

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

SHAPING

B21 MECHANICAL METAL-WORKING WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING METAL (casting, powder metallurgy [B22](#); shearing [B23D](#); working of metal by the action of a high concentration of electric current [B23H](#); soldering, welding, flame-cutting [B23K](#); other working of metal [B23P](#); punching sheet material in general [B26F](#); processes for changing of physical properties of metals [C21D](#), [C22F](#); electroforming [C25D 1/00](#))

(NOTES omitted)

B21K MAKING FORGED OR PRESSED METAL PRODUCTS, e.g. HORSE-SHOES, RIVETS, BOLTS OR WHEELS (making particular articles by working sheet metal without essentially removing material [B21D](#); processing wire [B21F](#); making pins, needles or nails [B21G](#); making particular articles by rolling [B21H](#); forging machines, pressing machines, hammering machines, in general [B21J](#); making chains [B21L](#); plating [B23K](#))

NOTE

This subclass includes only forging, pressing, or hammering operations which are specially adapted for use in the manufacture of particular objects and which, so far as the invention is concerned, are not combined with any different metal-working operation unless the latter is a subsidiary operation performed in the same machine.

Making particular articles by forging, pressing, or hammering; Equipment therefor

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| | | 1/38 | . . rims; tyres |
| | | 1/40 | . . hubs |
| | | 1/42 | . . pulleys, e.g. cable pulleys |
| | | 1/44 | . bolts, studs, or the like (making screw-thread B21K 1/56 ; making U-bolts B21K 1/74) |
| 1/00 | Making machine elements | 1/46 | . . with heads |
| 1/02 | . balls, rolls, or rollers, e.g. for bearings | 1/463 | . . . {with recessed heads} |
| 1/025 | . . {of bullets} | 1/466 | . . . {Heading machines with an oscillating die block} |
| 1/04 | . ball-races {or sliding bearing races} | 1/48 | . . . Machines working with hammers, e.g. beating in a radial direction, for forming heads |
| 1/05 | . cages for bearings | 1/50 | . . . Trimming or shearing formed heads, e.g. working with dies |
| 1/06 | . axles or shafts | 1/52 | . . double-ended, e.g. with heads on both ends (forming heads B21K 1/46) |
| 1/063 | . . {hollow (hollow racks B21K 1/768)} | 1/54 | . . with grooves or notches |
| 1/066 | . . {splined} | 1/56 | . screw-threaded elements |
| 1/08 | . . crankshafts | 1/58 | . rivets |
| 1/10 | . . of cylindrical form | 1/60 | . . hollow or semi-hollow rivets |
| 1/12 | . . of specially-shaped cross-section | 1/62 | . . special rivets, e.g. with electrical contacts |
| 1/14 | . fittings | 1/64 | . nuts (making screw-thread B21K 1/56) |
| 1/16 | . . parts of pipe or hose couplings | 1/66 | . . from strip bars |
| 1/18 | . pistons or plungers | 1/68 | . . from round or profiled bars |
| 1/185 | . . {with cooling channels} | 1/70 | . . of special shape, e.g. self-locking nuts, wing nuts |
| 1/20 | . valve parts | 1/701 | . . . {Weld nuts} |
| 1/205 | . . {rocker arms} | 1/702 | . . . {Clinch nuts} |
| 1/22 | . . poppet valves, e.g. for internal-combustion engines | 1/704 | . . . {Cap nuts} |
| 1/24 | . . valve bodies; valve seats | 1/705 | . . . {Castellated nuts} |
| 1/26 | . housings or supporting parts, e.g. axle housings, engine mountings | 1/707 | . . . {Self-locking nuts} |
| 1/28 | . wheels; discs | 1/708 | . . . {wing nuts} |
| 1/30 | . . with gear-teeth | | |
| 1/305 | . . . {helical} | | |
| 1/32 | . . discs, e.g. disc wheels | | |
| 1/34 | . . wheels with spokes | | |
| 1/36 | . . with blades | | |

