

# CPC COOPERATIVE PATENT CLASSIFICATION

## B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

### SHAPING

## B23 MACHINE TOOLS; METAL-WORKING NOT OTHERWISE PROVIDED FOR

(NOTES omitted)

### B23G THREAD CUTTING; WORKING OF SCREWS, BOLT HEADS, OR NUTS, IN CONJUNCTION THEREWITH (making helical grooves by turning [B23B 5/48](#), by milling [B23C 3/32](#), by forging, pressing, or hammering [B21K 1/56](#), by grinding [B24B 19/02](#); arrangements for copying or controlling [B23Q](#); thread-forming by corrugating tubes [B21D 15/04](#), by rolling [B21H 3/02](#))

#### NOTE

The term "thread cutting" is to be understood as including the use of tools similar both in form and in manner of use to thread-cutting tools, but without removing any material

#### WARNING

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	Thread cutting; Automatic machines specially designed therefor	1/264	. . . . {comprising tap wrench features with a V slot}
1/02	. on an external or internal cylindrical or conical surface, e.g. on recesses ( <a href="#">B23G 1/16</a> , <a href="#">B23G 1/22</a> , <a href="#">B23G 1/32</a> , <a href="#">B23G 1/36</a> take precedence)	1/265	. . {Die and tap wrenches with a guiding part (lubricating and cooling devices therefor <a href="#">B23G 5/005</a> )}
1/04	. . Machines with one working-spindle	1/266	. . . {Tap wrenches having a V slot ( <a href="#">B23G 1/268</a> takes precedence)}
1/06	. . . specially adapted for making conical screws, e.g. wood-screws	1/267	. . . {Die wrenches having a cylindrical opening and a clamping screw}
1/08	. . Machines with a plurality of working spindles	1/268	. . . . {comprising tap wrench features with a V slot}
1/10	. . . specially adapted for making conical screws, e.g. wood-screws	1/28	. . with means for adjusting the threading tool
1/12	. . Machines with a toothed cutter in the shape of a spur-gear or the like which is rotated to generate the thread profile as the work rotates	1/30	. . without means for adjusting the threading tool, e.g. with die-stock ( <a href="#">tap wrenches B25B</a> )
1/14	. . . specially adapted for making conical screws, e.g. wood-screws	1/32	. by milling
1/16	. in holes of workpieces by taps ( <a href="#">B23G 1/26</a> , <a href="#">B23G 1/32</a> , <a href="#">B23G 1/36</a> take precedence)	1/34	. . with a cutting bit moving in a closed path arranged eccentrically with respect to the axis of the rotating workpieces
1/18	. . Machines with one working spindle	1/36	. by grinding
1/185	. . . {specially adapted for making nuts}	1/38	. . with grinding discs guided along the workpiece in accordance with the pitch of the required thread
1/20	. . Machines with a plurality of working spindles	1/40	. . with grinding discs guided radially to the workpiece
1/205	. . . {specially adapted for making nuts}	1/42	. Centreless grinding
1/22	. Machines specially designed for operating on pipes or tubes	1/44	. Equipment or accessories specially designed for machines or devices for thread cutting
1/225	. . {automatically controlled}	1/46	. . for holding the threading tools ( <a href="#">B23B 31/083</a> takes precedence)}
1/24	. . portable	1/465	. . . {comprising arrangements for reversing the rotation of the tool}
1/26	. Manually-operated thread-cutting devices (features of the threading tool per se <a href="#">B23G 5/00</a> )	1/48	. . for guiding the threading tools
1/261	. . {Die and tap wrenches (lubricating and cooling devices therefor <a href="#">B23G 5/005</a> ; <a href="#">B23G 1/265</a> takes precedence)}	1/50	. . for cutting thread by successive operations
1/262	. . . {Tap wrenches having a V slot ( <a href="#">B23G 1/264</a> takes precedence)}	1/52	. . for operating on pipes or tubes
1/263	. . . {Die wrenches having a cylindrical opening and a clamping screw}		

