/001 . {with roller-bearings}
- B60B 27/0015 . { for driven wheels}
- B60B 27/0021 . . { characterised by torque transmission means from drive axle}
- B60B 27/0026 . . . { of the radial type, e.g. splined key}
- B60B 27/0031 . . . { of the axial type, e.g. front teeth}
- B60B 27/0036 . . { comprising homokinetic joints}
- B60B 27/0042 . . . { characterised by the fixation of the homokinetic joint to the hub}
- B60B 27/0047 . { characterised by functional integration of other elements}
- B60B 27/0052 . . { the element being a brake disc}
- B60B 27/0057 . . { the element being a brake drum}
- B60B 27/0063 . . { the element being a brake caliper mount}
- B60B 27/0068 . . { the element being a sensor}
- B60B 27/0073 . { characterised by sealing means}
- B60B 27/0078 . { characterised by the fixation of bearings}
- B60B 27/0084 . . { caulking to fix inner race}
- B60B 27/0089 . . { caulking to fix outer race}
- B60B 27/0094 . { one or more of the bearing races are formed by the hub}
- B60B 27/02 . adapted to be rotatably arranged on axle
- B60B 27/023 . . { specially adapted for bicycles}
- B60B 27/026 . . . { comprising quick release devices}
- B60B 27/04 . . housing driving means, e.g. sprockets
- B60B 27/042 . . . { comprising a rotational dampers}
- B60B 27/045 . . . { comprising a spoke protectors}
- B60B 27/047 . . . { comprising a freewheel mechanisms}
- B60B 27/06 . adapted to be fixed on axle
- B60B 27/065 . . { characterised by the fixation of the hub to the axle}

Guidance heading: Apparatus or tools for mounting wheels or parts thereof (hand tools in general [B25](#); tools for mounting tyres [B60C 25/00](#))

- B60B 29/00** **Apparatus or tools for mounting or dismounting wheels** {(mounting of wheels at assembly lines [B62D 65/12](#))}
- B60B 29/001 . {comprising lifting or aligning means ([B60B 29/002](#) takes precedence)}
 - B60B 29/002 . {provided with a dolly}
 - B60B 29/003 . {Wrenches, e.g. of the ratchet type ([B60B 29/001](#) takes precedence; wrenches per se [B25B 13/00](#))}
 - B60B 29/004 . . {for dual wheels}
 - B60B 29/005 . . {hand-driven operating with multiplied forces ([B60B 29/004](#) takes precedence; hand-driven gear-operated wrenches per se [B25B 17/00](#), with torque amplification [B25B 17/02](#))}
 - B60B 29/006 . . {with electric or pneumatic drive (power-driven nut setting or loosening tool per se [B25B 21/00](#))}
 - B60B 29/007 . . {Supports for wrenches ([B60B 29/005](#), [B60B 29/006](#) take precedence)}
 - B60B 29/008 . {Wheel pullers; tools for axial movement of wheels (adjustable axle units for varying track [B60B 35/10](#))}

B60B 30/00 **Means for holding wheels or parts thereof** (spare wheel stowing, holding or mounting arrangements on vehicles [B62D 43/00](#))

- B60B 30/02 . engaging the tyre, e.g. the tyre being mounted on the wheel rim
- B60B 30/04 . . the tyre not being mounted on a rim, i.e. holders or supports for tyres alone
- B60B 30/06 . engaging the wheel body, e.g. the rim
- B60B 30/08 . . the central part of the wheel body
- B60B 30/10 . characterised by being provided on a dolly

B60B 31/00 **Apparatus or tools for assembling or disassembling wheels**

- B60B 31/005 . {especially for spoked wheels}
- B60B 31/02 . for tightening or straightening wire spokes in situ; for extracting spokes from wheels
- B60B 31/04 . for assembling divided rims
- B60B 31/06 . for removing or attaching cover discs, hub caps, or the like

B60B 33/00 **Castors in general; {Anti-clogging castors}** (castors for large containers [B65D 90/18](#))

