

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

1/70	. . of special shape, e.g. self-locking nuts, wing nuts	13/00	Making locksmiths' goods, e.g. handles for cases
1/701	. . . {Weld nuts}	13/02	. hinges
1/702	. . . {Clinch nuts}	15/00	Making blacksmiths' goods
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}	17/00	Making sport articles, e.g. skates
1/72	. hooks, e.g. crane hooks, railway track spikes (making nails in general B21G)	19/00	Making articles for agricultural machinery
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	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)
1/761	. . {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
3/00	Making engine or like machine parts not covered by sub-groups of B21K 1/00; Making propellers or the like	21/16	. Remodelling hollow bodies with respect to the shape of the cross-section (remodelling end portions only B21K 21/12)
3/02	. cylinder heads	23/00	Making other articles
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 B21D)
5/00	Making tools or tool parts, e.g. pliers	23/04	. flanged articles (B21K 1/28 takes precedence; flanging tubes B21D)
5/02	. drilling-tools or other for making or working on holes	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)
5/04	. . twisting-tools, e.g. drills, reamers	25/005	. { by friction heat forging (B21J 15/027 takes precedence; friction heat forging per se B21J 5/063) }
5/06	. . Dressing, e.g. sharpening rock drills	Accessories; Auxiliary devices	
5/08	. . drifting tools	27/00	Handling devices, e.g. for feeding, aligning, discharging, Cutting-off means; Arrangement thereof
5/10	. . Forming drill-bit shanks	27/02	. Feeding devices for rods, wire, or strips
5/12	. other cutting tools (cutlery wares B21K 11/00)	27/04	. . allowing successive working steps
5/14	. hand hammers	27/06	. Cutting-off means; Arrangements thereof
5/16	. tools for turning nuts	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)
5/18	. handles or parts therefor	31/00	Control devices specially adapted for positioning tool carriers
5/20	. Making working faces of dies, either recessed or outstanding		
7/00	Making railway appurtenances; Making vehicle parts		
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		