

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

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

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

- 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.

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}

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

2217/00 Details of, or accessories for, portable power-driven percussive tools

- 2217/0003 . Details of shafts of percussive tool bits
- 2217/0007 . . Shaft ends
- 2217/0011 . Details of anvils, guide-sleeves or pistons
- 2217/0015 . . Anvils
- 2217/0019 . . Guide-sleeves
- 2217/0023 . . Pistons
- 2217/0026 . . . Double pistons
- 2217/003 . Details relating to chucks with radially movable locking elements
- 2217/0034 . . Details of shank profiles
- 2217/0038 . . Locking members of special shape
- 2217/0042 . . . Ball-shaped locking members
- 2217/0046 . . . Conically-shaped locking members
- 2217/0049 . . . Roll-shaped locking members
- 2217/0053 . . Devices for securing the tool retainer to the machine part
- 2217/0057 . Details related to cleaning or cooling the tool or workpiece
- 2217/0061 . . related to cooling
- 2217/0065 . . Use of dust covers
- 2217/0069 . . . Protecting chucks against entering of chip dust
- 2217/0073 . Arrangements for damping of the reaction force
- 2217/0076 . . by use of counterweights
- 2217/008 . . . being electronically-driven
- 2217/0084 . . . being fluid-driven
- 2217/0088 . . . being mechanically-driven
- 2217/0092 . . . being spring-mounted
- 2217/0096 . Details of lubrication means

2222/00 Materials of the tool or the workpiece

- 2222/03 . Ceramics
- 2222/06 . Composite materials
- 2222/09 . Diamond
- 2222/12 . Glass
- 2222/15 . Ice
- 2222/18 . Leather
- 2222/21 . Metals
- 2222/24 . . Aluminium
- 2222/27 . . Brass
- 2222/31 . . Bronze
- 2222/33 . . Copper
- 2222/36 . . Lead
- 2222/39 . . Mercury
- 2222/42 . . Steel
- 2222/45 . . Titanium
- 2222/48 . . Zinc
- 2222/51 . . Hard metals, e.g. tungsten carbide
- 2222/54 . Plastics
- 2222/57 . . Elastomers, e.g. rubber
- 2222/61 . . Polyamides, e.g. Nylon
- 2222/66 . . Polypropylene
- 2222/69 . . Foamed polymers, e.g. polyurethane foam
- 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

- 2250/021 . . Stroke length
- 2250/025 . Auxiliary percussive devices
- 2250/035 . Bleeding holes, e.g. in piston guide-sleeves
- 2250/041 . Cable management or routing of electrical cables and wires
- 2250/045 . Cams used in percussive tools
- 2250/051 . Couplings, e.g. special connections between components
- 2250/055 . Depth properties, e.g. tools having depth indicator or depth control
- 2250/065 . Details regarding assembling of the tool
- 2250/071 . . Assembled by brazing
- 2250/075 . . Assembled by welding
- 2250/085 . Elastic behaviour of tool components
- 2250/091 . Electrically-powered tool components
- 2250/095 . . Electric motors
- 2250/101 . Emitting warning signals, e.g. visual or sound
- 2250/105 . Exchangeable tool components
- 2250/111 . . Bits, i.e. inserts or attachments for hammer, chisel, pick
- 2250/115 . Foldable parts of the tool, e.g. in order to reduce its size
- 2250/121 . Housing details
- 2250/125 . Hydraulic tool components
- 2250/131 . Idling mode of tools
- 2250/141 . Magnetic parts used in percussive tools
- 2250/145 . . Electro-magnetic parts
- 2250/155 . Marks, e.g. identification marks, indication scales, visualising means
- 2250/161 . . Indication scales
- 2250/165 . Overload clutches, torque limiters
- 2250/171 . Percussive pulling action of tools for extraction of elements
- 2250/175 . Phase shift of tool components
- 2250/181 . Pneumatic tool components
- 2250/185 . Pressure equalising means between sealed chambers
- 2250/191 . Ram catchers for stopping the ram when entering idling mode
- 2250/195 . Regulation means
- 2250/201 . . for speed, e.g. drilling or percussion speed
- 2250/205 . . for torque
- 2250/211 . Cross-sections of the tool
- 2250/215 . . Narrowing cross-sections
- 2250/221 . Sensors
- 2250/225 . Serrations
- 2250/231 . Sleeve details
- 2250/235 . . Sleeve couplings
- 2250/241 . Sliding impact heads, i.e. impact heads sliding inside a rod or around a shaft
- 2250/245 . Spatial arrangement of components of the tool relative to each other
- 2250/255 . Switches
- 2250/261 . . Means for locking an operative switch on
- 2250/265 . . Trigger mechanism in handle
- 2250/271 . Tools for breaking windows
- 2250/275 . Tools having at least two similar components
- 2250/281 . . Double motors
- 2250/285 . . Tools having three or more similar components, e.g. three motors
- 2250/291 . . . Tools having three or more parallel bits, e.g. needle guns

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