

CPC**COOPERATIVE PATENT CLASSIFICATION****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 [B21E](#); 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**B21K 1/00****Making machine elements**

- B21K 1/02 . balls, rolls, or rollers, e.g. for bearings
- B21K 1/025 . . {of bullets}
- B21K 1/04 . ball-races {or sliding bearing races}
- B21K 1/05 . cages for bearings
- B21K 1/06 . axles or shafts
- B21K 1/063 . . {hollow (hollow racks [B21K 1/768](#))}
- B21K 1/066 . . {splined}
- B21K 1/08 . . crankshafts
- B21K 1/10 . . of cylindrical form
- B21K 1/12 . . of specially-shaped cross-section
- B21K 1/14 . fittings
- B21K 1/16 . . parts of pipe or hose couplings
- B21K 1/18 . pistons or plungers
- B21K 1/185 . . {with cooling channels}
- B21K 1/20 . valve parts
- B21K 1/205 . . {rocker arms}
- B21K 1/22 . . poppet valves, e.g. for internal-combustion engines
- B21K 1/24 . . valve bodies; valve seats
- B21K 1/26 . housings or supporting parts, e.g. axle housings, engine mountings
- B21K 1/28 . wheels; discs
- B21K 1/30 . . with gear-teeth
- B21K 1/305 . . . {helical}
- B21K 1/32 . . discs, e.g. disc wheels

- B21K 1/34
 - . . wheels with spokes
- B21K 1/36
 - . . with blades
- B21K 1/38
 - . . rims; tyres
- B21K 1/40
 - . . hubs
- B21K 1/42
 - . . pulleys, e.g. cable pulleys
- B21K 1/44
 - . bolts, studs, or the like ([making screw-thread B21K 1/56](#); [making U-bolts B21K 1/74](#))
- B21K 1/46
 - . . with heads
- B21K 1/463
 - . . . {with recessed heads}
- B21K 1/466
 - . . . {Heading machines with an oscillating die block}
- B21K 1/48
 - . . . Machines working with hammers, e.g. beating in a radial direction, for forming heads
- B21K 1/50
 - . . . Trimming or shearing formed heads, e.g. working with dies
- B21K 1/52
 - . . double-ended, e.g. with heads on both ends ([forming heads B21K 1/46](#))
- B21K 1/54
 - . . with grooves or notches
- B21K 1/56
 - . screw-threaded elements
- B21K 1/58
 - . rivets
- B21K 1/60
 - . . hollow or semi-hollow rivets
- B21K 1/62
 - . . special rivets, e.g. with electrical contacts
- B21K 1/64
 - . nuts ([making screw-thread B21K 1/56](#))
- B21K 1/66
 - . . form strip bars
- B21K 1/68
 - . . from round or profiled bars
- B21K 1/70
 - . . of special shape, e.g. self-locking nuts, wing nuts
- B21K 1/701
 - . . . {Weld nuts}
- B21K 1/702
 - . . . {Clinch nuts}
- B21K 1/704
 - . . . {Cap nuts}
- B21K 1/705
 - . . . {Castellated nuts}
- B21K 1/707
 - . . . {Self-locking nuts}
- B21K 1/708
 - . . . {wing nuts}
- B21K 1/72
 - . hooks, e.g. crane hooks, railway track spikes ([making nails in general B21G](#))
- B21K 1/74
 - . forked members or members with two or more limbs, e.g. U-bolts, anchors
- B21K 1/76
 - . elements not mentioned in one of the preceding groups
- B21K 1/761
 - . . {rings}
- B21K 1/762
 - . . {Coupling members for conveying mechanical motion, e.g. universal joints}
- B21K 1/763
 - . . . {Inner elements of coupling members}
- B21K 1/765
 - . . . {Outer elements of coupling members}
- B21K 1/766
 - . . {Connecting rods}
- B21K 1/767
 - . . {Toothed racks}
- B21K 1/768
 - . . . {hollow}

