

CPC**COOPERATIVE PATENT CLASSIFICATION****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](#)) [M1204]}

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these 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](#), [F16PB25D 17/14](#) covered by [B23Q 11/0042](#) [B25D 17/16](#) covered by [B23Q 11/0042](#) [B25D 17/18](#) covered by [B23Q 11/0042](#)

B25D 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**

B25D 1/005

- . {with nail feeding devices}

B25D 1/02

- . Inserts or attachments forming the striking part of hammer heads ([B25D 1/08](#) to [B25D 1/14](#) take precedence)

B25D 1/04

- . with provision for withdrawing or holding nails or spikes

B25D 1/045

- .. {with fulcrum member for extracting long nails}

B25D 1/06

- .. Magnetic holders

B25D 1/08

- . having deformable heads ([B25D 1/12](#) takes precedence)

B25D 1/10

- . having work protector surrounding faces {([B25D 1/12](#) takes precedence)}

B25D 1/12

- . having shock-absorbing means

B25D 1/14

- . having plural striking faces

B25D 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

B25D 3/00

Hand chisels

B25D 5/00

Centre punches

B25D 5/02

- . Automatic centre punches

- B25D 7/00** Picks {(combined with other tools B25F)}
- B25D 9/00** Portable percussive tools with fluid-pressure drive, {i.e. driven directly by fluids}, e.g. having several percussive tool bits operated simultaneously {(B25D 15/00 ; portable non-percussive drilling tools driven by fluid pressure or pneumatic power B23B 45/04)}
- B25D 9/005 . {Devices for testing the tool's performance}
- B25D 9/02 . of the tool-carrier piston type, i.e. in which the tool is connected to an impulse member
- B25D 9/04 . of the hammer piston type, i.e. in which the tool bit or anvil is hit by an impulse member
- B25D 9/06 . Means for driving the impulse member
- B25D 9/08 . . comprising a built-in air compressor, {i.e. the tool being driven by air pressure}
- B25D 9/10 . . comprising a built-in internal-combustion engine
- B25D 9/11 . . operated by combustion pressure generated by detonation of a cartridge
- B25D 9/12 . . comprising a built-in liquid motor, {i.e. the tool being driven by hydraulic pressure}
- B25D 9/125 . . . {driven directly by liquid pressure working with pulses}
- B25D 9/14 . Control devices for the reciprocating piston
- B25D 9/145 . . {for hydraulically actuated hammers having an accumulator}
- B25D 9/16 . . Valve arrangements therefor {(B25D 9/145 takes precedence)}
- B25D 9/18 . . . involving a piston-type slide valve
- B25D 9/20 . . . involving a tubular-type slide valve
- B25D 9/22 . . . involving a rotary-type slide valve
- B25D 9/24 . . . involving a rocking-plate type valve
- B25D 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)}
- B25D 9/265 . . . {with arrangements for automatic stopping when the tool is lifted from the working face or suffers excessive bore resistance}
- B25D 11/00** Portable percussive tools with electromotor {or other motor} drive
- B25D 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}
- B25D 11/02 . in which the tool is connected to an impulse member
- B25D 11/04 . in which the tool bit or anvil is hit by an impulse member
- B25D 11/06 . Means for driving the impulse member
- B25D 11/062 . . {comprising a wobbling mechanism, swash plate}
- B25D 11/064 . . {using an electromagnetic drive}
- B25D 11/066 . . {using centrifugal or rotary impact elements}

- B25D 11/068 . . . {in which the tool bit or anvil is hit by a rotary impulse member}
- B25D 11/08 . . comprising a worm mechanism, {i.e. a continuous guide surface with steadily rising and falling incline}
- B25D 11/10 . . comprising a cam mechanism
- B25D 11/102 . . . {the rotating axis of the cam member being coaxial with the axis of the tool}
- B25D 11/104 {with rollers or balls as cam surface}
- B25D 11/106 {cam member and cam follower having the same shape ([B25D 11/104](#) takes precedence)}
- B25D 11/108 . . . {the rotation axis of the cam member being parallel but offset to the tool axis}
- B25D 11/12 . . comprising a crank mechanism
- B25D 11/125 . . . {with a fluid cushion between the crank drive and the striking body}

- B25D 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](#))}

- B25D 16/003 . {Clutches specially adapted therefor}
- B25D 16/006 . {Mode changers; Mechanisms connected thereto}

- B25D 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](#))}

- B25D 17/005 . {Attachments or adapters placed between tool and hammer}
- B25D 17/02 . Percussive tool bits {(drill bits for earth drilling [E21B 10/00](#))}
- B25D 17/04 . Handles; Handle mountings
- B25D 17/043 . . {Handles resiliently mounted relative to the hammer housing ([B25D 17/046](#) takes precedence)}
- B25D 17/046 . . {Sleeve-like handles surrounding the tool bit}
- B25D 17/06 . Hammer pistons; Anvils; {Guide-sleeves for pistons}
- B25D 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)}
- B25D 17/082 . . {Retainers consisting of a swinging yoke or latching means ([B25D 17/086](#) takes precedence)}
- B25D 17/084 . . {Rotating chucks or sockets}
- B25D 17/086 . . . {with a swinging yoke or latching means}
- B25D 17/088 . . . {with radial movable locking elements co-operating with bit shafts specially adapted therefor}

