

# 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.

#### 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	<b>13/00</b>	<b>Making locksmiths' goods, e.g. handles for cases</b>
1/701	. . . {Weld nuts}	13/02	. hinges
1/702	. . . {Clinch nuts}	<b>15/00</b>	<b>Making blacksmiths' goods</b>
1/704	. . . {Cap nuts}	15/02	. horseshoes; appurtenances therefor
1/705	. . . {Castellated nuts}	15/04	. . caulks
1/707	. . . {Self-locking nuts}	15/06	. metal attachments for footwear, e.g. wearresisting plates
1/708	. . . {wing nuts}	<b>17/00</b>	<b>Making sport articles, e.g. skates</b>
1/72	. hooks, e.g. crane hooks, railway track spikes (making nails in general <a href="#">B21G</a> )	<b>19/00</b>	<b>Making articles for agricultural machinery</b>
1/74	. forked members or members with two or more limbs, e.g. U-bolts, anchors	19/02	. plough blades; ploughshares
1/76	. elements not mentioned in one of the preceding groups	<b>21/00</b>	<b>Making hollow articles not covered by a single preceding sub-group (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>)</b>
1/761	. . {rings}	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
1/762	. . {Coupling members for conveying mechanical motion, e.g. universal joints}	21/04	. Shaping thin-walled hollow articles, e.g. cartridges
1/763	. . . {Inner elements of coupling members}	21/06	. Shaping thick-walled hollow articles, e.g. projectiles
1/765	. . . {Outer elements of coupling members}	21/08	. Shaping hollow articles with different cross-section in longitudinal direction, e.g. nozzles, spark-plugs
1/766	. . {Connecting rods}	21/10	. . cone-shaped or bell-shaped articles, e.g. insulator caps
1/767	. . {Toothed racks}	21/12	. Shaping end portions of hollow articles
1/768	. . . {hollow}	21/14	. . closed or substantially-closed ends, e.g. cartridge bottoms
<b>3/00</b>	<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>	21/16	. Remodelling hollow bodies with respect to the shape of the cross-section ( <a href="#">remodelling end portions only <a href="#">B21K 21/12</a></a> )
3/02	. cylinder heads	<b>23/00</b>	<b>Making other articles</b>
3/04	. blades, e.g. for turbines; Upsetting of blade roots	23/02	. members of endless tracks, e.g. track guides, shoes (making from sheet-metal <a href="#">B21D</a> )
<b>5/00</b>	<b>Making tools or tool parts, e.g. pliers</b>	23/04	. flanged articles ( <a href="#">B21K 1/28</a> takes precedence; <a href="#">flanging tubes <a href="#">B21D</a></a> )
5/02	. drilling-tools or other for making or working on holes	<b>25/00</b>	<b>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 <a href="#">B23P 11/02</a>, <a href="#">B21K 19/02</a>)</b>
5/04	. . twisting-tools, e.g. drills, reamers	25/005	. {by friction heat forging ( <a href="#">B21J 15/027</a> takes precedence; friction heat forging <a href="#">per se <a href="#">B21J 5/063</a></a> )}
5/06	. . Dressing, e.g. sharpening rock drills	<b>Accessories; Auxiliary devices</b>	
5/08	. . drifting tools	<b>27/00</b>	<b>Handling devices, e.g. for feeding, aligning, discharging, Cutting-off means; Arrangement thereof</b>
5/10	. . Forming drill-bit shanks	27/02	. Feeding devices for rods, wire, or strips
5/12	. other cutting tools ( <a href="#">cutlery wares <a href="#">B21K 11/00</a></a> )	27/04	. . allowing successive working steps
5/14	. hand hammers	27/06	. Cutting-off means; Arrangements thereof
5/16	. tools for turning nuts	<b>29/00</b>	<b>Arrangements for heating or cooling during processing (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>)</b>
5/18	. handles or parts therefor	<b>31/00</b>	<b>Control devices specially adapted for positioning tool carriers</b>
5/20	. Making working faces of dies, either recessed or outstanding		
<b>7/00</b>	<b>Making railway appurtenances; Making vehicle parts</b>		
7/02	. parts for permanent way ( <a href="#">spikes <a href="#">B21K 1/72</a></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		
<b>9/00</b>	<b>Reconditioning railroad accessories, e.g. rails</b>		
<b>11/00</b>	<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		