B21K 3/00 **Making engine or like machine parts not covered by sub-groups of [B21K 1/00](#); Making propellers or the like**

- B21K 3/02 . cylinder heads
- B21K 3/04 . blades, e.g. for turbines; Upsetting of blade roots

B21K 5/00 **Making tools or tool parts, e.g. pliers**

- B21K 5/02 . drilling-tools or other for making or working on holes
- B21K 5/04 . . twisting-tools, e.g. drills, reamers
- B21K 5/06 . . Dressing, e.g. sharpening rock drills
- B21K 5/08 . . drifting tools
- B21K 5/10 . . Forming drill-bit shanks
- B21K 5/12 . other cutting tools ([cutlery wares B21K 11/00](#))
- B21K 5/14 . hand hammers
- B21K 5/16 . tools for turning nuts
- B21K 5/18 . handles or parts therefor
- B21K 5/20 . Making working faces of dies, either recessed or outstanding

B21K 7/00 **Making railway appurtenances; Making vehicle parts**

- B21K 7/02 . parts for permanent way ([spikes B21K 1/72](#))
- B21K 7/04 . . switch tongues
- B21K 7/06 . . sleepers
- B21K 7/08 . . base plates for rails, e.g. chairs
- B21K 7/10 . . rails joints
- B21K 7/12 . parts for locomotives or vehicles, e.g. frames, underframes
- B21K 7/14 . . brake rigging or brake parts

B21K 9/00 **Reconditioning railroad accessories, e.g. rails**

B21K 11/00 **Making cutlery wares; Making garden tools or the like**

- B21K 11/02 . knives
- B21K 11/04 . spoons; table forks
- B21K 11/06 . scissors
- B21K 11/08 . sickles; scythes
- B21K 11/10 . axes; picks
- B21K 11/12 . spades; shovels
- B21K 11/14 . rakes; garden forks

B21K 13/00 **Making locksmiths' goods, e.g. handles for cases**

- B21K 13/02 . hinges

B21K 15/00 **Making blacksmiths' goods**

- B21K 15/02 . horseshoes; appurtenances therefor

B21K 15/04

- . . caulks

B21K 15/06

- . metal attachments for footwear, e.g. wearresisting plates

B21K 17/00

Making sport articles, e.g. skates

B21K 19/00

Making articles for agricultural machinery

B21K 19/02

- . plough blades; ploughshares

B21K 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](#))

B21K 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

B21K 21/04

- . Shaping thin-walled hollow articles, e.g. cartridges

B21K 21/06

- . Shaping thick-walled hollow articles, e.g. projectiles

B21K 21/08

- . Shaping hollow articles with different cross-section in longitudinal direction, e.g. nozzles, spark-plugs

B21K 21/10

- . . cone-shaped or bell-shaped articles, e.g. insulator caps

B21K 21/12

- . Shaping end portions of hollow articles

B21K 21/14

- . . closed or substantially-closed ends, e.g. cartridge bottoms

B21K 21/16

- . Remodelling hollow bodies with respect to the shape of the cross-section
(remodelling end portions only [B21K 21/12](#))

B21K 23/00

Making other articles

B21K 23/02

- . members of endless tracks, e.g. track guides, shoes ([making from sheet-metal B21D](#))

B21K 23/04

- . flanged articles ([B21K 1/28](#) takes precedence; flanging tubes [B21D](#))

B21K 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](#))

B21K 25/005

- . {[by friction heat forging \(B21J 15/027](#) takes precedence; friction heat forging per se [B21J 5/063](#))}

Accessories; Auxiliary devices

B21K 27/00

Handling devices, e.g. for feeding, aligning, discharging, Cutting-off means; Arrangement thereof

B21K 27/02

- . Feeding devices for rods, wire, or strips

B21K 27/04

- . . allowing successive working steps

B21K 27/06

- . Cutting-off means; Arrangements thereof

B21K 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](#))

B21K 31/00

Control devices specially adapted for positioning tool carriers