- B25D 17/11 . Arrangements of noise-damping means {(noise damping in general [G10K 11/16](#))}
- B25D 17/12 . . of exhaust silencers {(exhaust silencers in general [F01N](#))}

- B25D 17/20 . Devices for cleaning or cooling tool or work

- B25D 17/22 .. using pressure fluid
 - B25D 17/24 . Damping the reaction force **{(resiliently mounted handles [B25D 17/043](#); dampers in connections of hammers to backhoes [E02F 3/96D6](#))}**
 - B25D 17/245 .. **{using a fluid}**
 - B25D 17/26 . Lubricating **{(in general [F16N](#))}**
 - B25D 17/265 .. **{the lubricant being entrained to the machine parts by the driving fluid}**
 - B25D 17/28 . Supports; Devices for holding power-driven percussive tools in working position **{(connections of hammers to backhoes [E02F 3/96D6](#))}**
 - B25D 17/30 .. Pillars and struts
 - B25D 17/32 .. Trolleys
- B25D 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**
- B25D 2209/002 . Pressure accumulators
 - B25D 2209/005 . having a tubular-slide valve, which is coaxial with the piston
 - B25D 2209/007 . having a tubular-slide valve, which is not coaxial with the piston
- B25D 2211/00 Details of portable percussive tools with electromotor or other motor drive**
- B25D 2211/003 . Crossed drill and motor spindles
 - B25D 2211/006 . Parallel drill and motor spindles
 - B25D 2211/06 . Means for driving the impulse member
 - B25D 2211/061 .. Swash-plate actuated impulse-driving mechanisms
 - B25D 2211/062 .. Cam-actuated impulse-driving mechanisms
 - B25D 2211/064 ... Axial cams, e.g. two camming surfaces coaxial with drill spindle
 - B25D 2211/065 ... with ball-shaped or roll-shaped followers
 - B25D 2211/067 ... wherein the cams are involved in a progressive mutual engagement with increasing pressure of the tool to the working surface
 - B25D 2211/068 .. Crank-actuated impulse-driving mechanisms
- B25D 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**
- B25D 2216/0007 . Details of percussion or rotation modes
 - B25D 2216/0015 .. Tools having a percussion-only mode

- B25D 2216/0023 .. Tools having a percussion-and-rotation mode
- B25D 2216/003 ... comprising de-phasing of percussion and rotation
- B25D 2216/0038 .. Tools having a rotation-only mode
- B25D 2216/0046 .. Preventing rotation
- B25D 2216/0053 ... and percussion
- B25D 2216/0061 ... preventing reverse rotation

- B25D 2216/0069 . Locking means

- B25D 2216/0076 . Angular position of the chisel modifiable by hand

- B25D 2216/0084 . Mode-changing mechanisms
- B25D 2216/0092 .. Tool comprising two or more collaborating mode-changing mechanisms

B25D 2217/00 Details of, or accessories for, portable power-driven percussive tools

- B25D 2217/0003 . Details of shafts of percussive tool bits
- B25D 2217/0007 .. Shaft ends

- B25D 2217/0011 . Details of anvils, guide-sleeves or pistons
- B25D 2217/0015 .. Anvils
- B25D 2217/0019 .. Guide-sleeves
- B25D 2217/0023 .. Pistons
- B25D 2217/0026 ... Double pistons

- B25D 2217/003 . Details relating to chucks with radially movable locking elements
- B25D 2217/0034 .. Details of shank profiles
- B25D 2217/0038 .. Locking members of special shape
- B25D 2217/0042 ... Ball-shaped locking members
- B25D 2217/0046 ... Conically-shaped locking members
- B25D 2217/0049 ... Roll-shaped locking members
- B25D 2217/0053 .. Devices for securing the tool retainer to the machine part

- B25D 2217/0057 . Details related to cleaning or cooling the tool or workpiece
- B25D 2217/0061 .. related to cooling
- B25D 2217/0065 .. Use of dust covers
- B25D 2217/0069 ... Protecting chucks against entering of chip dust

- B25D 2217/0073 . Arrangements for damping of the reaction force
- B25D 2217/0076 .. by use of counterweights
- B25D 2217/008 ... being electronically-driven
- B25D 2217/0084 ... being fluid-driven
- B25D 2217/0088 ... being mechanically-driven
- B25D 2217/0092 ... being spring-mounted

