B23D

PLANING; SLOTTING; SHEARING; BROACHING; SAWING; FILING; SCRAPING; LIKE OPERATIONS FOR WORKING METAL BY REMOVING MATERIAL, NOT OTHERWISE PROVIDED FOR (making toothed gears or the like B23F; cutting metal by applying heat locally B23K; arrangements for copying or controlling B23Q)

Definition statement

This subclass/group covers:

Planing, slotting, shearing, broaching, sawing, filing. scraping like operations for working metal by removing metal not otherwise provided for..

References relevant to classification in this subclass

This subclass/group does not cover:

Surgical saws	A61B 17/14
Sawing wood or similar material	B27B

Informative references

Attention is drawn to the following places, which may be of interest for search:

Punching, perforating, making articles by processing sheet metal, tubes or profiles	B21D
Grinding	B24

B23D 1/00

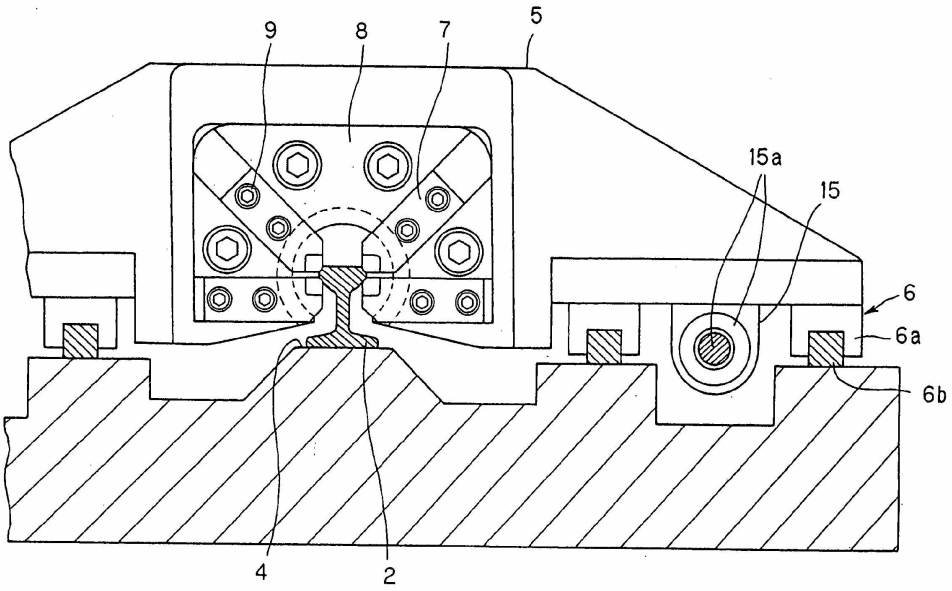
Planing or slotting machines cutting by relative movement of the tool and workpiece in a horizontal straight line only

Definition statement

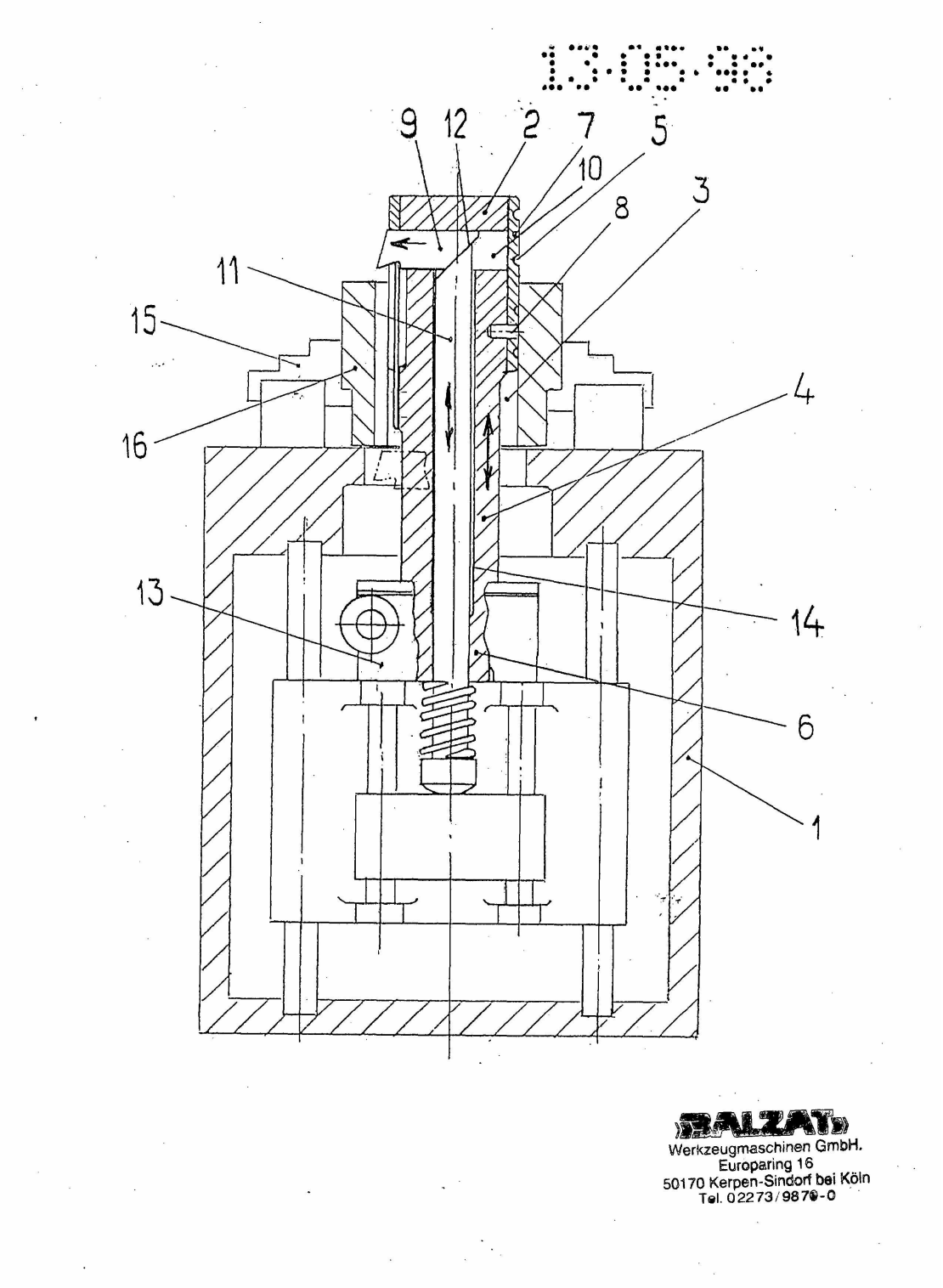
This subclass/group covers:

Machines and devices for planing or slotting cutting by relative movement of the tool and workpiece in a horizontal straight line only during the machining pass . The tool or workpiece may be fed in a non-linear manner between passes to produce profiled stock.

FIG. 6



rail planing machine classed in B23D 1/006



slotting machine classed in [B23D 3/02]

Relationship between large subject matter areas

Both of the terms "planing" and "slotting" relate to the removal of material in the form of chips by a relative movement of at least one tool with a geometrically defined cutting edge and the workpiece along a non-circular

trajectory. Both the tool and the workpiece are non-rotating. The process is similar to turning (B23B) except that in turning either the tool is moved around the workpiece in a circular path or the workpiece is rotated. In turning the tool path is therefore circular with respect to the workpiece whereas in planing or slotting the toolpath is non-helical.

Tools which can be used for both planing/slotting and for turning with distinctive constructional features are classed in B23B according to the functional feature. This is especially true for tool holders with replaceable indexable inserts.

References relevant to classification in this group

This subclass/group does not cover:

Milling slots	B23C 3/28
Making gears or the like by planing or slotting	B23F
Multi stage processes involving planing/slotting and also other operations classed in B23B, B23C, B23F, making particular items.	B23P 13/00 B23P 15/00 B23P 23/00
Details of machine tools and accessories not related to the operation being performed including: - evacuation of swarf, - guarding & protective coverings - conveying workpiece into and from machine - tool changing- measuring or sensing	B23Q B23Q 11/0042 B23Q 11/08 B23Q 7/00 B23Q 3/155 B23Q 17/00
Adaptive control and/or computer controls for planing or slotting processes	B23Q 15/00 G05B 15/02
Planing of wood	B27C 1/00
Hand planes for wood	B27G 17/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Details of turning tools which may also be usable as planing or slotting tools	B23B 27/00

Details of turning tool holders which may also be usable as planing or slotting tool holders	B23B 29/00
Machines for milling of window frames which may include slotting tools	B23C 3/128
Planing or slotting of gear teeth	B23F 1/04 B23F 5/12 B23F 9/04
Planing or slotting tools for making gear teeth	B23F 21/04
Features of copying devices	B23Q 35/00
Constructional features of machine tools in general	B23Q

Special rules of classification within this group

The use of planing and slotting machines in metal working is not as widespread as it once was as a result of developments in milling machines and computer controls for milling machines. The field is therefore relatively slow-moving and classification in these groups is simply according to a literal interpretation of the group and subgroup headings.

Synonyms and Keywords

In the patent documents the expression/word "planing" is often used with the meaning "shaping"

B23D 3/00

Planing or slotting machines cutting by relative movement of the tool and workpiece in a vertical or inclined straight line

Definition statement

This subclass/group does not cover:

Planing or slotting machines cutting by relative movement of the tool and workpiece in a vertical or inclined straight line. The tool or workpiece may be fed in a non-linear manner between passes to produce profiled stock.

B23D 5/00

Planing or slotting machines cutting otherwise than by relative movement of the tool and workpiece in a straight line

Definition statement

This subclass/group does not cover:

Planing or slotting machines cutting otherwise than by relative movement of the tool and workpiece in a straight line.

