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

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