- B60B 33/0002 . {assembling to the object, e.g. furniture}
- B60B 33/0005 . . { characterised by mounting method}
- B60B 33/0007 . . . { by screwing}
- B60B 33/001 . . . { by snapping, clicking or latching in}
- B60B 33/0013 . . . { by straps, bands or similar}
- B60B 33/0015 . . { characterised by adaptations made to castor}
- B60B 33/0018 . . . { in the form of a flat mounting plate}
- B60B 33/0021 . . . { in the form of a mounting pin}
- B60B 33/0023 . . . { in the form of specific adaptations to the form of the object}

B60B 33/0026	.. { characterised by adaptations made to the object}
B60B 33/0028	. {Construction of wheels; methods of assembling on axle}
B60B 2033/0031	.. {the axle being inclined}
B60B 2033/0034	. {having means for blocking by gripping on the ground}
B60B 33/0036	. { characterised by type of wheels}
B60B 33/0039	.. { Single wheels}
B60B 33/0042	.. { Double or twin wheels}
B60B 33/0044	.. { Roller type wheels, i.e. extra wide wheels}
B60B 33/0047	. { characterised by details of the rolling axle}
B60B 33/0049	.. { the rolling axle being horizontal}
B60B 33/0052	.. { the rolling axle being inclined}
B60B 33/0055	.. { the rolling axle intersects swivel axis}
B60B 33/0057	.. { the rolling axle being offset from swivel axis}
B60B 33/006	. { characterised by details of the swivel mechanism}
B60B 33/0063	.. { no swivelling action, i.e. no real caster}
B60B 33/0065	.. { characterised by details of the swivel axis}
B60B 33/0068	... { the swivel axis being vertical}
B60B 33/0071	... { the swivel axis being inclined}
B60B 33/0073	... { the swivel axis being symmetrical to wheel or wheels}
B60B 33/0076	... { the swivel axis being offset laterally from wheel center plane}
B60B 33/0078	. { characterised by details of the wheel braking mechanism}
B60B 33/0081	.. { acting on tire tread}
B60B 33/0084	.. { acting on axle end}
B60B 33/0086	.. { acting on rim or side portion of tyre}
B60B 33/0089	.. { acting on the floor}
B60B 33/0092	.. { actuated remotely, e.g. by cable or electrically}
B60B 33/0094	.. { actuated automatically}
B60B 33/0097	.. { acting permanently, e.g. for increased security on low friction surfaces}
B60B 33/02	. with disengageable swivel action, { i.e. comprising a swivel locking mechanism}
B60B 33/021	.. {combined with braking of castor wheel}
B60B 33/023	.. { by using friction}
B60B 33/025	.. { by using form-fit, e.g. front teeth}
B60B 33/026	.. { being actuated remotely, e.g. by cable or electrically}
B60B 33/028	.. { being actuated automatically}
B60B 33/04	. adjustable {, e.g. in height; linearly shifting castors}
B60B 33/045	.. {mounted resiliently, by means of dampers}
B60B 33/06	.. mounted retractably
B60B 33/063	... { by linear movement parallel to swivel axis}
B60B 33/066	... { by use of a hinge and lever mechanism to swing wheel upwards relative to wheel mount}