B23D 7/00

Planing or slotting machines characterised only by constructional features of particular parts (constructional features of these parts per se B23Q)

Definition statement

This subclass/group does not cover:

Planing or slotting machines characterised only by constructional features of particular parts

B23D 9/00

Hand-operated planing devices; Portable planing apparatus

Definition statement

This subclass/group does not cover:

Hand-operated planing devices; Portable planing apparatus

B23D 11/00

Planing or slotting devices able to be attached to a machine tool, whether or not replacing an operative portion of the machine tool

Definition statement

This subclass/group does not cover:

Planing or slotting devices able to be attached to a machine tool that is not primarily designed for planing or slotting, whether or not replacing an operative portion of the machine tool

B23D 13/00

Tools or tool holders specially designed for planing or slotting machines (features applicable also to

turning-machines B23B27/00, B23B29/00; for cutting gear teeth B23F21/04))

Definition statement

This subclass/group does not cover:

Tools or tool holders specially designed for planing or slotting machines

B23D 15/00

Shearing machines or shearing devices cutting by blades which move parallel to themselves

Definition statement

This subclass/group does not cover:

Metal sheets, metal plates and metal bars or rods shearing devices comprising at least one blade which translates or roto-translates, in the latter case the blade being articulated about at least two pivoting links, the cooperating cutting edges of the shearing devices being offset or abutting.

B23D 17/00

Shearing machines or shearing devices cutting by blades pivoted on a single axis (on an axis parallel to the blade B23D15/10; hand-held devices B23D29/00)

Definition statement

This subclass/group covers:

Metal sheets, metal plates and metal bars or rods shearing devices comprising at least one elongated, possibly curved blade which rotates (completely or partially), or roto-translates, the blade being articulated about a single pivoting link, the cooperating cutting edges of the shearing devices being offset or abutting.

References relevant to classification in this group

This subclass/group does not cover:

Disc blades	B23D 19/00

B23D 19/00

Shearing machines or shearing devices cutting by rotary discs (by friction saw-discs B23D45/00))

Definition statement

This subclass/group covers:

Shearing machines or shearing devices cutting by rotary discs, the cooperating cutting edges of the shearing devices being offset or abutting.

B23D 21/00

Machines or devices for shearing or cutting tubes (by sawing, see the relevant groups for sawing machines or sawing devices; as additional equipment for deep drawing presses B21D24/16))

Definition statement

This subclass/group covers:

Devices for shearing (the cooperating cutting edges of the shearing devices being offset or abutting) or cutting tubes. The term tube is to be intended as a profile showing a continuous, convex, closed section.

References relevant to classification in this group

This subclass/group does not cover:

Cutting profiles	B21D 23/00
Cutting by turning	B23B
Cutting by milling	B23C

B23D 23/00

Machines or devices for shearing or cutting profiled stock (hand-held devices B23D29/00))

Definition statement

This subclass/group covers:

Devices for shearing (the cooperating cutting edges of the shearing devices being offset or abutting) or cutting metal profiles showing a discontinuous, concave or open section, window coverings, window or door profiles.

References relevant to classification in this group

This subclass/group does not cover:

Cutting tubes	B23D 21/00

Turning	B23B
Milling	B23C

B23D 25/00

Machines or arrangements for shearing stock while the latter is travelling otherwise than in the direction of the cut (controlling slack in travelling flexible stock B21C47/10))

Definition statement

This subclass/group covers:

Machines or arrangements for shearing stock while the latter is travelling otherwise than in the direction of the cut, the cooperating cutting edges of the shearing devices being offset or abutting.

B23D 27/00

Machines or devices for cutting by a nibbling action

Definition statement

This subclass/group covers:

Machines or devices comprising at least one punch like tool and adapted to produce a line of cut which is the result of a sequence of overlapping punching operations.

B23D 29/00

Hand-held metal-shearing or metal-cutting devices (with nibbling action B23D27/02; hand-operated devices for metal-cutting otherwise than by shearing B26B)

Definition statement

This subclass/group covers:

Devices in which the cooperating cutting edges of the shearing devices are offset or abutting.

References relevant to classification in this group

This subclass/group does not cover:

Hand operated shearing devices	B26B

comprising abutting cutting edges	

B23D 31/00

Shearing machines or shearing devices covered by none or more than one of the groups B23D15/00 to B23D29/00; Combinations of shearing machines

Definition statement

This subclass/group covers:

In addition to combinations of similar or different shearing machines as defined in the preceding main groups, breaking machines (e.g. for rails, connecting rods, rings), demolition shears, devices for trimming deep drawn products outside the press.

Informative references

This subclass/group does not cover:

Disintegrating by knives	B02C 18/00
Trimming combined with deep-drawing presses	B21D 24/16

B23D 33/00

Accessories for shearing machines or shearing devices (feeding stock to machines or removing stock B21D43/00))

Definition statement

This subclass/group covers:

Feeding, holding, positioning or guiding stock directly into the operating area of the shearing machines or devices, devices for indicating the position of the cut.

Informative references

This subclass/group does not cover:

Indicating the position of the cut	B21D 28/04

B23D 35/00

Tools for shearing machines or shearing devices; Holders or chucks for shearing tools

Definition statement

This subclass/group covers:

Shapes and sections of the cutting members, means for mounting and adjusting the position of cutting members

B23D 36/00

Control arrangements specially adapted for machines for shearing or similar cutting, or for sawing, stock which the latter is travelling otherwise than in the direction of the cut

Definition statement

This subclass/group covers:

Control means for coordinating the action between feeding means and shearing means

Informative references

This subclass/group does not cover:

Control means for cutting non metallic workpieces	B26D 5/00

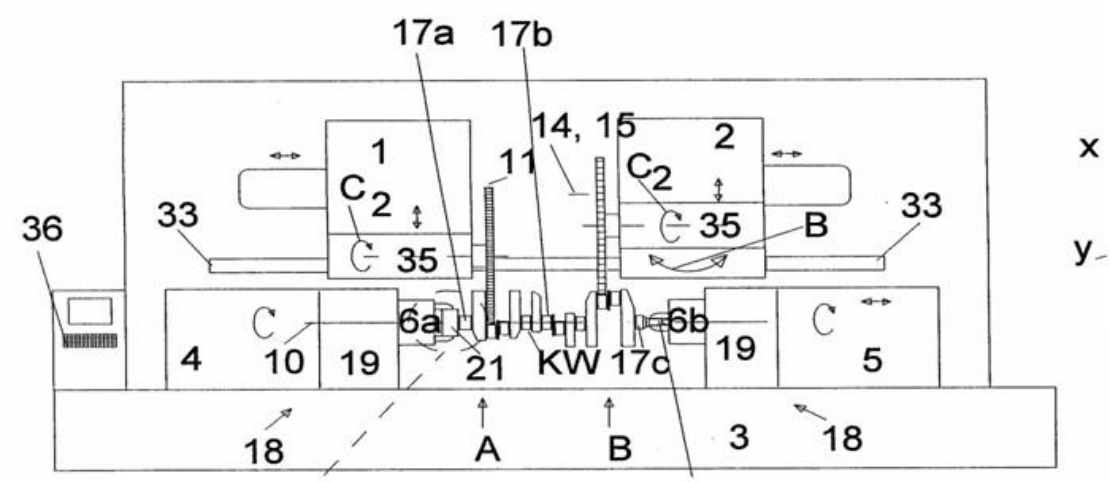
B23D 37/00

Broaching machines or broaching devices

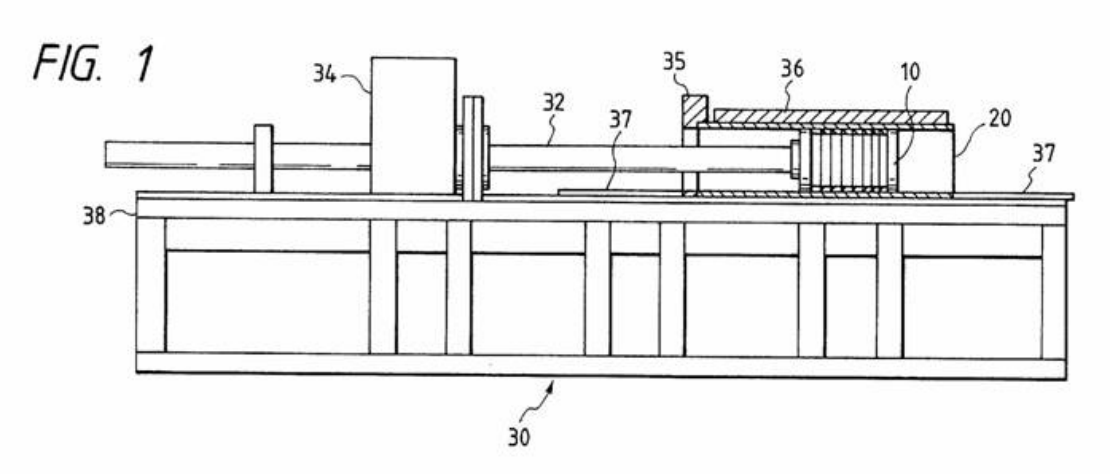
Definition statement

This subclass/group covers:

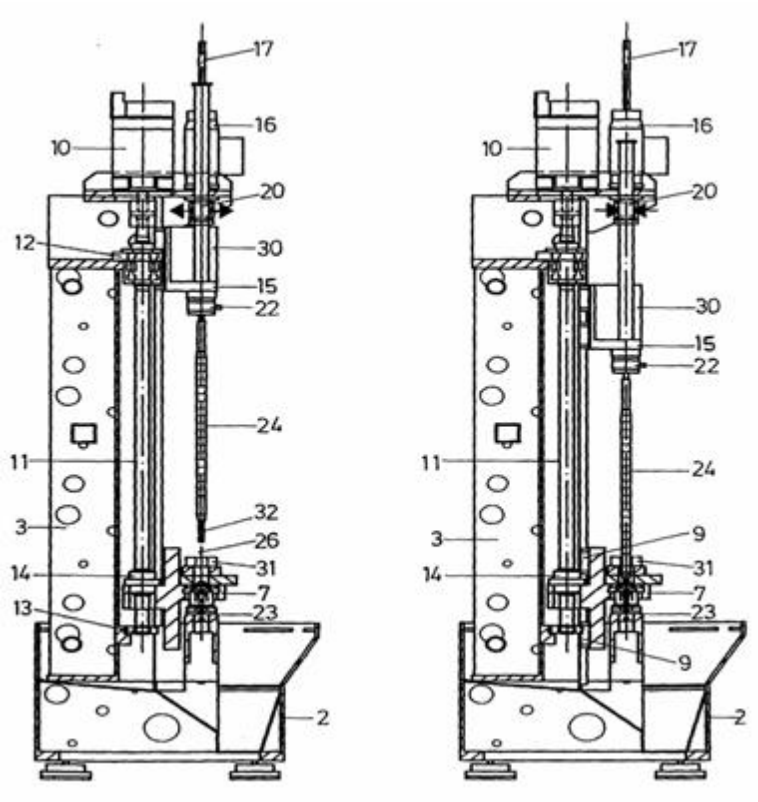
Broaching machines or devices. Broaching is similar to shaping/planing (B23D 1/00-B23D 13/00) except that a tool with multiple teeth is employed. The difference in height between successive teeth on a broaching tool determines the feed, and hence the chip thickness, whereas in shaping or planing the feed is determined by a relative movement between tool and workpiece between each pass.