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| 1/72 | . hooks, e.g. crane hooks, railway track spikes (making nails in general B21G) | 15/06 | . metal attachments for footwear, e.g. wearresisting plates |
| 1/74 | . forked members or members with two or more limbs, e.g. U-bolts, anchors | 17/00 | Making sport articles, e.g. skates |
| 1/76 | . elements not mentioned in one of the preceding groups | 19/00 | Making articles for agricultural machinery |
| 1/761 | . . {rings} | 19/02 | . plough blades; ploughshares |
| 1/762 | . . {Coupling members for conveying mechanical motion, e.g. universal joints} | 21/00 | Making hollow articles not covered by a single preceding sub-group (essentially from sheet-metal or uniform thin-walled tubes B21D , e.g. B21D 41/00 , B21D 51/00) |
| 1/763 | . . . {Inner elements of coupling members} | 21/02 | . Producing blanks in the shape of discs or cups as semifinished articles for making hollow articles, e.g. to be deep-drawn or extruded |
| 1/765 | . . . {Outer elements of coupling members} | 21/04 | . Shaping thin-walled hollow articles, e.g. cartridges |
| 1/766 | . . {Connecting rods} | 21/06 | . Shaping thick-walled hollow articles, e.g. projectiles |
| 1/767 | . . {Toothed racks} | 21/08 | . Shaping hollow articles with different cross-section in longitudinal direction, e.g. nozzles, spark-plugs |
| 1/768 | . . . {hollow} | 21/10 | . . cone-shaped or bell-shaped articles, e.g. insulator caps |
| 3/00 | Making engine or like machine parts not covered by sub-groups of B21K 1/00; Making propellers or the like | 21/12 | . Shaping end portions of hollow articles |
| 3/02 | . cylinder heads | 21/14 | . . closed or substantially-closed ends, e.g. cartridge bottoms |
| 3/04 | . blades, e.g. for turbines; Upsetting of blade roots | 21/16 | . Remodelling hollow bodies with respect to the shape of the cross-section (remodelling end portions only B21K 21/12) |
| 5/00 | Making tools or tool parts, e.g. pliers | 23/00 | Making other articles |
| 5/02 | . drilling-tools or other for making or working on holes | 23/02 | . members of endless tracks, e.g. track guides, shoes (making from sheet-metal B21D) |
| 5/04 | . . twisting-tools, e.g. drills, reamers | 23/04 | . flanged articles (B21K 1/28 takes precedence; flanging tubes B21D) |
| 5/06 | . . Dressing, e.g. sharpening rock drills | 25/00 | Uniting components to form integral members, e.g. turbine wheels and shafts, caulks with inserts, with or without shaping of the components (uniting by interference- or press-fitting B23P 11/02 , B21K 19/02) |
| 5/08 | . . drifting tools | 25/005 | . { by friction heat forging (B21J 15/027 takes precedence; friction heat forging per se B21J 5/063)} |
| 5/10 | . . Forming drill-bit shanks | Accessories; Auxiliary devices | |
| 5/12 | . other cutting tools (cutlery wares B21K 11/00) | 27/00 | Handling devices, e.g. for feeding, aligning, discharging, Cutting-off means; Arrangement thereof |
| 5/14 | . hand hammers | 27/02 | . Feeding devices for rods, wire, or strips |
| 5/16 | . tools for turning nuts | 27/04 | . . allowing successive working steps |
| 5/18 | . handles or parts therefor | 27/06 | . Cutting-off means; Arrangements thereof |
| 5/20 | . Making working faces of dies, either recessed or outstanding | 29/00 | Arrangements for heating or cooling during processing (for preparing metal stock to be forged or pressed B21J 1/06 ; heating equipment per se, see the appropriate classes, e.g. H05B) |
| 7/00 | Making railway appurtenances; Making vehicle parts | 31/00 | Control devices specially adapted for positioning tool carriers |
| 7/02 | . parts for permanent way (spikes B21K 1/72) | | |
| 7/04 | . . switch tongues | | |
| 7/06 | . . sleepers | | |
| 7/08 | . . base plates for rails, e.g. chairs | | |
| 7/10 | . . rails joints | | |
| 7/12 | . parts for locomotives or vehicles, e.g. frames, underframes | | |
| 7/14 | . . brake rigging or brake parts | | |
| 9/00 | Reconditioning railroad accessories, e.g. rails | | |
| 11/00 | Making cutlery wares; Making garden tools or the like | | |
| 11/02 | . knives | | |
| 11/04 | . spoons; table forks | | |
| 11/06 | . scissors | | |
| 11/08 | . sickles; scythes | | |
| 11/10 | . axes; picks | | |
| 11/12 | . spades; shovels | | |
| 11/14 | . rakes; garden forks | | |
| 13/00 | Making locksmiths' goods, e.g. handles for cases | | |
| 13/02 | . hinges | | |
| 15/00 | Making blacksmiths' goods | | |
| 15/02 | . horseshoes; appurtenances therefor | | |
| 15/04 | . . caulks | | |