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

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:

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<tr>
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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

1/005  .  [with nail feeding devices]
1/02  .  Inserts or attachments forming the striking part of hammer heads (B25D 1/08 - B25D 1/14 take precedence)
1/04  .  with provision for withdrawing or holding nails or spikes
1/045  .  .  [with fulcrum member for extracting long nails]
1/06  .  Magnetic holders
1/08  .  having deformable heads (B25D 1/12 takes precedence)
1/10  .  having work protector surrounding faces (B25D 1/12 takes precedence)
1/12  .  having shock-absorbing means
1/14  .  having plural striking faces
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

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) }

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
9/04  .  of the hammer piston type, i.e. in which the tool bit or anvil is hit by an impulse member
9/06  .  Means for driving the impulse member
9/08  .  .  comprising a built-in air compressor, i.e. the tool being driven by air pressure
9/10  .  .  comprising a built-in internal-combustion engine
9/11  .  .  operated by combustion pressure generated by detonation of a cartridge
9/12  .  .  comprising a built-in liquid motor, i.e. the tool being driven by hydraulic pressure
9/125  .  .  [ driven directly by liquid pressure working with pulses ]
9/14  .  Control devices for the reciprocating piston
9/145  .  .  [ for hydraulically actuated hammers having an accumulator ]
9/16  .  .  Valve arrangements therefor (B25D 9/145 takes precedence)
9/18  .  .  involving a piston-type slide valve
9/20  .  .  involving a tubular-type slide valve
9/22  .  .  involving a rotary-type slide valve
9/24  .  .  involving a rocking-plate type valve
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 ]
Portable percussive tools with electromotor {or other motor} drive

Means for driving the impulse member

Means for retaining and guiding the tool bit, e.g. chucks {allowing axial oscillation of the tool bit (B25D 17/005 takes precedence)}

Details of portable percussive tools with fluid-pressure drive, i.e. driven directly by fluids, e.g. having several percussive tool bits operated simultaneously

Details of portable percussive tools with electromotor or other motor drive

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 (combined percussion and rotary drilling adapted for earth drilling F21B 6/000)

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 (combined percussion and rotary drilling adapted for earth drilling B25D 17/005 takes precedence)

Details of percussion or rotation modes

Arrangements of noise-damping means {noise damping in general G10K 11/16}

Devices for cleaning or cooling tool or work

Using pressure fluid

Damping the reaction force {resiliently mounted handles B25D 17/043; dampers in connections of hammers to backhoes E02F 3/966}

Using a fluid

Lubricating {in general F01N}

{the lubricant being entrained to the machine parts by the driving fluid}

Supports; Devices for holding power-driven percussive tools in working position {connections of hammers to backhoes E02F 3/966}

Pillars and struts

Trolleys

Details of portable percussive tools with fluid-pressure drive, i.e. driven directly by fluids, e.g. having several percussive tool bits operated simultaneously

Details of portable percussive tools with electromotor or other motor drive

Details of percussion or rotation modes

Crank-actuated impulse-driving mechanisms

Cam-actuated impulse-driving mechanisms

Swash-plate actuated impulse-driving mechanisms

Axial cams, e.g. two camming surfaces coaxial with drill spindle

with ball-shaped or roll-shaped followers

wherein the cams are involved in a progressive mutual engagement with increasing pressure of the tool to the working surface

Crank-actuated impulse-driving mechanisms

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

Details of percussion or rotation modes

Tools having a percussion-only mode

Tools having a percussion-and-rotation mode

comprising de-phasing of percussion and rotation

Tools having a rotation-only mode

Preventing rotation

and percussion

preventing reverse rotation

Locking means

Angular position of the chisel modifiable by hand

Mode-changing mechanisms

Tool comprising two or more collaborating mode-changing mechanisms
Components used in portable percussive tools

General details of portable percussive tools; Components used in portable percussive tools

- Adjustable tool components; Adjustable parameters
- Bits, e.g. adjusting bits by setting in the desired angular position
- Heads

Materials of the tool or the workpiece

- Ceramics
- Composite materials
- Diamond
- Glass
- Ice
- Leather
- Metals
- Aluminium
- Brass
- Bronze
- Copper
- Lead
- Mercury
- Steel
- Titanium
- Zinc
- Hard metals, e.g. tungsten carbide
- Plastics
- Elastomers, e.g. rubber
- Polyamides, e.g. Nylon
- Polypropylene
- Foamed polymers, e.g. polyurethane foam
- Stone, rock or concrete
- Wood

Tools having at least two similar components

- Tools for breaking windows

Adjustable tool components; Adjustable parameters

- Wood
- Stone, rock or concrete
- Plastics
- Metals
- Ice
- Glass
- Diamond
- Composite materials
- Ceramics

Details of lubrication means

- Arrangements for damping of the reaction force
- by use of counterweights
- being electronically-driven
- being fluid-driven
- being mechanically-driven
- being spring-mounted
- Devices for securing the tool retainer to the machine part

Details related to chucking with radially movable locking elements

Details of shank profiles

Details of locking members of special shape

- Ball-shaped locking members
- Conically-shaped locking members
- Roll-shaped locking members

Details of devices for securing the tool retainer to the machine part

Details relating to chucks with radially movable locking elements

Details of anvils, guide-sleeves or pistons

- Anvils
- Guide-sleeves
- Pistons
- Double pistons

Details of shafts of percussive tool bits

- Heads
- Angular position

Details of anvils, guide-sleeves or pistons

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<td>Use of thrust-washers, e.g. for limiting the course of the impulse member</td>
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<tr>
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