B60B 33/08	. Ball castors {(B60B 33/0028 takes precedence)}
B60B 35/00	Axle units; Parts thereof (steerable vehicle stub axles B62D) { Arrangements for lubrication of axles}
B60B 35/001	. { Axles of the portal type, i.e. axles designed for higher ground clearance}
B60B 35/002	. { Axles of the low floor type, e.g. for low-floor city busses}
B60B 35/003	. { Steerable axles}
B60B 35/004	. { Mounting arrangements for axles}
B60B 35/005	.. { with adaptations at chassis structure}
B60B 35/006	.. { with mounting plates or consoles fitted to axles}
B60B 35/007	... { for mounting suspension elements to axles}
B60B 35/008	... { for mounting air suspension elements to axles}
B60B 35/009	. { adapted for tiltable wheels}
B60B 35/02	. Dead axles, i.e. not transmitting torque
B60B 35/025	.. { the wheels being removable}
B60B 35/04	.. straight
B60B 35/06	.. cranked
B60B 35/08	.. of closed hollow section
B60B 35/10	.. adjustable for varying track {(tools for axial movement of wheels on axles B60B 29/008)}
B60B 35/1009	... { operated manually}
B60B 35/1018	.... { comprising a locking pin}
B60B 35/1027	.... { comprising a clamping mechanism}
B60B 35/1036	... { operated with power assistance}
B60B 35/1045	.... { electrically}
B60B 35/1054	.... { hydraulically}
B60B 35/1063	.... { automatically dependent on operational state of the vehicle}
B60B 35/1072	... { by transversally movable elements}
B60B 35/1081	.... { the element is a wheel}
B60B 35/109	.... { the element is an axle part}
B60B 35/12	. Torque-transmitting axles (independent suspension aspects B60G)
B60B 35/121	.. { Power-transmission from drive shaft to hub}
B60B 35/122	... { using gearings}
B60B 35/124	.... { of the helical or worm type}
B60B 35/125	.... { of the planetary type}
B60B 35/127	... { using universal joints}
B60B 35/128	.... { of the homokinetic or constant velocity type}
B60B 35/14	.. Composite or split, e.g. half- axles; Couplings between axle parts or sections
B60B 35/16	.. Axle housings
B60B 35/163	... { characterised by specific shape of the housing, e.g. adaptations to give space for other vehicle elements like chassis or exhaust system}

B60B 35/166	. . . { characterised by reinforcements, e.g. reinforcement ribs}
B60B 35/18	. . Arrangement of bearings
B60B 37/00	Wheel-axle combinations, e.g. wheel sets (units comprising multiple wheels arranged side-by-side B60B 11/00 ; rail vehicle axle-boxes B61F)
B60B 37/02	. the wheels being integral with solid axles
B60B 37/04	. the wheels being rigidly attached to solid axles
B60B 37/06	. the wheels being integral with, or rigidly attached to, hollow axles
B60B 37/08	. . the hollow axles being rotatable around fixed axles
B60B 37/10	. the wheels being individually rotatable around the axles
B60B 37/12	. Axles with a fixed ground wheel and a loose wheel
B60B 39/00	Increasing wheel adhesion (wheels, wheel attachments or tyre attachments, designed for increasing traction B60B 15/00 , B60C ; tyre constructions B60C ; road surface conditioning to prevent slipperiness E01C)
B60B 39/003	. {Vehicle mounted non-skid chains actuated by centrifugal force (non-skid devices temporarily attachable to resilient tyres B60C 27/00)}
B60B 39/006	. . { characterised by a control system for the actuation of the rotating chain wheel}
B60B 39/02	. Vehicle fittings for scattering or dispensing material in front of its wheels
B60B 39/021	. . { Details of the dispensing device}
B60B 39/022	. . . { related to reservoirs}
B60B 39/023	. . . { related to metering valves}
B60B 39/024	. . . { related to preconditioning of the dispensing materials}
B60B 39/025	. . . { related to the control system}
B60B 39/026	. . { the material being in gas form}
B60B 39/027	. . . { the gas being heated on purpose}
B60B 39/028	. . . { the gas being exhaust gas}
B60B 39/04	. . the material being granular, e.g. sand (combined control of sanding apparatus and brakes of rail vehicles B61H)
B60B 39/06	. . . the dispensing being effected by mechanical means
B60B 39/08	. . . the dispensing being effected by fluid means
B60B 39/083	. . . . { dispensing being effected by liquid}
B60B 39/086	. . . . { dispensing being effected by gas}
B60B 39/10	. . . the dispensing being controlled electrically or electro-magnetically
B60B 39/12	. . the material being sheet-like or web-like
B60B 2200/00	Type of product being used or applied (kind of vehicle product being used or applied L60Y200)
B60B 2200/20	. Furniture or medical appliances
B60B 2200/22	. . Chairs
B60B 2200/222	. . . Office chairs
B60B 2200/224	. . . Arm chairs
B60B 2200/24	. . Beds

B60B 2200/242	...	Hospital beds
B60B 2200/26	..	Medical appliances
B60B 2200/40	.	Articles of daily use
B60B 2200/41	..	Waste bins
B60B 2200/43	..	Carts
B60B 2200/432	...	Shopping carts
B60B 2200/434	...	Wheel barrows
B60B 2200/45	..	Suitcases
B60B 2200/47	..	Physical activity equipment, e.g. leisure or sports articles
B60B 2200/49	..	Domestic appliances, e.g. vacuum cleaners

