

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](#))}

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 , F16P
B25D 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 {(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 3/966)}
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 3/966)}
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