

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

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)	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		