

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

SHAPING

B25 HAND TOOLS; PORTABLE POWER-DRIVEN TOOLS; MANIPULATORS

(NOTE omitted)

B25D PERCUSSIVE TOOLS {(percussive machines for forging [B21J](#); hand-held drilling machines, in general [B23B 45/00](#), for wood [B27C 3/08](#); drilling machines, used for mining or quarrying, with reciprocating tool which is turned intermittently when out of contact with the working face [E21B 1/00](#))}

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

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|----------------------------|------------|------------------------------|
| B25D 13/00 | covered by | B25D 11/064 |
| B25D 15/00 | covered by | B25D 11/066 |
| B25D 15/02 | covered by | B25D 11/068 |
| B25D 17/10 | covered by | B25D 17/00 |
| B25D 17/14 | covered by | B23Q 11/0042 |
| B25D 17/16 | covered by | B23Q 11/0042 |
| B25D 17/18 | covered by | B23Q 11/0042 |

2. 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.

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| 1/00 | Hand hammers {(handles therefor B25G 1/00 ; attachment of handles to the hammer head B25G 3/00); Hammer heads of special shape or materials | 9/005 | • {Devices for testing the tool's performance} |
| | | 9/02 | • of the tool-carrier piston type, i.e. in which the tool is connected to an impulse member |
| 1/005 | • {with nail feeding devices} | 9/04 | • of the hammer piston type, i.e. in which the tool bit or anvil is hit by an impulse member |
| 1/02 | • Inserts or attachments forming the striking part of hammer heads (B25D 1/08 - B25D 1/14 take precedence) | 9/06 | • Means for driving the impulse member |
| 1/04 | • with provision for withdrawing or holding nails or spikes | 9/08 | • • comprising a built-in air compressor {, i.e. the tool being driven by air pressure} |
| 1/045 | • • {with fulcrum member for extracting long nails} | 9/10 | • • comprising a built-in internal-combustion engine |
| 1/06 | • • Magnetic holders | 9/11 | • • operated by combustion pressure generated by detonation of a cartridge |
| 1/08 | • having deformable heads (B25D 1/12 takes precedence) | 9/12 | • • comprising a built-in liquid motor {, i.e. the tool being driven by hydraulic pressure} |
| 1/10 | • having work protector surrounding faces {(B25D 1/12 takes precedence)} | 9/125 | • • • {driven directly by liquid pressure working with pulses} |
| 1/12 | • having shock-absorbing means | 9/14 | • Control devices for the reciprocating piston |
| 1/14 | • having plural striking faces | 9/145 | • • {for hydraulically actuated hammers having an accumulator} |
| 1/16 | • having the impacting head in the form of a sleeve slidable on a shaft, e.g. hammers for driving a valve or draw-off tube into a barrel | 9/16 | • • Valve arrangements therefor {(B25D 9/145 takes precedence)} |
| 3/00 | Hand chisels | 9/18 | • • • involving a piston-type slide valve |
| 5/00 | Centre punches | 9/20 | • • • involving a tubular-type slide valve |
| 5/02 | • Automatic centre punches | 9/22 | • • • involving a rotary-type slide valve |
| 7/00 | Picks {(combined with other tools B25F)} | 9/24 | • • • involving a rocking-plate type valve |
| 9/00 | Portable percussive tools with fluid-pressure drive, {i.e. driven directly by fluids}, e.g. having several percussive tool bits operated simultaneously {(portable non-percussive drilling tools driven by fluid pressure or pneumatic power B23B 45/04)} | 9/26 | • • Control devices for adjusting the stroke of the piston or the force or frequency of impact thereof {(control systems adapted for earth drilling E21B 44/00)} |
| | | 9/265 | • • • {with arrangements for automatic stopping when the tool is lifted from the working face or suffers excessive bore resistance} |