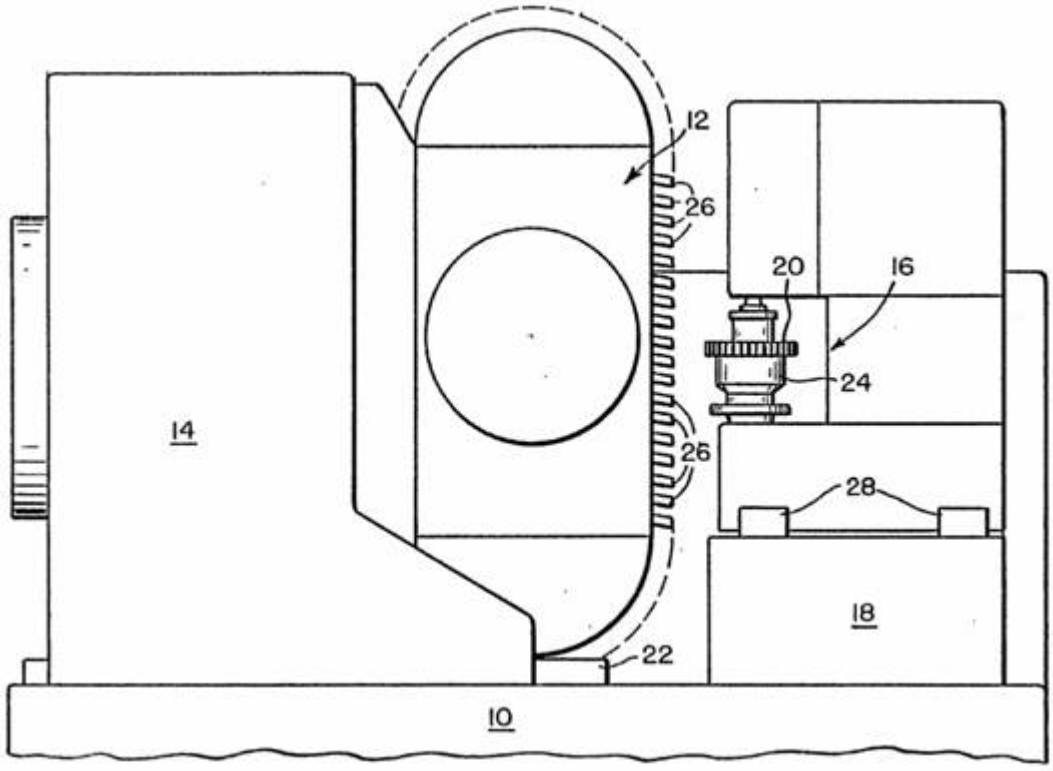
Broaching of cylindrical workpieces e.g. crankshafts B23D 37/005



Horizontal broaching machine B23D 37/04



Vertical Broaching machine for inner surface [B23D 37/10]



Broaching machine with tools on chain [B23D 37/18]

Relationship between large subject matter areas

Broaching is similar to shaping/planing (B23D 1/00-B23D 13/00) except that a tool with multiple teeth is employed. The difference in height between successive teeth on a broaching tool determines the feed, and hence the chip thickness, whereas in shaping or planing the feed is determined by a relative movement between tool and workpiece between each pass.

References relevant to classification in this group

This subclass/group does not cover:

Making gears or the like by broaching	B23F
Multi stage processes involving broaching and also other operations classed in B23B, B23C, B23F, making particular items.	B23P 13/00 B23P 15/00 B23P 23/00
Details of machine tools and accessories not related to the operation being performed including: - evacuation of swarf, - guarding & protective coverings - conveying workpiece into and from machine - tool changing- measuring or sensing	B23Q B23Q 11/0042 B23Q 11/08 B23Q 7/00 B23Q 3/155 B23Q 17/00
Adaptive control and/or computer controls for broaching processes	B23Q 15/00 G05B 15/02

Informative references

Attention is drawn to the following places, which may be of interest for search:

Turning of crankshafts or camshafts	B23B 5/18
Milling of crankshafts	B23C 3/06
Fixation of cutting inserts in metal-removing tools	B23B 27/16 B23C 5/22
Milling of camshafts	B23C 3/08
Construction of milling tools	B23C 5/00
Manufacture of crankshafts or camshafts	B23P 15/00

Broaching of gears	B23F 1/08 B23F 5/28 B23F 9/003
Broach-milling tools for making gears	B23F 21/24
Broaching tools for making gears	B23F 21/26
Constructional features of machine tools in general	B23Q

Special rules of classification within these groups

B23D 37/005 for rotary broaching takes precedence over all other subgroups

Classification in this group is simply according to a literal interpretation of the group and subgroup headings, taking into account the notes concerning precedence and the references contained within the subgroups.

B23D 39/00

Accessories for broaching machines or broaching devices

Definition statement

This subclass/group covers:

Accessories for broaching machines or broaching devices. Broaching is similar to shaping/planing (B23D 1/00-B23D 13/00) except that a tool with multiple teeth is employed. The difference in height between successive teeth on a broaching tool determines the feed, and hence the chip thickness, whereas in shaping or planing the feed is determined by a relative movement between tool and workpiece between each pass.

Special rules of classification within these groups

Classification in this group is simply according to a literal interpretation of the group and subgroup headings, taking into account the notes concerning precedence and the references contained within the subgroups.

B23D 41/00

Broaching machines or broaching devices characterised only by constructional features of particular parts (constructional features of these parts per se B23Q)

Definition statement

This subclass/group covers:

Broaching machines or broaching devices characterised only by constructional features of particular parts. Broaching is similar to shaping/planing (B23D 1/00-B23D 13/00) except that a tool with multiple teeth is employed. The difference in height between successive teeth on a broaching tool determines the feed, and hence the chip thickness, whereas in shaping or planing the feed is determined by a relative movement between tool and workpiece between each pass.

Special rules of classification within these groups

Classification in this group is simply according to a literal interpretation of the group and subgroup headings, taking into account the notes concerning precedence and the references contained within the subgroups.

B23D 43/00

Broaching tools (for cutting gear teeth B23F21/26)

Definition statement

This subclass/group covers:

Broaching tools. Broaching is similar to shaping/planing (B23D 1/00-B23D 13/00) except that a tool with multiple teeth is employed. The difference in height between successive teeth on a broaching tool determines the feed, and hence the chip thickness, whereas in shaping or planing the feed is determined by a relative movement between tool and workpiece between each pass.

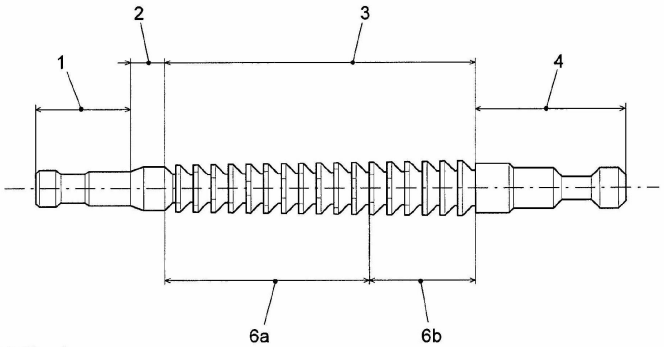


FIG. 1

5/6

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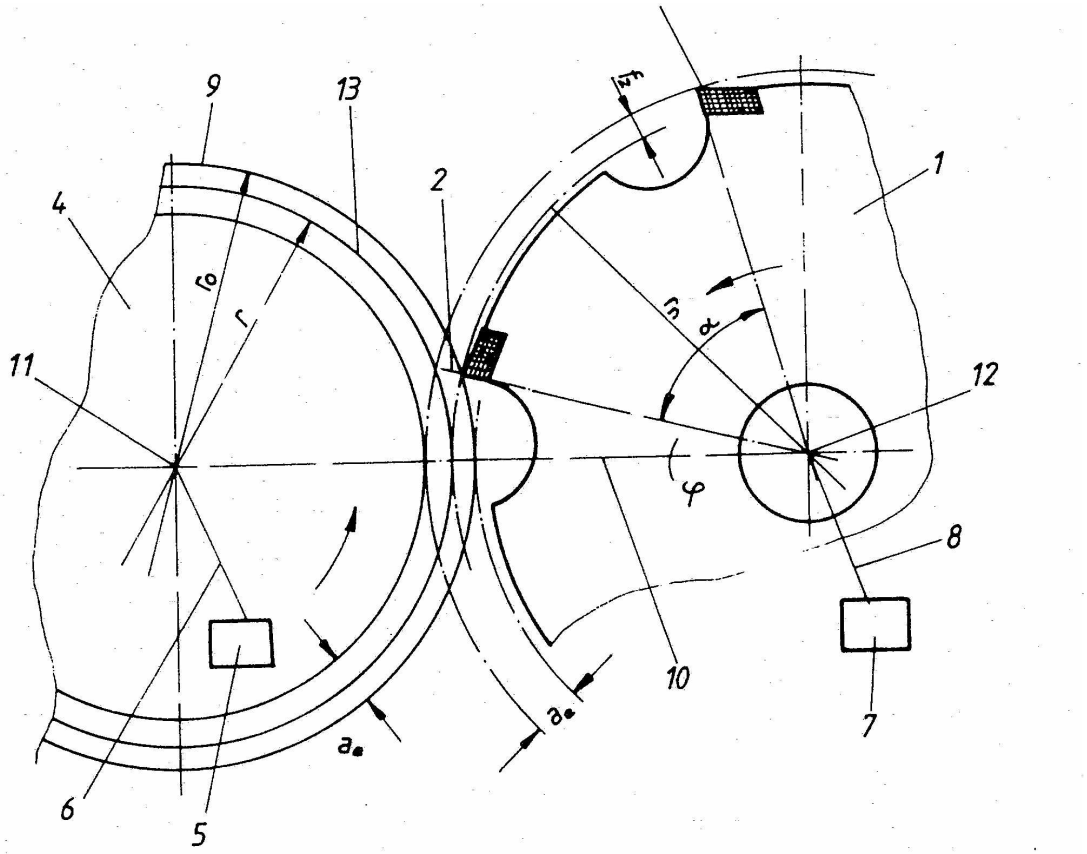
Anhängende Zeichnungen