### 3/00 Arrangements or accessories for enabling machine tools not specially designed only for thread cutting to be used for this purpose, e.g. arrangements for reversing the working spindle

- 3/005 . {for enabling presses to be used for thread cutting}
- 3/02 . for withdrawing or resetting the threading tool
- 3/04 . . for repeatedly setting the threading tool in a predetermined working position
- 3/06 . for compensating inaccuracies in the pitch of the lead-screw
- 3/08 . for advancing or controlling the threading tool or the work by templates, cams, or the like
- 3/10 . . for cutting thread of variable pitch
- 3/12 . . for using several adjacently-arranged threading tools, e.g. using several chasers
- 3/14 . . for cutting thread of conical shape

### 5/00 Thread-cutting tools; Die-heads

- 5/005 . {with lubrication or cooling devices}
- 5/02 . without means for adjustment
- 5/04 . . Dies
- 5/043 . . . {with guiding means}
- 5/046 . . . {for conical thread}
- 5/06 . . Taps (chucks therefor B23B 31/00)
- 5/062 . . . {with a guiding means part}
- 5/064 . . . {with weakened shank portion}
- 5/066 . . . {with stops}
- 5/068 . . . {with means for removing the broken tap}
- 5/08 . with means for adjustment
- 5/083 . . {Adjustable dies}
- 5/086 . . . {with guiding means}
- 5/10 . . Die-heads
- 5/103 . . . {with guiding means}
- 5/106 . . . {Collet-type die-heads}
- 5/12 . . . self-releasing
- 5/14 . . Tapping-heads
- 5/16 . . . self-releasing
- 5/18 . Milling cutters
- 5/182 . . {combined with other tools}
- 5/184 . . . {combined with drills (B23G 5/188 takes precedence)}
- 5/186 . . . {combined with chamfering tools}
- 5/188 . . . . {and with drills}
- 5/20 . combined with other tools, e.g. drills {(B23G 5/182 takes precedence; screws which drill and tap F16B 25/00)}

### 7/00 Forming thread by means of tools similar both in form and in manner of use to thread-cutting tools, but without removing any material (features of machines or devices not specially adapted to the particular mode of forming the thread B23G 1/00)

- 7/02 . Tools for this purpose

### 9/00 Working screws, bolt heads, or nuts in conjunction with thread cutting, e.g. slotting screw heads or shanks, removing burrs from screw heads or shanks; Finishing, e.g. polishing, any screw-thread

- 9/001 . {Working screws}
- 9/002 . . {Slotting screw heads or shanks}
- 9/003 . . {Deburring screws}
- 9/004 . . {Finishing screws (B23G 9/003 takes precedence)}
- 9/005 . {Working nuts}

- 9/006 . . {Slotting nuts}
- 9/007 . . {Deburring nuts}
- 9/008 . . {Finishing nuts (B23G 9/007 takes precedence)}
- 9/009 . {Thread cleaning or repairing}

### 11/00 Feeding or discharging mechanisms combined with, or arranged in, or specially adapted for use in connection with, thread-cutting machines (for machines tools in general B23Q)