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| 11/00 | Portable percussive tools with electromotor {or other motor} drive | 17/11 | • Arrangements of noise-damping means {(noise damping in general G10K 11/16)} |
| 11/005 | • {Arrangements for adjusting the stroke of the impulse member or for stopping the impact action when the tool is lifted from the working surface} | 17/12 | • • of exhaust silencers {(exhaust silencers in general F01N)} |
| 11/02 | • in which the tool is connected to an impulse member | 17/20 | • Devices for cleaning or cooling tool or work |
| 11/04 | • in which the tool bit or anvil is hit by an impulse member | 17/22 | • • using pressure fluid |
| 11/06 | • Means for driving the impulse member | 17/24 | • Damping the reaction force {(resiliently mounted handles B25D 17/043 ; dampers in connections of hammers to backhoes E02F 3/966)} |
| 11/062 | • • {comprising a wobbling mechanism, swash plate} | 17/245 | • • {using a fluid} |
| 11/064 | • • {using an electromagnetic drive} | 17/26 | • Lubricating {(in general F16N)} |
| 11/066 | • • {using centrifugal or rotary impact elements} | 17/265 | • • {the lubricant being entrained to the machine parts by the driving fluid} |
| 11/068 | • • • {in which the tool bit or anvil is hit by a rotary impulse member} | 17/28 | • Supports; Devices for holding power-driven percussive tools in working position {(connections of hammers to backhoes E02F 3/966)} |
| 11/08 | • • comprising a worm mechanism {, i.e. a continuous guide surface with steadily rising and falling incline} | 17/30 | • • Pillars and struts |
| 11/10 | • • comprising a cam mechanism | 17/32 | • • Trolleys |
| 11/102 | • • • {the rotating axis of the cam member being coaxial with the axis of the tool} | 2209/00 | Details of portable percussive tools with fluid-pressure drive, i.e. driven directly by fluids, e.g. having several percussive tool bits operated simultaneously |
| 11/104 | • • • • {with rollers or balls as cam surface} | 2209/002 | • Pressure accumulators |
| 11/106 | • • • • {cam member and cam follower having the same shape (B25D 11/104 takes precedence)} | 2209/005 | • having a tubular-slide valve, which is coaxial with the piston |
| 11/108 | • • • {the rotation axis of the cam member being parallel but offset to the tool axis} | 2209/007 | • having a tubular-slide valve, which is not coaxial with the piston |
| 11/12 | • • comprising a crank mechanism | 2211/00 | Details of portable percussive tools with electromotor or other motor drive |
| 11/125 | • • • {with a fluid cushion between the crank drive and the striking body} | 2211/003 | • Crossed drill and motor spindles |
| 16/00 | Portable percussive machines with superimposed rotation {, the rotational movement of the output shaft of a motor being modified to generate axial impacts on the tool bit (combined percussion and rotary drilling adapted for earth drilling E21B 6/00)} | 2211/006 | • Parallel drill and motor spindles |
| 16/003 | • {Clutches specially adapted therefor} | 2211/06 | • Means for driving the impulse member |
| 16/006 | • {Mode changers; Mechanisms connected thereto} | 2211/061 | • • Swash-plate actuated impulse-driving mechanisms |
| 17/00 | Details of, or accessories for, portable power-driven percussive tools {(details or components, e.g. casings, bodies, of portable power-driven tools not particularly related to the operation performed B25F 5/00)} | 2211/062 | • • Cam-actuated impulse-driving mechanisms |
| 17/005 | • {Attachments or adapters placed between tool and hammer} | 2211/064 | • • • Axial cams, e.g. two camming surfaces coaxial with drill spindle |
| 17/02 | • Percussive tool bits {(drill bits for earth drilling E21B 10/00)} | 2211/065 | • • • with ball-shaped or roll-shaped followers |
| 17/04 | • Handles; Handle mountings | 2211/067 | • • • wherein the cams are involved in a progressive mutual engagement with increasing pressure of the tool to the working surface |
| 17/043 | • • {Handles resiliently mounted relative to the hammer housing (B25D 17/046 takes precedence)} | 2211/068 | • • Crank-actuated impulse-driving mechanisms |
| 17/046 | • • {Sleeve-like handles surrounding the tool bit} | 2216/00 | Details of portable percussive machines with superimposed rotation, the rotational movement of the output shaft of a motor being modified to generate axial impacts on the tool bit |
| 17/06 | • Hammer pistons; Anvils {; Guide-sleeves for pistons} | 2216/0007 | • Details of percussion or rotation modes |
| 17/08 | • Means for retaining and guiding the tool bit, e.g. chucks {allowing axial oscillation of the tool bit (B25D 17/005 takes precedence)} | 2216/0015 | • • Tools having a percussion-only mode |
| 17/082 | • • {Retainers consisting of a swinging yoke or latching means (B25D 17/086 takes precedence)} | 2216/0023 | • • Tools having a percussion-and-rotation mode |
| 17/084 | • • {Rotating chucks or sockets} | 2216/003 | • • • comprising de-phasing of percussion and rotation |
| 17/086 | • • • {with a swinging yoke or latching means} | 2216/0038 | • • Tools having a rotation-only mode |
| 17/088 | • • • {with radial movable locking elements co-operating with bit shafts specially adapted therefor} | 2216/0046 | • • Preventing rotation |
| | | 2216/0053 | • • • and percussion |
| | | 2216/0061 | • • • preventing reverse rotation |
| | | 2216/0069 | • Locking means |
| | | 2216/0076 | • Angular position of the chisel modifiable by hand |
| | | 2216/0084 | • Mode-changing mechanisms |
| | | 2216/0092 | • • Tool comprising two or more collaborating mode-changing mechanisms |