B60B 2310/00**Manufacturing methods**

B60B 2310/20	.	Shaping
B60B 2310/202	..	by casting
B60B 2310/204	..	by moulding, e.g. injection moulding, i.e. casting of plastics material
B60B 2310/206	..	by stamping
B60B 2310/208	..	by forging
B60B 2310/2082	...	by swaging
B60B 2310/211	..	by folding or bending
B60B 2310/212	..	by drawing
B60B 2310/213	..	by punching
B60B 2310/214	..	by extrusion
B60B 2310/218	..	by hydroforming
B60B 2310/221	..	by magnetic pulse forming
B60B 2310/222	..	by twisting
B60B 2310/224	..	by rolling
B60B 2310/226	..	by cutting
B60B 2310/228	..	by machining
B60B 2310/231	..	by turning
B60B 2310/232	..	by milling
B60B 2310/234	..	by grinding
B60B 2310/238	..	by thermal spraying of molten material
B60B 2310/241	..	by weaving or knitting of fibers
B60B 2310/242	..	by laminating, e.g. fabrication of sandwich sheets
B60B 2310/30	.	joining
B60B 2310/302	..	by welding
B60B 2310/3021	...	by autogen welding
B60B 2310/3022	...	by spot welding, plug welding
B60B 2310/3023	...	by arc welding, e.g. inert gas arc welding
B60B 2310/3025	...	by thermal welding, e.g. friction, induction or ultrasonic welding

B60B 2310/3026	...	by laser welding
B60B 2310/3027	...	by electron beam welding
B60B 2310/3028	...	by magnetic pulse welding
B60B 2310/303	..	by soldering
B60B 2310/305	..	by screwing
B60B 2310/306	..	by clamping or wedging, e.g. by clamping inserts as joining means
B60B 2310/307	..	by removably mountable securing elements, e.g. circlips
B60B 2310/311	..	by riveting
B60B 2310/3112	...	by punch-riveting
B60B 2310/312	..	by hemming or seaming, e.g. by folding of the rim
B60B 2310/314	..	by deformation
B60B 2310/3142	..	by caulking
B60B 2310/316	..	by press-fitting, shrink-fitting
B60B 2310/318	..	by adhesive bonding, e.g. glueing
B60B 2310/321	..	by overmolding
B60B 2310/323	..	by coextrusion
B60B 2310/329	..	by splicing, e.g. of ropes
B60B 2310/50	.	Thermal treatment
B60B 2310/52	..	Curing
B60B 2310/54	..	Hardening
B60B 2310/542	...	Quenching
B60B 2310/56	..	Co-curing; Vulcanisation
B60B 2310/60	.	Surface treatment; After treatment
B60B 2310/612	..	Polishing
B60B 2310/614	..	Painting
B60B 2310/616	..	Coating with thin films
B60B 2310/6162	...	Conductive films
B60B 2310/618	..	Coating with foils
B60B 2310/621	..	Electro-chemical processes
B60B 2310/622	..	Shot-peening
B60B 2310/64	..	Effect of treatments
B60B 2310/642	...	Matted
B60B 2310/644	...	Polished
B60B 2310/646	...	Engraved
B60B 2310/648	...	Structured
B60B 2310/651	...	glossy
B60B 2310/652	...	Reflecting
B60B 2310/654	...	Anti-corrosive
B60B 2310/656	...	Decorative
B60B 2310/658	...	For advertising

- B60B 2310/661 . . . for protection, e.g. against scratches or stone chips
- B60B 2310/80 . Filament winding