linear broach B23D 43/02



Rotational broach B23D 43/06

Special rules of classification within these groups

Classification in this group is simply according to a literal interpretation of the group and subgroup headings, taking into account the notes concerning precedence and the references contained within the subgroups.

B23D 45/00

Sawing machines or sawing devices with circular saw blades or with friction saw discs (shearing machines with rotary discs B23D19/00 to B23D25/00))

Definition statement

This subclass/group covers:

- Machines or devices for sawing in general or sawing metal (B23D 45/00, B23D 49/00, B23D 53/00, B23D 57/00)
- Constructional features of particular parts thereof (B23D 47/00, B23D 51/00, B23D 55/00)

- Accessories specially designed for sawing machines or sawing devices (B23D 59/00)
- Tools for sawing machines or sawing devices, clamping devices for these tools, saw blades (B23D 61/00)
- Dressing the tools of sawing machines or sawing devices (B23D 63/00)
- Making tools for sawing machines or sawing devices (B23D 65/00)

Relationship between large subject matter areas

B23D is the main entry for sawing. Other large areas covering sawing are B27B (sawing wood or similar material) and B28D 1/02 (sawing stone). Precedence is given to B23D. Features not restricted to a particular type of saw are classified in B23D. However, such features are classified in B27B if a more specific entry exists in B27B, for example:

- B27B 5/30: mounting/securing devices for circular saw blades or spindles
- B27B 5/38: braking devices for the circular saw blade or the spindle
- B27B 17/00: details of chain saws, equipment for chain saws
- B27B 27/00: guide fences or stops
- B27B 33/14: saw chains

References relevant to classification in this group

This subclass/group does not cover:

Safety guards or devices specially designed for saws	B27G 19/00, B23Q 11/00, F16P
Constructional features of particular parts per se	B23Q
Details or components, e.g. casings, bodies, of portable power-driven saws not particularly related to the operation performed	B25F 5/00
Shearing machines with rotary discs	B23D 19/00 - B23D 25/00
Control of machines with circular saw blades for sawing stock while the latter is travelling otherwise than in the direction of the cut	B23D 36/00

Grinders for cutting-off	B24B 27/06

Examples of places where the subject matter of these main groups is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Sawing wood or similar material	B27B
Sawing stone or stone-like materials	B28D 1/02
Sawing gems, jewels, crystals with discs or wheels	B28D 5/022
Sawing gems, jewels, crystals with blades or wires	B28D 5/042, B28D 5/045
Accessories specially adapted for use with machines for sawing of gems, jewels, crystals	B28D 5/0058
Accessories specially adapted for use with machines or devices for sawing stone	B28D 7/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Saws specially adapted for pruning or debranching	A01G 3/08
Sawing apparatus specially adapted for felling trees	A01G 23/091
Meat or bone saws	A22B 5/20
Surgical saws	A61B 17/14
Saws for dentistry	A61C 3/12
Grinders for cutting-off	B24B 27/06
Auxiliary devices facilitating proper	B27G 19/00

operation of wood saws	

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

In these main groups, the following expressions are used with the meaning indicated:

Feeding work	moving a workpiece into engagement with a saw blade while sawing
Conveying or transporting work	moving a workpiece before, after or between sawing operations
Discharging work	moving a workpiece away from a saw blade after sawing

B23D 45/003

[N: for particular purposes]

Definition statement

This subclass/group covers:

For example: devices for sawing venetian window blinds, railroad rails, pallets.

Informative references

This subclass/group does not cover:

Devices or accessories for making or mounting lamellar blinds or parts thereof	E06B 9/266
Machines for disassembling pallets	B23P 19/041
Sectioning or slitting rails, e.g. by sawing, shearing, flame-cutting	E01B 31/04

B23D 45/006

[N: with means to attach the sawing device to the workpiece]

Informative references

This subclass/group does not cover:

Sectioning or slitting rails, e.g. by sawing, shearing, flame-cutting	E01B 31/04

B23D 45/025

[N: Radial sawing machines]

Definition statement

This subclass/group covers:

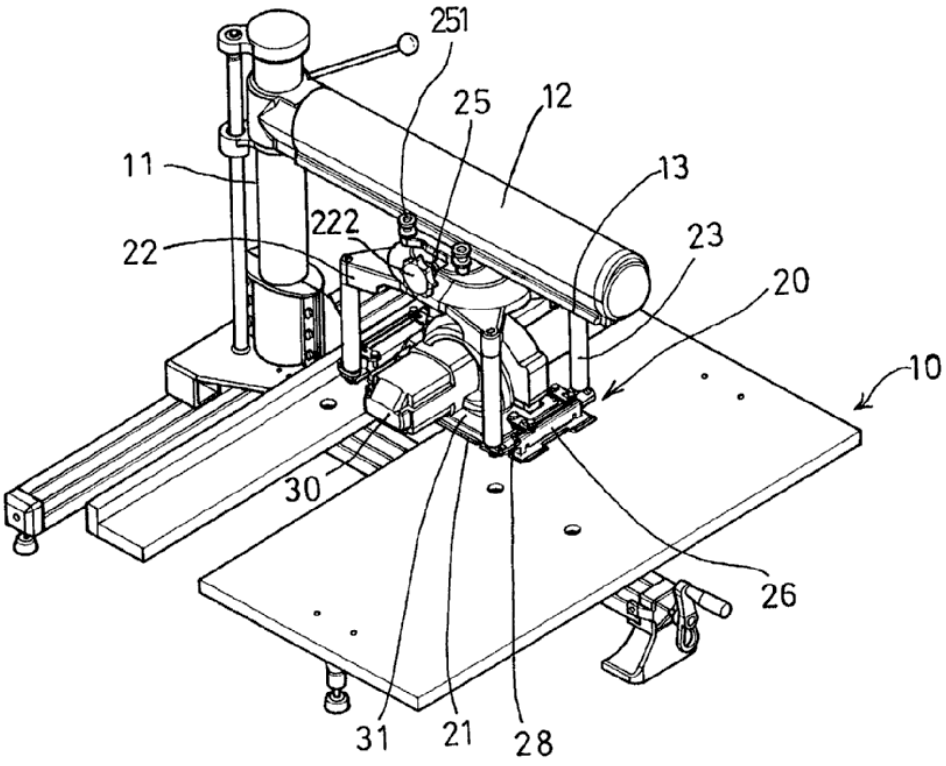


FIG. 1

Patent Application Publication Sep. 18, 2003 Sheet 1 of 7 US 2003/0172788 A1

(US2003/017288 A1)

B23D 45/028

[N: the saw carriage being mounted on a pivoted lever]

Definition statement

This subclass/group covers:

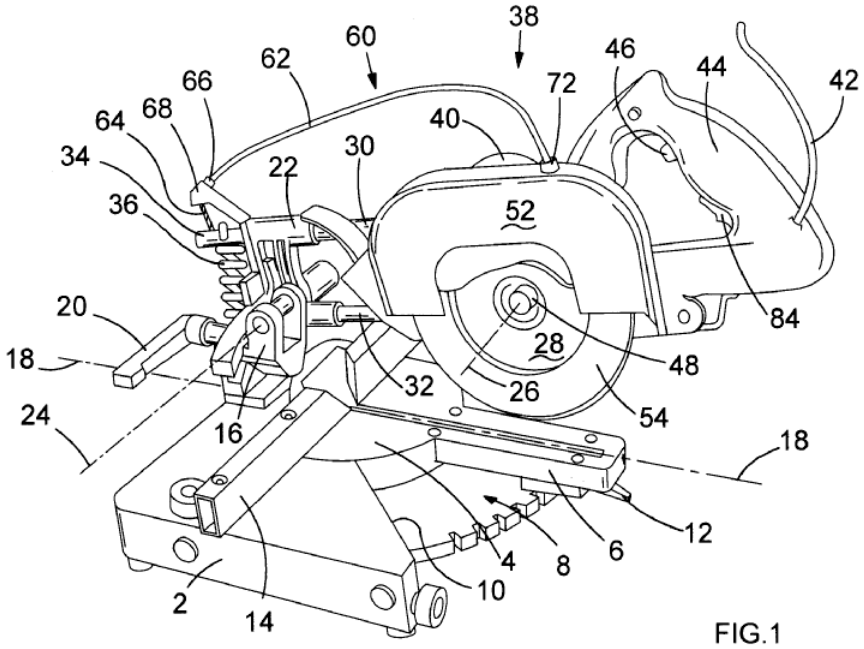


FIG.1

(EP 1 772 221 A1)

