

**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 <a href="#">G10K 11/16</a> )}
B25D 17/12	.. of exhaust silencers {(exhaust silencers in general <a href="#">F01N</a> )}
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 <a href="#">B25D 17/043</a> ; dampers in connections of hammers to backhoes <a href="#">E02F 3/966</a> )}
B25D 17/245	.. { using a fluid }
B25D 17/26	. Lubricating {(in general <a href="#">F16N</a> )}
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 <a href="#">E02F 3/966</a> )}
B25D 17/30	.. Pillars and struts
B25D 17/32	.. Trolleys
<b>B25D 2209/00</b>	<b>Details of portable percussive tools with fluid-pressure drive, i.e. driven directly by fluids, e.g. having several percussive tool bits operated simultaneously</b>
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
<b>B25D 2211/00</b>	<b>Details of portable percussive tools with electromotor or other motor drive</b>
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
<b>B25D 2216/00</b>	<b>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</b>

- 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