B60B 2320/00**Manufacturing or maintenance operations**

- B60B 2320/10 . Assembling; disassembling
- B60B 2320/12 .. Assembly devices for spoked wheels
- B60B 2320/122 . . . for spoke tensioning
- B60B 2320/124 . . . for trueing of spoked wheels
- B60B 2320/126 . . . for restoring form or removing local distortions of wheel rims in unassembled state
- B60B 2320/14 .. Assembly devices for divided rims
- B60B 2320/16 .. Devices for attaching or removing cover discs, hub caps or other ornamental rings or elements
- B60B 2320/30 . Balancing
- B60B 2320/50 . Securing
- B60B 2320/52 .. to prevent loss
- B60B 2320/522 . . . by locking washer
- B60B 2320/524 . . . by securing plate

B60B 2340/00**Wheel transporting, Mounting of wheels**

- B60B 2340/10 . Operation mode
- B60B 2340/12 .. Operated manually
- B60B 2340/14 .. Power driven
- B60B 2340/16 .. Included in assembly line
- B60B 2340/18 .. Automated process
- B60B 2340/30 . Wheel transporting or handling devices
- B60B 2340/32 .. for gripping the wheel
- B60B 2340/34 .. for positioning the wheel to hub or boltholes
- B60B 2340/36 .. the devices being provided on a dolly
- B60B 2340/50 . Wheel mounting or removal devices
- B60B 2340/52 .. Auxiliary tools, e.g. For alignment
- B60B 2340/70 . Lifting jacks

B60B 2360/00**Materials; Physical forms thereof**

- B60B 2360/10 . Metallic materials
- B60B 2360/102 .. Steel
- B60B 2360/104 .. Aluminum
- B60B 2360/106 .. Magnesia
- B60B 2360/108 .. Titanium
- B60B 2360/109 .. Bronze
- B60B 2360/14 . Physical forms of metallic parts
- B60B 2360/141 .. Sheet-metals

B60B 2360/143	..	Bars, i.e. being solid
B60B 2360/1432	...	of circular cross section
B60B 2360/1434	...	of polygonal cross section, e.g. triangular or rectangular
B60B 2360/1436	...	of elliptical cross section
B60B 2360/144	..	Tubes, i.e. being hollow
B60B 2360/1442	...	of circular cross section
B60B 2360/1444	...	of rectangular cross section
B60B 2360/1446	...	of elliptical cross section
B60B 2360/1448	...	of irregular cross-section
B60B 2360/145	..	Profiles, i.e. being solid and having irregular cross-section
B60B 2360/1452	...	L-profiles
B60B 2360/1454	...	T or H-Profiles
B60B 2360/1456	...	X or Y-Profiles
B60B 2360/1458	...	U or V-Profiles
B60B 2360/147	..	Castings
B60B 2360/148	..	Sinterings
B60B 2360/149	..	Metal foams
B60B 2360/30	.	Synthetic materials
B60B 2360/32	..	Plastic compositions
B60B 2360/322	...	Comprising polypropylene
B60B 2360/324	...	Comprising polyurethane
B60B 2360/33	..	Synthetic foams
B60B 2360/34	..	Reinforced plastics
B60B 2360/341	...	with fibres
B60B 2360/3412	....	Glass fibres
B60B 2360/3414	....	Aramide fibres
B60B 2360/3416	....	Carbone fibres
B60B 2360/3418	....	Aramid fibres
B60B 2360/342	...	With strands
B60B 2360/3422	....	consisting of fibres oriented substantially parallel
B60B 2360/3424	....	consisting of braided fibres
B60B 2360/344	...	With woven material
B60B 2360/3442	....	characterised by material mixes
B60B 2360/3444	....	characterised by weaving patterns
B60B 2360/346	...	Material impregnated with resin before being put into form, i.e. prepregs
B60B 2360/3462	....	comprising strands
B60B 2360/3464	....	comprising woven material
B60B 2360/348	...	Resins
B60B 2360/36	..	Composite materials
B60B 2360/362	...	Compounded sheets

B60B 2360/364	...	comprising honeycomb structures
B60B 2360/366	...	comprising foams, e.g. synthetic or metal foams
B60B 2360/368	...	Coproduced material combinations, e.g. By over-molding, co-extrusion, co-curing or vulcanizing
B60B 2360/50	.	Rubbers
B60B 2360/70	.	Ceramics
B60B 2360/90	.	Wood
B60B 2360/92	.	Leather
B60B 2360/94	.	Cardboard or papers