B23D 47/00

Sawing machines or sawing devices working with circular saw blades, characterised only by constructional features of particular parts (constructional features of these parts per se B23Q; details or components, e.g. casings, bodies, of portable power-driven tools not particularly related to the operation performed B25F5/00)

References relevant to classification in this main group

This subclass/group does not cover:

Constructional features of particular parts per se	B23Q
Details or components, e.g. casings, bodies, of portable power-driven saws not particularly related to the operation performed	B25F 5/00

Circular saw blades, clamping devices therefor	B23D 61/02
Mounting or securing circular saw blades or saw spindles	B27B 5/30 - B27B 5/36
Devices for braking the circular saw blade or the saw spindle	B27B 5/38
Arrangements for adjusting the cutting depth or the amount of tilting of portable power-driven circular saws for manual operation	B27B 9/02
Guiding equipment for portable power-driven circular saws for manual operation	B27B 9/04
Guide fences	B27B 27/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Details; component parts; accessories for circular wood saws	B27B 5/29
Devices for damping vibrations of the circular saw blade, e.g. silencing	B27B 5/38

B23D 49/00

Machines or devices for sawing with straight reciprocating saw blades, e.g. hacksaws

References relevant to classification in this main group

This subclass/group does not cover:

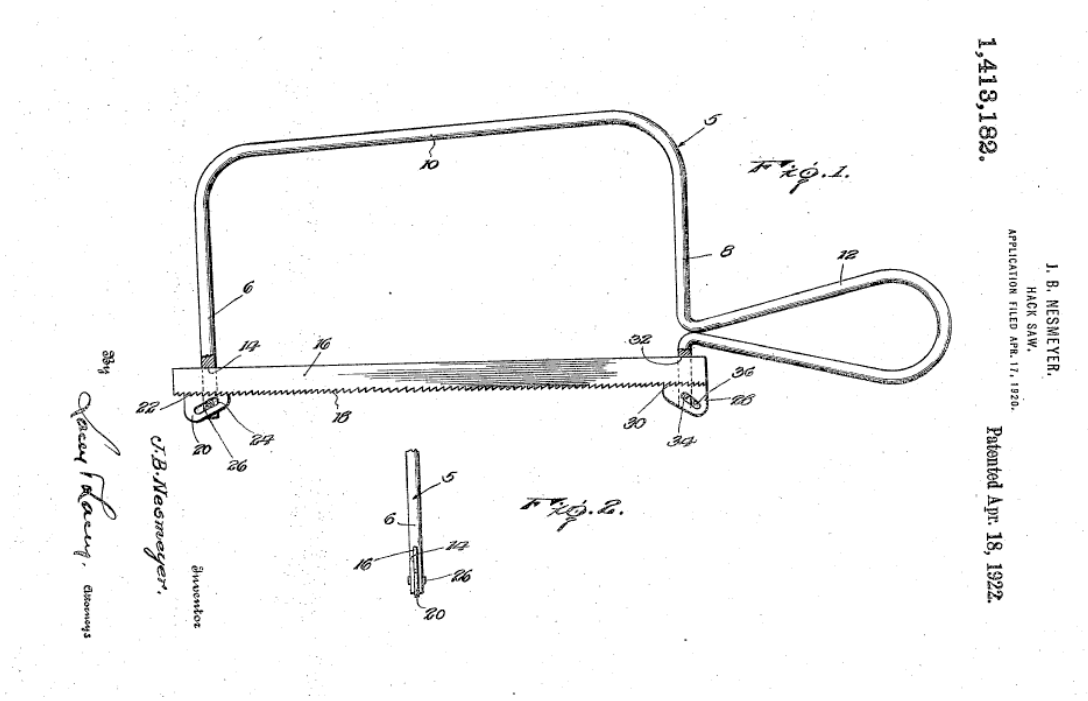
Hacksaws with bows adjustable in length or height	B23D 51/12

B23D 49/125

[N: with wire-type frames]

Definition statement

This subclass/group covers:



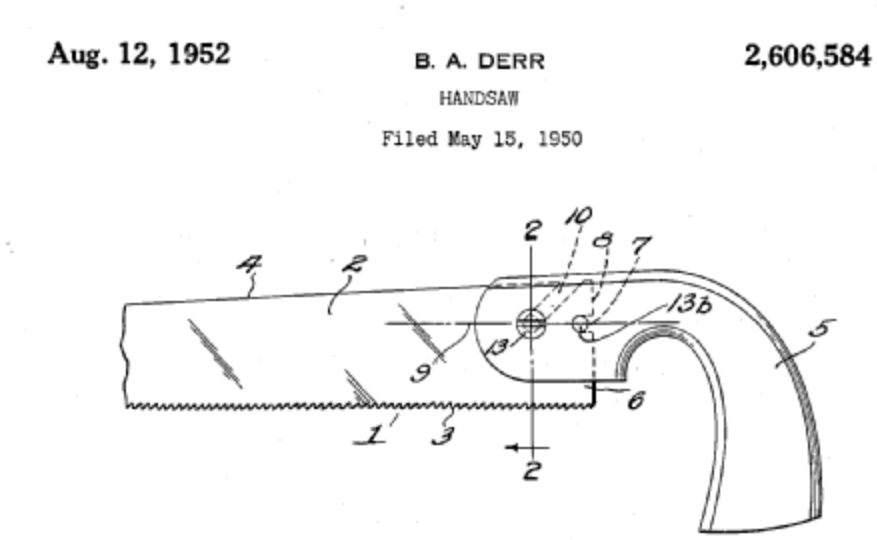
(US 1 413 182)

B23D 49/14

Pad saws [N:(B23D49/105,B23D49/11,B23D49/16 take precedence]

Definition statement

This subclass/group covers:



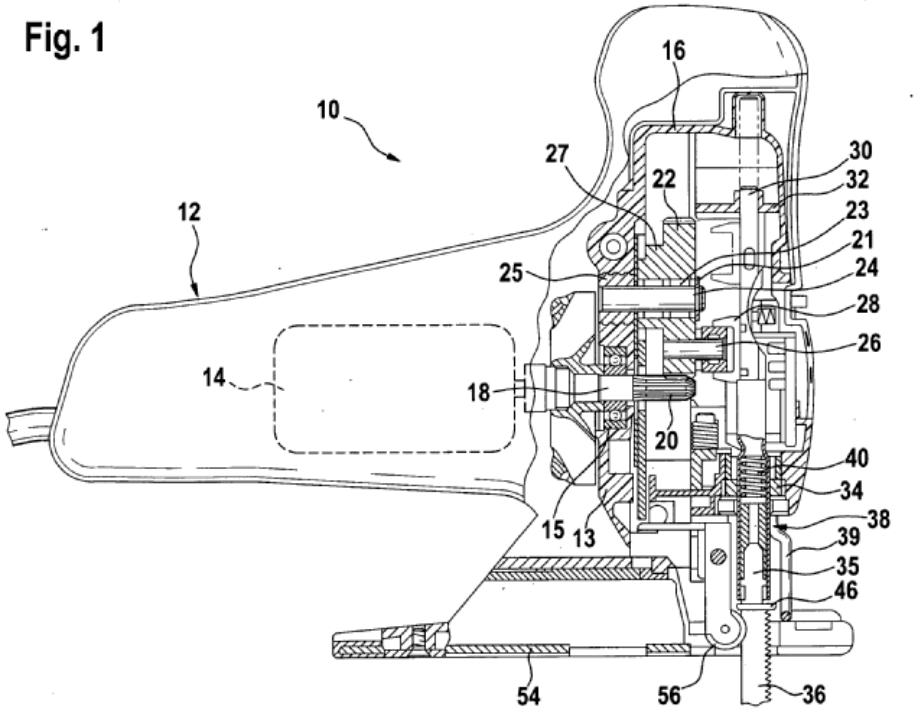
(US 2 606 584)

B23D 49/162

[N: Pad sawing devices]

Definition statement

This subclass/group covers:



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Anhängende Zeichnungen

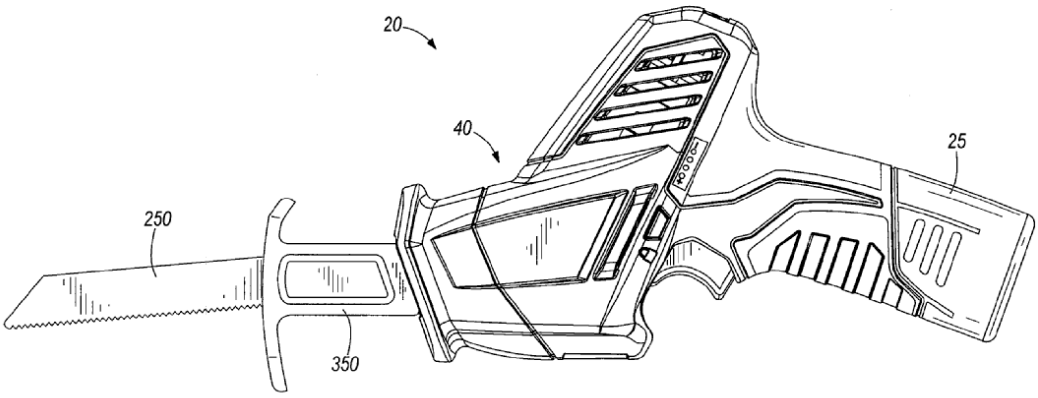
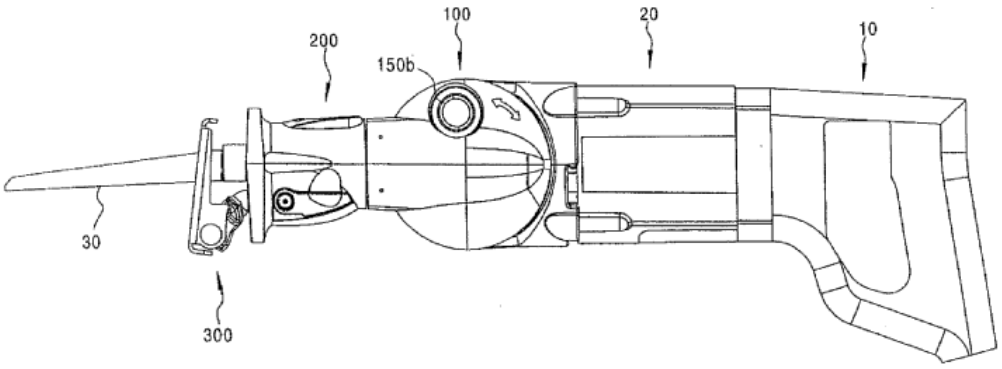