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| 2217/00 | Details of, or accessories for, portable power-driven percussive tools | 2250/021 | . . Stroke length |
| 2217/0003 | . Details of shafts of percussive tool bits | 2250/025 | . Auxiliary percussive devices |
| 2217/0007 | . . Shaft ends | 2250/035 | . Bleeding holes, e.g. in piston guide-sleeves |
| 2217/0011 | . Details of anvils, guide-sleeves or pistons | 2250/041 | . Cable management or routing of electrical cables and wires |
| 2217/0015 | . . Anvils | 2250/045 | . Cams used in percussive tools |
| 2217/0019 | . . Guide-sleeves | 2250/051 | . Couplings, e.g. special connections between components |
| 2217/0023 | . . Pistons | 2250/055 | . Depth properties, e.g. tools having depth indicator or depth control |
| 2217/0026 | . . . Double pistons | 2250/065 | . Details regarding assembling of the tool |
| 2217/003 | . Details relating to chucks with radially movable locking elements | 2250/071 | . . Assembled by brazing |
| 2217/0034 | . . Details of shank profiles | 2250/075 | . . Assembled by welding |
| 2217/0038 | . . Locking members of special shape | 2250/085 | . Elastic behaviour of tool components |
| 2217/0042 | . . . Ball-shaped locking members | 2250/091 | . Electrically-powered tool components |
| 2217/0046 | . . . Conically-shaped locking members | 2250/095 | . . Electric motors |
| 2217/0049 | . . . Roll-shaped locking members | 2250/101 | . Emitting warning signals, e.g. visual or sound |
| 2217/0053 | . . Devices for securing the tool retainer to the machine part | 2250/105 | . Exchangeable tool components |
| 2217/0057 | . Details related to cleaning or cooling the tool or workpiece | 2250/111 | . . Bits, i.e. inserts or attachments for hammer, chisel, pick |
| 2217/0061 | . . related to cooling | 2250/115 | . Foldable parts of the tool, e.g. in order to reduce its size |
| 2217/0065 | . . Use of dust covers | 2250/121 | . Housing details |
| 2217/0069 | . . . Protecting chucks against entering of chip dust | 2250/125 | . Hydraulic tool components |
| 2217/0073 | . Arrangements for damping of the reaction force | 2250/131 | . Idling mode of tools |
| 2217/0076 | . . by use of counterweights | 2250/141 | . Magnetic parts used in percussive tools |
| 2217/008 | . . . being electronically-driven | 2250/145 | . . Electro-magnetic parts |
| 2217/0084 | . . . being fluid-driven | 2250/155 | . Marks, e.g. identification marks, indication scales, visualising means |
| 2217/0088 | . . . being mechanically-driven | 2250/161 | . . Indication scales |
| 2217/0092 | . . . being spring-mounted | 2250/165 | . Overload clutches, torque limiters |
| 2217/0096 | . Details of lubrication means | 2250/171 | . Percussive pulling action of tools for extraction of elements |
| 2222/00 | Materials of the tool or the workpiece | 2250/175 | . Phase shift of tool components |