B60B 2380/00**Bearings**

B60B 2380/10	.	Type
B60B 2380/12	..	Ball bearings
B60B 2380/14	..	Roller bearings
B60B 2380/16	..	Needle bearings
B60B 2380/18	..	Plain or sleeve bearings
B60B 2380/20	..	Linear bearings
B60B 2380/22	..	Magnetic bearings
B60B 2380/30	.	Cage
B60B 2380/32	..	Without cage
B60B 2380/40	.	Modularity
B60B 2380/42	..	Single-piece
B60B 2380/44	..	Multi-piece
B60B 2380/50	.	Load bearing capacity
B60B 2380/60	.	Rolling elements
B60B 2380/62	..	Specific number
B60B 2380/64	..	Specific shape
B60B 2380/70	.	Arrangements
B60B 2380/71	..	Single track
B60B 2380/73	..	Double track
B60B 2380/75	..	Twin or multiple bearings having identical diameters
B60B 2380/76	..	Twin or multiple bearings having different diameters
B60B 2380/77	..	Diameters of bearings at opposite ends of hub
B60B 2380/772	...	Identical diameters of bearings at opposite ends of hub
B60B 2380/774	...	Different diameters of bearings at opposite ends of hub
B60B 2380/80	.	Shafts specially adapted to receive bearings
B60B 2380/82	..	Caulked to fix race
B60B 2380/90	.	Casings or housings specially adapted to receive bearings
B60B 2380/92	..	Caulked to fix race

B60B 2900/00**Purpose of invention**

B60B 2900/10	. Reduction of
B60B 2900/111	.. Weight
B60B 2900/112	.. Costs
B60B 2900/113	.. Production or maintenance time
B60B 2900/114	.. Size
B60B 2900/115	.. Complexity
B60B 2900/116	.. Product variety, e.g. by standardisation or use of adapters
B60B 2900/121	.. Resisting forces
B60B 2900/1212	... due to friction
B60B 2900/1214	... due to inertia
B60B 2900/1216	... due to air-drag
B60B 2900/131	.. Vibrations
B60B 2900/133	.. Noise
B60B 2900/141	.. Corrosions
B60B 2900/20	. Avoidance of
B60B 2900/211	.. Soiling
B60B 2900/212	.. Damage
B60B 2900/30	. Increase in
B60B 2900/311	.. Rigidity or stiffness
B60B 2900/313	.. Resiliency
B60B 2900/321	.. Lifetime
B60B 2900/323	.. Timespan between services
B60B 2900/325	.. Reliability
B60B 2900/331	.. Safety or security
B60B 2900/3312	... during regular use
B60B 2900/3313	... during maintenance
B60B 2900/3314	... during production or assembly
B60B 2900/3315	... by avoiding misuse
B60B 2900/3316	... by indicating wear, failure or loss
B60B 2900/3318	... by theft prevention
B60B 2900/351	.. versatility, e.g. usable for different purposes or different arrangements
B60B 2900/50	. Improvement of
B60B 2900/511	.. Sealing
B60B 2900/5112	... against dust or dirt
B60B 2900/5114	... against humidity or water
B60B 2900/5116	... against air-loss
B60B 2900/5118	... against oil-loss
B60B 2900/513	.. Cooling, e.g. of brakes
B60B 2900/521	.. Tire mounting or removal (devices therefor B60B 2340/50)
B60B 2900/523	.. Tire fixation on rim, e.g. fixing axially or circumferentially thereon

B60B 2900/531	..	User-friendliness
B60B 2900/541	..	Servicing
B60B 2900/551	..	Handling of obstacles or difficult terrains
B60B 2900/561	..	Lubrication
B60B 2900/571	..	Visibility
B60B 2900/572	..	Visual appearance
B60B 2900/70	.	Adaptation for
B60B 2900/711	..	High loads, e.g. by reinforcements
B60B 2900/721	..	Use under adverse external conditions
B60B 2900/731	..	Use in cases of damage, failure or emergency
B60B 2900/90	.	Providing or changing
B60B 2900/911	..	Eccentricity
B60B 2900/921	..	Conductivity
B60B 2900/931	..	Magnetic effects