FIG. 1

(US 2010/0162579 A1)



(EP 1 884 304 A1)

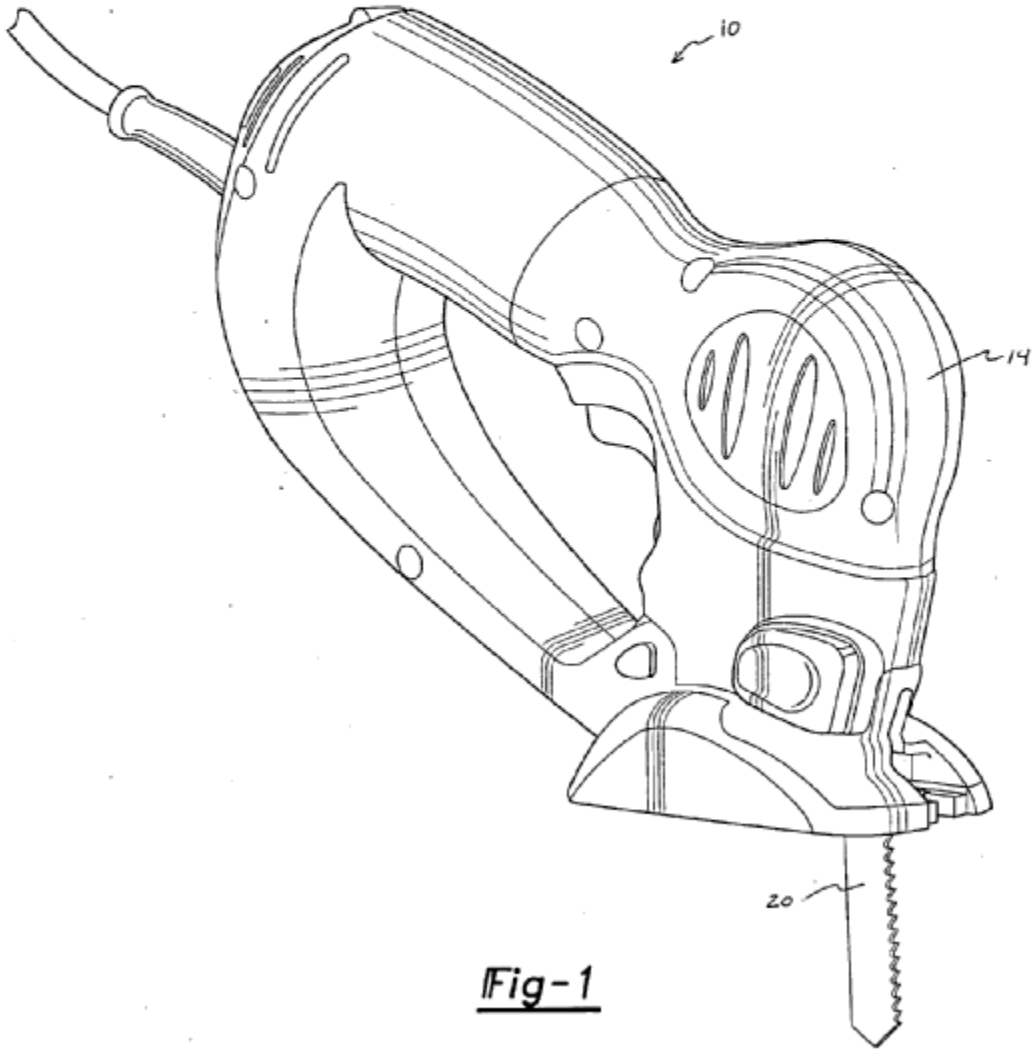


Fig-1

(EP 1 325 790 A2)

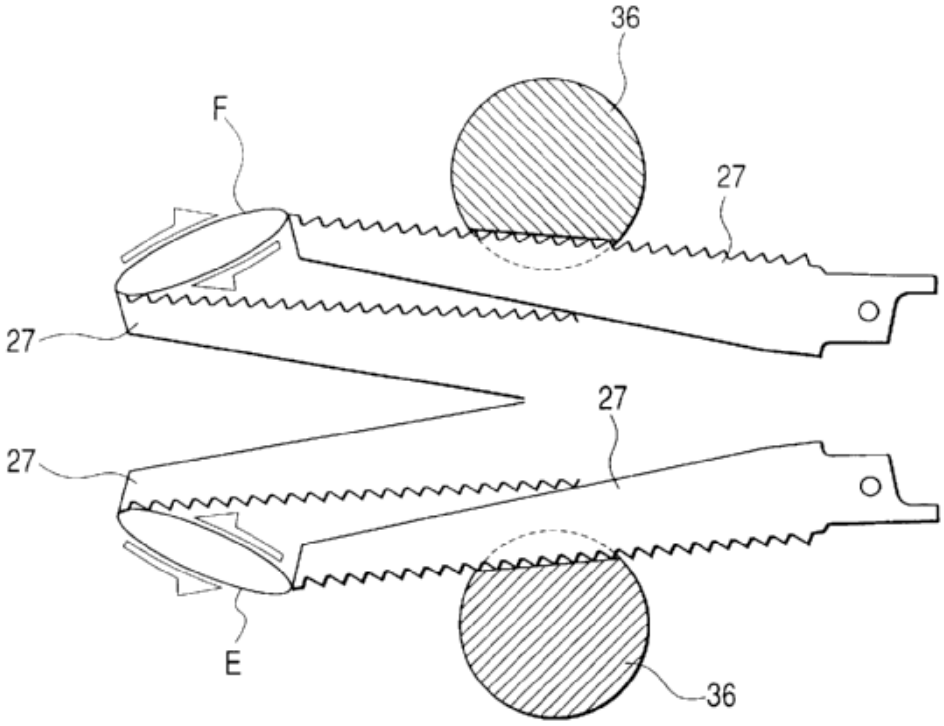
B23D 49/165

[N: with means to move the saw blades in an orbital path]

Definition statement

This subclass/group covers:

FIG. 16



US 6 662 455 B2

FIG. 4

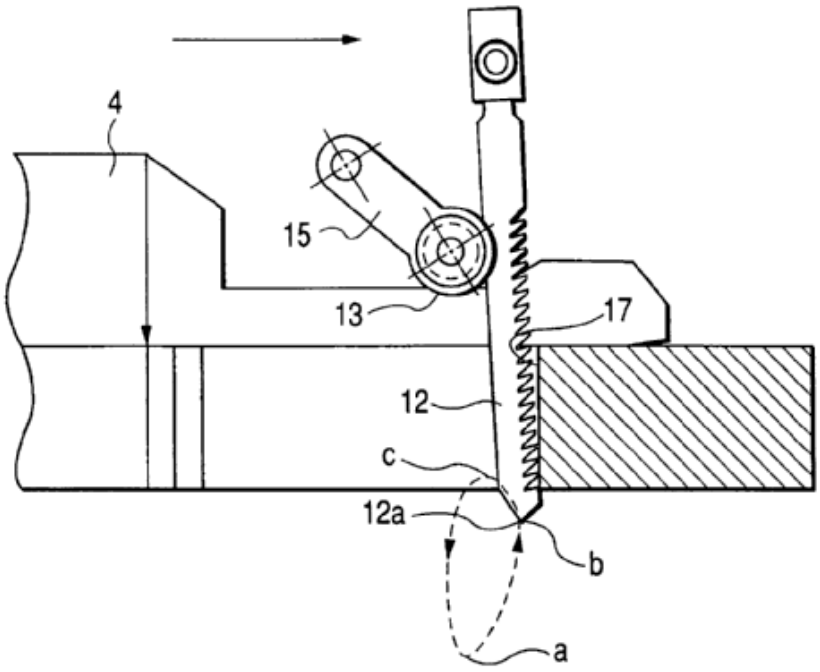
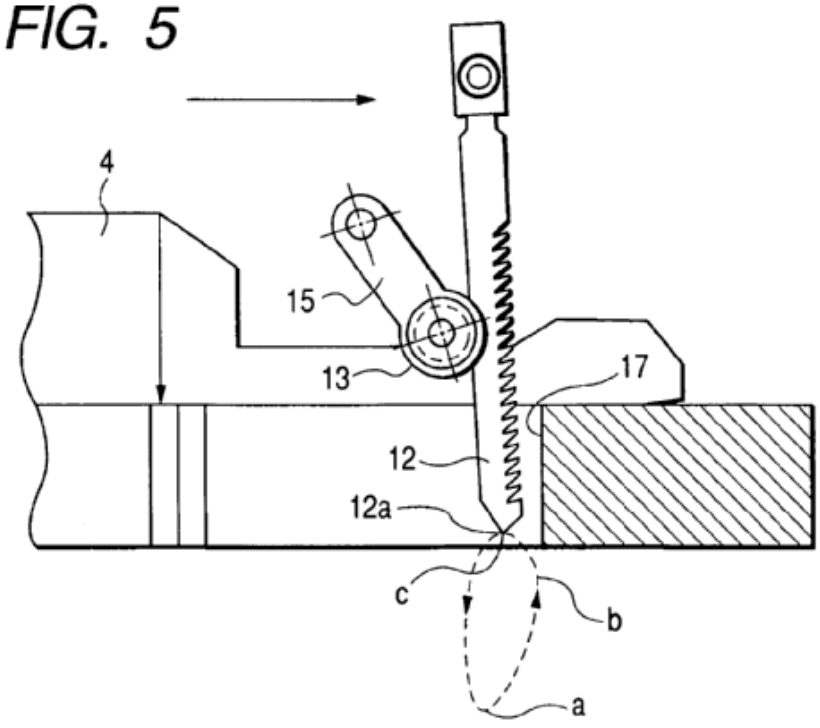