| 2222/03 | . Ceramics | 2250/181 | . Pneumatic tool components |
| 2222/06 | . Composite materials | 2250/185 | . Pressure equalising means between sealed chambers |
| 2222/09 | . Diamond | 2250/191 | . Ram catchers for stopping the ram when entering idling mode |
| 2222/12 | . Glass | 2250/195 | . Regulation means |
| 2222/15 | . Ice | 2250/201 | . . for speed, e.g. drilling or percussion speed |
| 2222/18 | . Leather | 2250/205 | . . for torque |
| 2222/21 | . Metals | 2250/211 | . Cross-sections of the tool |
| 2222/24 | . . Aluminium | 2250/215 | . . Narrowing cross-sections |
| 2222/27 | . . Brass | 2250/221 | . Sensors |
| 2222/31 | . . Bronze | 2250/225 | . Serrations |
| 2222/33 | . . Copper | 2250/231 | . Sleeve details |
| 2222/36 | . . Lead | 2250/235 | . . Sleeve couplings |
| 2222/39 | . . Mercury | 2250/241 | . Sliding impact heads, i.e. impact heads sliding inside a rod or around a shaft |
| 2222/42 | . . Steel | 2250/245 | . Spatial arrangement of components of the tool relative to each other |
| 2222/45 | . . Titanium | 2250/255 | . Switches |
| 2222/48 | . . Zinc | 2250/261 | . . Means for locking an operative switch on |
| 2222/51 | . . Hard metals, e.g. tungsten carbide | 2250/265 | . . Trigger mechanism in handle |
| 2222/54 | . Plastics | 2250/271 | . Tools for breaking windows |
| 2222/57 | . . Elastomers, e.g. rubber | 2250/275 | . Tools having at least two similar components |
| 2222/61 | . . Polyamides, e.g. Nylon | 2250/281 | . . Double motors |
| 2222/66 | . . Polypropylene | 2250/285 | . . Tools having three or more similar components, e.g. three motors |
| 2222/69 | . . Foamed polymers, e.g. polyurethane foam | 2250/291 | . . . Tools having three or more parallel bits, e.g. needle guns |
| 2222/72 | . Stone, rock or concrete | | |
| 2222/75 | . Wood | | |
| 2250/00 | General details of portable percussive tools; Components used in portable percussive tools | | |
| 2250/005 | . Adjustable tool components; Adjustable parameters | | |
| 2250/011 | . . Bits, e.g. adjusting bits by setting in the desired angular position | | |
| 2250/015 | . . Heads | | |

B25D

- 2250/295 . Tools used in automobiles or automobile manufacture
- 2250/301 . Torque transmission means
- 2250/305 . Twisted part of a chisel or percussive non-drilling tool bit
- 2250/311 . Ultrasonic percussion means
- 2250/315 . Use of adhesives
- 2250/321 . Use of balls
- 2250/325 . Use of bayonets
- 2250/331 . Use of bearings
- 2250/335 . . Supports therefor
- 2250/341 . Use of external compressors
- 2250/345 . Use of o-rings
- 2250/351 . Use of pins
- 2250/355 . Use of rolls
- 2250/361 . Use of screws or threaded connections
- 2250/365 . Use of seals
- 2250/371 . Use of springs
- 2250/375 . . Fluid springs
- 2250/381 . . Leaf springs
- 2250/385 . Use of thrust-washers, e.g. for limiting the course of the impulse member
- 2250/391 . Use of weights; Weight properties of the tool