B25D 2217/0096 . Details of lubrication means

B25D 2222/00 Materials of the tool or the workpiece

B25D 2222/03 . Ceramics

B25D 2222/06 . Composite materials

B25D 2222/09 . Diamond

B25D 2222/12 . Glass

B25D 2222/15 . Ice

B25D 2222/18 . Leather

B25D 2222/21 . Metals

B25D 2222/24 .. Aluminium

B25D 2222/27 .. Brass

B25D 2222/31 .. Bronze

B25D 2222/33 .. Copper

B25D 2222/36 .. Lead

B25D 2222/39 .. Mercury

B25D 2222/42 .. Steel

B25D 2222/45 .. Titanium

B25D 2222/48 .. Zinc

B25D 2222/51 .. Hard metals, e.g. tungsten carbide

B25D 2222/54 . Plastics

B25D 2222/57 .. Elastomers, e.g. rubber

B25D 2222/61 .. Polyamides, e.g. Nylon

B25D 2222/66 .. Polypropylene

B25D 2222/69 .. Foamed polymers, e.g. polyurethane foam

B25D 2222/72 . Stone, rock or concrete

B25D 2222/75 . Wood

B25D 2250/00 General details of portable percussive tools; Components used in portable percussive tools

B25D 2250/005 . Adjustable tool components; Adjustable parameters

B25D 2250/011 .. Bits, e.g. adjusting bits by setting in the desired angular position

B25D 2250/015 .. Heads

B25D 2250/021 .. Stroke length

- B25D 2250/025 . Auxiliary percussive devices
- B25D 2250/035 . Bleeding holes, e.g. in piston guide-sleeves
- B25D 2250/041 . Cable management or routing of electrical cables and wires
- B25D 2250/045 . Cams used in percussive tools
- B25D 2250/051 . Couplings, e.g. special connections between components
- B25D 2250/055 . Depth properties, e.g. tools having depth indicator or depth control
- B25D 2250/065 . Details regarding assembling of the tool
- B25D 2250/071 . . Assembled by brazing
- B25D 2250/075 . . Assembled by welding
- B25D 2250/085 . Elastic behaviour of tool components
- B25D 2250/091 . Electrically-powered tool components
- B25D 2250/095 . . Electric motors
- B25D 2250/101 . Emitting warning signals, e.g. visual or sound
- B25D 2250/105 . Exchangeable tool components
- B25D 2250/111 . . Bits, i.e. inserts or attachments for hammer, chisel, pick
- B25D 2250/115 . Foldable parts of the tool, e.g. in order to reduce its size.
- B25D 2250/121 . Housing details
- B25D 2250/125 . Hydraulic tool components
- B25D 2250/131 . Idling mode of tools
- B25D 2250/141 . Magnetic parts used in percussive tools
- B25D 2250/145 . . Electro-magnetic parts
- B25D 2250/155 . Marks, e.g. identification marks, indication scales, visualising means
- B25D 2250/161 . . Indication scales
- B25D 2250/165 . Overload clutches, torque limiters
- B25D 2250/171 . Percussive pulling action of tools for extraction of elements
- B25D 2250/175 . Phase shift of tool components
- B25D 2250/181 . Pneumatic tool components
- B25D 2250/185 . Pressure equalising means between sealed chambers

- B25D 2250/191 . Ram catchers for stopping the ram when entering idling mode
- B25D 2250/195 . Regulation means
- B25D 2250/201 .. for speed, e.g. drilling or percussion speed
- B25D 2250/205 .. for torque
- B25D 2250/211 . Cross-sections of the tool
- B25D 2250/215 .. Narrowing cross-sections
- B25D 2250/221 . Sensors
- B25D 2250/225 . Serrations
- B25D 2250/231 . Sleeve details
- B25D 2250/235 .. Sleeve couplings
- B25D 2250/241 . Sliding impact heads, i.e. impact heads sliding inside a rod or around a shaft
- B25D 2250/245 . Spatial arrangement of components of the tool relative to each other.
- B25D 2250/255 . Switches
- B25D 2250/261 .. Means for locking an operative switch on
- B25D 2250/265 .. Trigger mechanism in handle
- B25D 2250/271 . Tools for breaking windows
- B25D 2250/275 . Tools having at least two similar components
- B25D 2250/281 .. Double motors
- B25D 2250/285 .. Tools having three or more similar components, e.g. three motors
- B25D 2250/291 ... Tools having three or more parallel bits, e.g. needle guns
- B25D 2250/295 . Tools used in automobiles or automobile manufacture
- B25D 2250/301 . Torque transmission means
- B25D 2250/305 . Twisted part of a chisel or percussive non-drilling tool bit
- B25D 2250/311 . Ultrasonic percussion means
- B25D 2250/315 . Use of adhesives
- B25D 2250/321 . Use of balls
- B25D 2250/325 . Use of bayonets
- B25D 2250/331 . Use of bearings
- B25D 2250/335 .. Supports therefor

- B25D 2250/341 . Use of external compressors
- B25D 2250/345 . Use of o-rings
- B25D 2250/351 . Use of pins
- B25D 2250/355 . Use of rolls
- B25D 2250/361 . Use of screws or threaded connections
- B25D 2250/365 . Use of seals
- B25D 2250/371 . Use of springs
- B25D 2250/375 .. Fluid springs
- B25D 2250/381 .. Leaf springs
- B25D 2250/385 . Use of thrust-washers, e.g. for limiting the course of the impulse member
- B25D 2250/391 . Use of weights; Weight properties of the tool