FIG. 5



B23D 49/167

[N: with means to adjust the guide plate or with means to adjust the plane in which the saw blade moves]

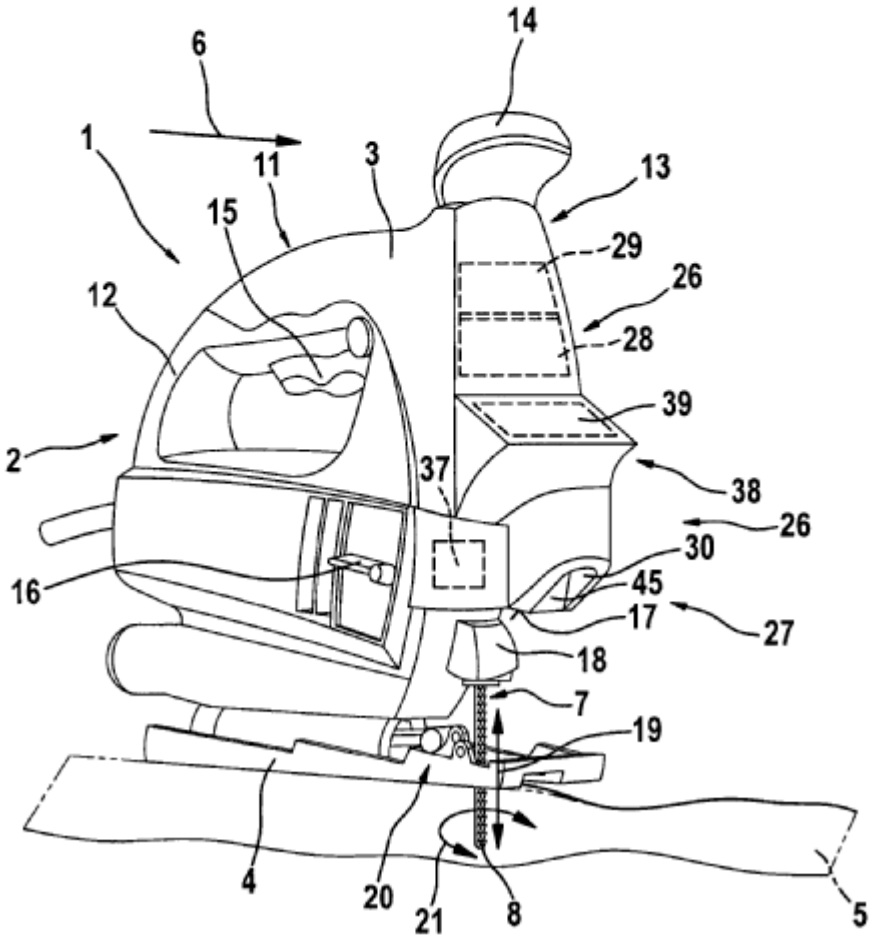
Definition statement

This subclass/group covers:

DE 10 2008 001 762 A1 2009.11.19

Anhängende Zeichnungen

Fig. 1



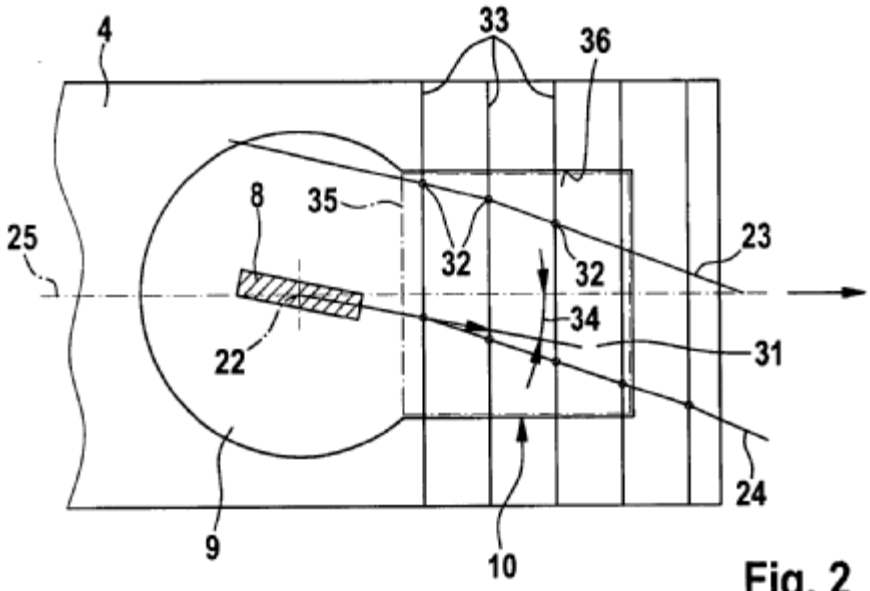
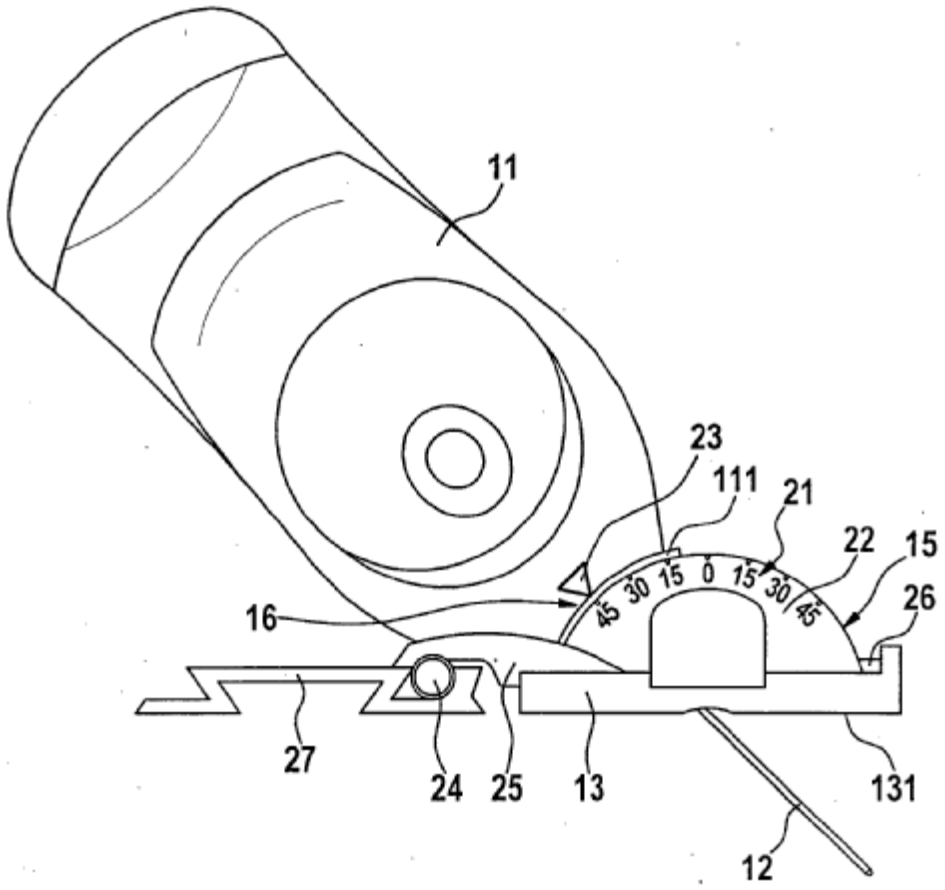


Fig. 2

the saw blade being rotatable around its longitudinal axis during sawing for sawing along a curved path (DE 10 2008 001 762 A1)

Anhängende Zeichnungen

Fig. 1



the saw being angularly adjustable relative to its foot plate

(DE 10 2007 034 529 A1)

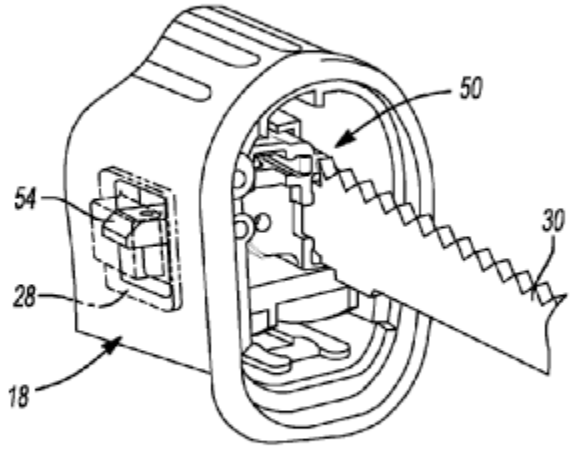


Fig-2

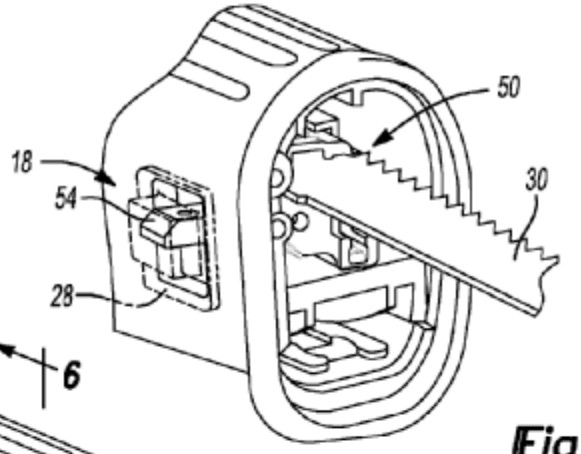


Fig-3

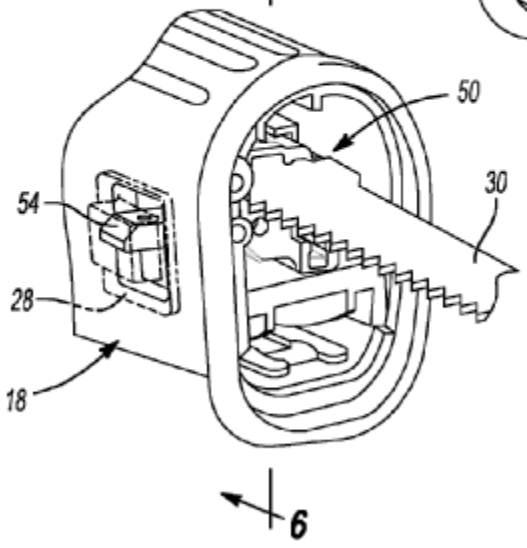


Fig-4

the saw blade being mountable in different planes (EP 2 368 659 A1)

