

# CPC COOPERATIVE PATENT CLASSIFICATION

## B PERFORMING OPERATIONS; TRANSPORTING (NOTES omitted)

### SHAPING

#### B21 MECHANICAL METAL-WORKING WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING METAL (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.

##### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

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

###### 1/00 Making machine elements

- 1/02 . balls, rolls, or rollers, e.g. for bearings
- 1/025 . . {of bullets}
- 1/04 . ball-races {or sliding bearing races}
- 1/05 . cages for bearings
- 1/06 . axles or shafts
- 1/063 . . {hollow (hollow racks [B21K 1/768](#))}
- 1/066 . . {splined}
- 1/08 . . crankshafts
- 1/10 . . of cylindrical form
- 1/12 . . of specially-shaped cross-section
- 1/14 . fittings
- 1/16 . . parts of pipe or hose couplings
- 1/18 . pistons or plungers
- 1/185 . . {with cooling channels}
- 1/20 . valve parts
- 1/205 . . {rocker arms}
- 1/22 . . poppet valves, e.g. for internal-combustion engines
- 1/24 . . valve bodies; valve seats
- 1/26 . housings or supporting parts, e.g. axle housings, engine mountings
- 1/28 . wheels; discs
- 1/30 . . with gear-teeth
- 1/305 . . . {helical}
- 1/32 . . discs, e.g. disc wheels
- 1/34 . . wheels with spokes
- 1/36 . . with blades
- 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](#))
- 1/46 . . with heads
- 1/463 . . . {with recessed heads}
- 1/466 . . . {Heading machines with an oscillating die block}
- 1/48 . . . Machines working with hammers, e.g. beating in a radial direction, for forming heads
- 1/50 . . . Trimming or shearing formed heads, e.g. working with dies
- 1/52 . . double-ended, e.g. with heads on both ends (forming heads [B21K 1/46](#))
- 1/54 . . with grooves or notches
- 1/56 . screw-threaded elements
- 1/58 . rivets
- 1/60 . . hollow or semi-hollow rivets
- 1/62 . . special rivets, e.g. with electrical contacts
- 1/64 . nuts (making screw-thread [B21K 1/56](#))
- 1/66 . . from strip bars
- 1/68 . . from round or profiled bars
- 1/70 . . of special shape, e.g. self-locking nuts, wing nuts
- 1/701 . . . {Weld nuts}
- 1/702 . . . {Clinch nuts}
- 1/704 . . . {Cap nuts}
- 1/705 . . . {Castellated nuts}
- 1/707 . . . {Self-locking nuts}
- 1/708 . . . {wing nuts}
- 1/72 . hooks, e.g. crane hooks, railway track spikes (making nails in general [B21G](#))

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