

# 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	<b>Thread cutting; Automatic machines specially designed therefor</b>	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-stocks ( <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}		

<b>3/00</b>	<b>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</b>	9/006	. . {Slotting nuts}
3/005	. {for enabling presses to be used for thread cutting}	9/007	. . {Deburring nuts}
3/02	. for withdrawing or resetting the threading tool	9/008	. . {Finishing nuts ( <a href="#">B23G 9/007</a> takes precedence)}
3/04	. . for repeatedly setting the threading tool in a predetermined working position	9/009	. {Thread cleaning or repairing}
3/06	. for compensating inaccuracies in the pitch of the lead-screw	<b>11/00</b>	<b>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 <a href="#">B23Q</a>)</b>
3/08	. for advancing or controlling the threading tool or the work by templates, cams, or the like	<b>2200/00</b>	<b>Details of threading tools</b>
3/10	. . for cutting thread of variable pitch	2200/02	. Tools in which the shank and the cutting part are made from different materials or from separate components
3/12	. . for using several adjacently-arranged threading tools, e.g. using several chasers	2200/04	. Tools with negative cutting angles
3/14	. . for cutting thread of conical shape	2200/06	. Connections between parts of threading tools
<b>5/00</b>	<b>Thread-cutting tools; Die-heads</b>	2200/062	. . Brazed connections
5/005	. {with lubrication or cooling devices}	2200/065	. . Glued connections
5/02	. without means for adjustment	2200/067	. . Welded connections
5/04	. . Dies	2200/08	. Threading tools with adjustable elements
5/043	. . . {with guiding means}	2200/10	. Threading tools comprising cutting inserts
5/046	. . . {for conical thread}	2200/12	. Threading tools comprising inserts for thread forming
5/06	. . Taps ( <a href="#">chucks therefor B23B 31/00</a> )	2200/14	. Multifunctional threading tools
5/062	. . . {with a guiding means part}	2200/141	. . Tools comprising means for deburring
5/064	. . . {with weakened shank portion}	2200/142	. . Tools comprising means for forming threads by deformation
5/066	. . . {with stops}	2200/143	. . Tools comprising means for drilling
5/068	. . . {with means for removing the broken tap}	2200/144	. . Tools comprising a die
5/08	. with means for adjustment	2200/145	. . Tools comprising means for milling features other than the thread
5/083	. . {Adjustable dies}	2200/146	. . Tools comprising a tap
5/086	. . . {with guiding means}	2200/147	. . Tools comprising means for reaming
5/10	. . Die-heads	2200/148	. . Tools having means for countersinking
5/103	. . . {with guiding means}	2200/16	. Tools with cutting edges spaced unequally around the circumference
5/106	. . . {Collet-type die-heads}	2200/18	. Tools rotatable in both directions
5/12	. . . self-releasing	2200/20	. Tools having a brush
5/14	. . Tapping-heads	2200/22	. Tools having an end cap, e.g. for the distribution of cutting fluid
5/16	. . . self-releasing	2200/24	. Chip breakers
5/18	. Milling cutters	2200/26	. Coatings of tools
5/182	. . {combined with other tools}	2200/28	. Threading tools having a conical form
5/184	. . . {combined with drills ( <a href="#">B23G 5/188</a> takes precedence)}	2200/30	. Cutting edges that are rounded in the cross-sectional view of the cutting edge
5/186	. . . {combined with chamfering tools}	2200/32	. Tools having a decreasing diameter in the direction of the shank from the tip
5/188	. . . . {and with drills}	2200/34	. Tools having an increasing diameter in the direction of the shank from the tip ( <a href="#">B23G 2200/28</a> takes precedence)
5/20	. combined with other tools, e.g. drills {( <a href="#">B23G 5/182</a> takes precedence; screws which drill and tap <a href="#">F16B 25/00</a> )}	2200/36	. Tools having provision to produce threads of more than one type or size
<b>7/00</b>	<b>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 <a href="#">B23G 1/00</a>)</b>	2200/38	. Tools with shanks having a working end at each end of the shank
7/02	. Tools for this purpose	2200/40	. Tools with variable or different helix angles
<b>9/00</b>	<b>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</b>	2200/42	. Hollow tools
9/001	. {Working screws}	2200/44	. Taps with more than one threading section, the threading sections being axially spaced from one another
9/002	. . {Slotting screw heads or shanks}	2200/46	. Tools having a section of polygonal form, e.g. for the transmission of torque
9/003	. . {Deburring screws}	2200/48	. Spiral grooves, i.e. spiral flutes
9/004	. . {Finishing screws ( <a href="#">B23G 9/003</a> takes precedence)}		
9/005	. {Working nuts}		

- 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