#### 2200/00 Details of threading tools

- 2200/02 . Tools in which the shank and the cutting part are made from different materials or from separate components
- 2200/04 . Tools with negative cutting angles
- 2200/06 . Connections between parts of threading tools
- 2200/062 . . Brazed connections
- 2200/065 . . Glued connections
- 2200/067 . . Welded connections
- 2200/08 . Threading tools with adjustable elements (manually operated thread cutting devices with means for adjusting the threading tool B23G 1/28)
- 2200/10 . Threading tools comprising cutting inserts
- 2200/12 . Threading tools comprising inserts for thread forming
- 2200/14 . Multifunctional threading tools
- 2200/141 . . Tools comprising means for deburring
- 2200/142 . . Tools comprising means for forming threads by deformation
- 2200/143 . . Tools comprising means for drilling
- 2200/144 . . Tools comprising a die
- 2200/145 . . Tools comprising means for milling features other than the thread
- 2200/146 . . Tools comprising a tap
- 2200/147 . . Tools comprising means for reaming
- 2200/148 . . Tools having means for countersinking
- 2200/16 . Tools with cutting edges spaced unequally around the circumference
- 2200/18 . Tools rotatable in both directions
- 2200/20 . Tools having a brush
- 2200/22 . Tools having an end cap, e.g. for the distribution of cutting fluid
- 2200/24 . Chip breakers
- 2200/26 . Coatings of tools
- 2200/28 . Threading tools having a conical form
- 2200/30 . Cutting edges that are rounded in the cross-sectional view of the cutting edge
- 2200/32 . Tools having a decreasing diameter in the direction of the shank from the tip
- 2200/34 . Tools having an increasing diameter in the direction of the shank from the tip (B23G 2200/28 takes precedence)
- 2200/36 . Tools having provision to produce threads of more than one type or size
- 2200/38 . Tools with shanks having a working end at each end of the shank
- 2200/40 . Tools with variable or different helix angles
- 2200/42 . Hollow tools
- 2200/44 . Taps with more than one threading section, the threading sections being axially spaced from one another
- 2200/46 . Tools having a section of polygonal form, e.g. for the transmission of torque
- 2200/48 . Spiral grooves, i.e. spiral flutes

- 2200/50 . Tools in which the pitch of the teeth is a multiple of the pitch of the thread being produced

#### **2210/00 Details of threads produced**

- 2210/04 . Internal threads
- 2210/08 . External threads
- 2210/12 . Threads having a large diameter
- 2210/16 . Multiple start threads
- 2210/21 . Threads in nuts
- 2210/24 . Threads having a variable pitch
- 2210/28 . Threads having a rounded profile
- 2210/36 . Threads having a square profile
- 2210/41 . Threads having a stepped profile
- 2210/44 . Threads having a trapezoidal profile
- 2210/48 . Threads having a special form or profile not otherwise provided for

#### **2225/00 Materials of threading tools, workpieces or other structural elements**

- 2225/04 . Cubic boron nitride
- 2225/08 . Cermets
- 2225/12 . Chromium
- 2225/16 . Diamond
- 2225/165 . . Polycrystalline diamond
- 2225/24 . Elastomers, e.g. rubber
- 2225/28 . Hard metal, i.e. cemented carbides
- 2225/32 . High speed steel
- 2225/36 . Molybdenum disulphide
- 2225/40 . Plastics not otherwise provided for
- 2225/44 . Titanium
- 2225/48 . Titanium aluminium nitride (TiAlN)
- 2225/52 . Titanium carbide
- 2225/56 . Titanium carbide nitride (TiCN)
- 2225/60 . Titanium nitride

#### **2240/00 Details of equipment for threading other than threading tools, details of the threading process**

- 2240/04 . Compensation of centrifugal force
- 2240/08 . Evacuation of chips or fines
- 2240/12 . Means for cooling or lubrication
- 2240/16 . Equipment for producing threaded component with a rotating disc to hold the components
- 2240/20 . Guiding devices with a pin affixable in a drilling chuck and with free rotation of the threading tool holder with respect to the pin
- 2240/24 . Guides for threading tools having a V-groove for location on cylindrical workpieces
- 2240/28 . Indication scales
- 2240/32 . Threading devices designed to be mounted in the tailstock of a lathe
- 2240/36 . Methods of threading not otherwise provided for
- 2240/40 . Threading equipment having an integrally incorporated driving motor
- 2240/44 . Tap or die wrenches with multiple locations for holding threading tools, e.g. for holding threading tools of different sizes
- 2240/48 . Protective sleeves for taps
- 2240/52 . Sensors
- 2240/56 . Producing or refurbishing threads for spark plugs or glow plugs
- 2240/60 . Thread whirling, i.e. production of a thread by means of an annular tool rotating about an axis not coincident with the axis of the thread being produced