PERFORMING OPERATIONS; TRANSPORTING

SHAPING

HAND TOOLS; PORTABLE POWER-DRIVEN TOOLS; MANIPULATORS

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:

<table>
<thead>
<tr>
<th>IPC Group</th>
<th>Covered by</th>
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</thead>
<tbody>
<tr>
<td>B25D 13/00</td>
<td>B25D 11/064</td>
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<tr>
<td>B25D 15/00</td>
<td>B25D 11/066</td>
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<td>B25D 15/02</td>
<td>B25D 11/068</td>
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<tr>
<td>B25D 17/10</td>
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<td>B25D 17/14</td>
<td>B23Q 11/0042</td>
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<tr>
<td>B25D 17/16</td>
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<tr>
<td>B25D 17/18</td>
<td>B23Q 11/0042</td>
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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.

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

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
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<tr>
<td>1/00</td>
<td>Hand hammers</td>
</tr>
<tr>
<td>1/005</td>
<td>with nail feeding devices</td>
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<tr>
<td>1/02</td>
<td>Inserts or attachments forming the striking part of hammer heads (B25D 1/08 - B25D 1/14 take precedence)</td>
</tr>
<tr>
<td>1/04</td>
<td>with provision for withdrawing or holding nails or spikes</td>
</tr>
<tr>
<td>1/045</td>
<td>with fulcrum member for extracting long nails</td>
</tr>
<tr>
<td>1/06</td>
<td>Magnetic holders</td>
</tr>
<tr>
<td>1/08</td>
<td>having deformable heads (B25D 1/12 takes precedence)</td>
</tr>
<tr>
<td>1/10</td>
<td>having work protector surrounding faces (B25D 1/12 takes precedence)</td>
</tr>
<tr>
<td>1/12</td>
<td>having shock-absorbing means</td>
</tr>
<tr>
<td>1/14</td>
<td>having plural striking faces</td>
</tr>
<tr>
<td>1/16</td>
<td>having the impacting head in the form of a sleeve slideable on a shaft, e.g. hammers for driving a valve or draw-off tube into a barrel</td>
</tr>
</tbody>
</table>

3/00 Hand chisels

5/00 Centre punches

5/02 Automatic centre punches

7/00 Picks {combined with other tools B25F}

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}
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 11/04 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 6/000\}\}

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 5/000\}\}

17/005 . \{Attachments or adapters placed between tool and hammer\}

17/02 . Percussive tool bits \{drill bits for earth drilling E21B 10/000\}

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 17/008 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 cooperating 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\}
Components used in portable percussive tools

Materials of the tool or the workpiece

Details related to securing the tool retainer to the machine part

Details relating to chucks with radially movable locking elements

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

Details of shafts of percussive tool bits

Shaft ends

Details of anvils, guide-sleeves or pistons

Anvils

Guide-sleeves

Pistons

Double pistons

Details relating to chucks with radially movable locking elements

Details of shank profiles

Locking members of special shape

Ball-shaped locking members

Conically-shaped locking members

Roll-shaped locking members

Devices for securing the tool retainer to the machine part

Details related to cooling or cleaning the tool or workpiece

Related to cooling

Use of dust covers

Protecting chucks against entering of chip dust

Arrangements for damping of the reaction force

by use of counterweights

being electronically-driven

being fluid-driven

being mechanically-driven

being spring-mounted

Details of lubrication means

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

Adjustable tool components; Adjustable parameters

Bits, e.g. adjusting bits by setting in the desired angular position

Heads

B25D
Tools used in automobiles or automobile manufacture
Torque transmission means
Twisted part of a chisel or percussive non-drilling tool bit
Ultrasonic percussion means
Use of adhesives
Use of balls
Use of bayonets
Use of bearings
Supports therefor
Use of external compressors
Use of o-rings
Use of pins
Use of rolls
Use of screws or threaded connections
Use of seals
Use of springs
Fluid springs
Leaf springs
Use of thrust-washers, e.g. for limiting the course of the impulse member
Use of weights; Weight properties of the tool