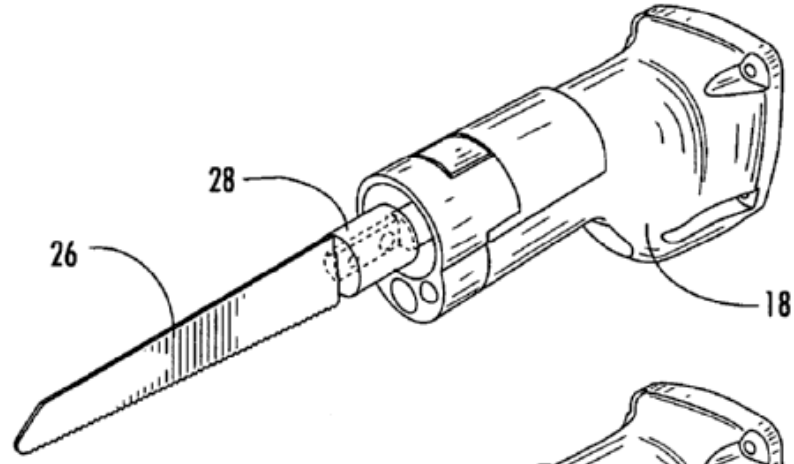


FIG. 2a

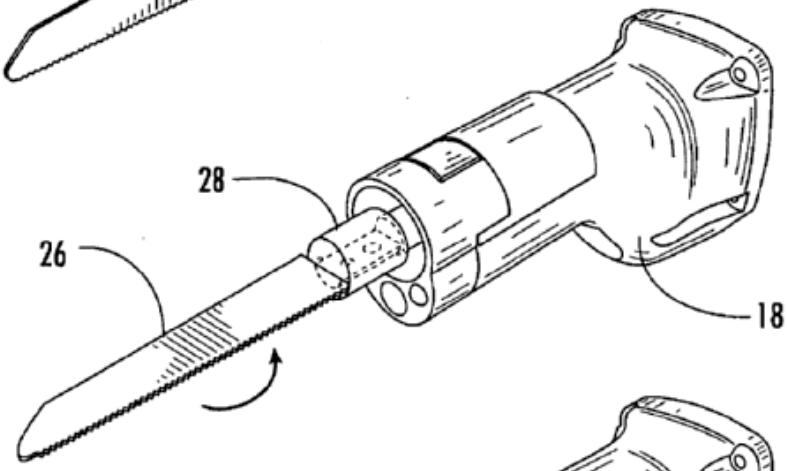


FIG. 2b

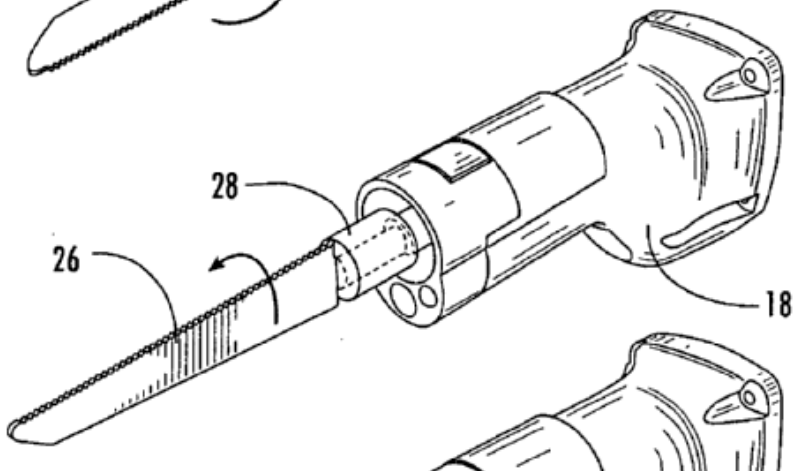


FIG. 2c

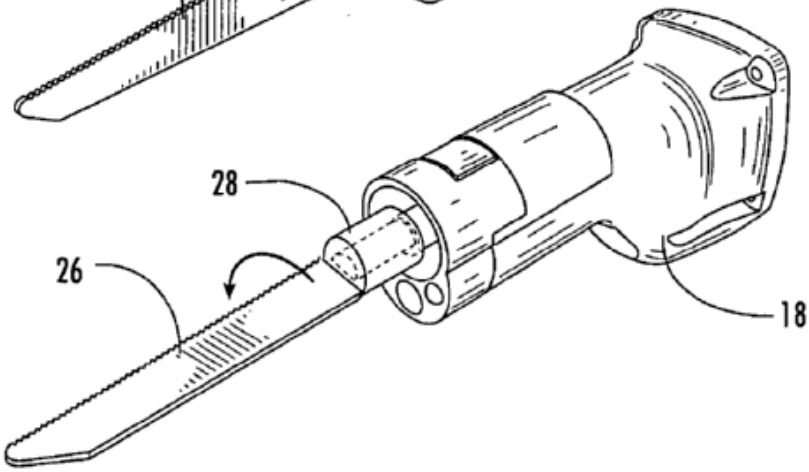


FIG. 2d

FIG. 4A

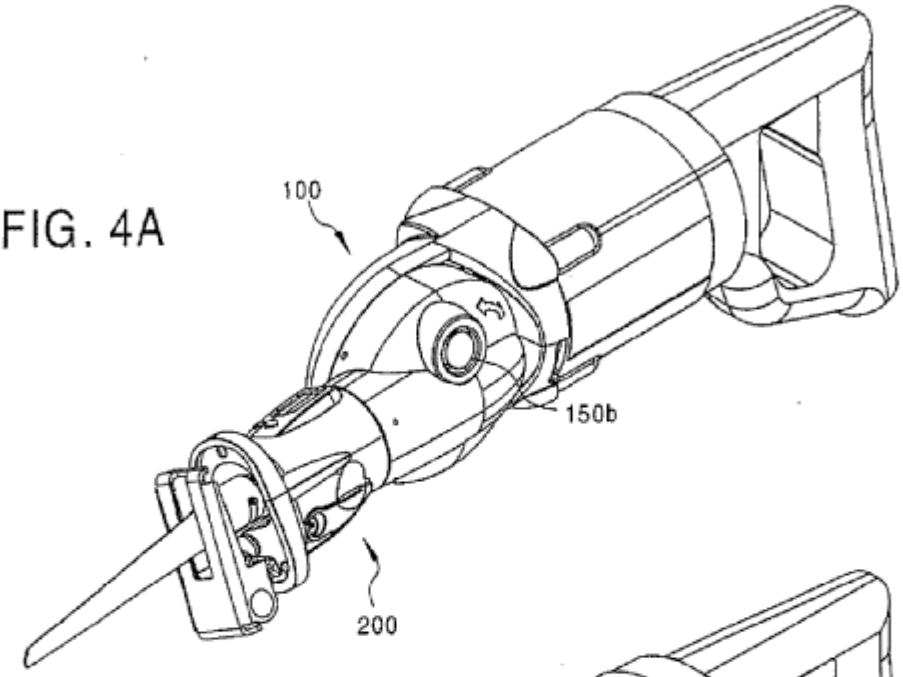
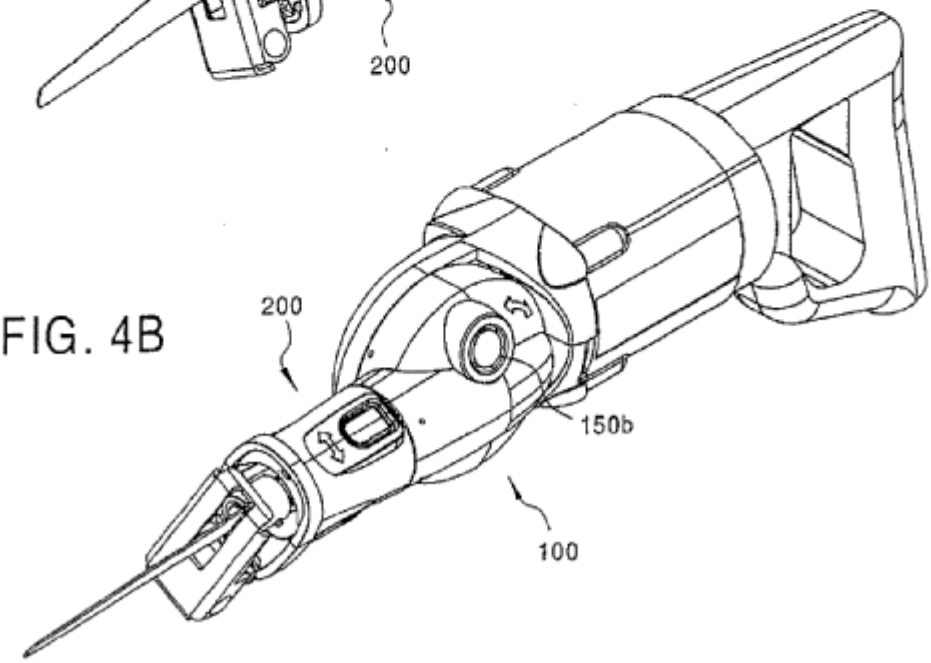


FIG. 4B



the saw blade being adjustable in different planes (US 2010/0154231 A1 and EP 1 884 304 A1)

B23D 51/00

Sawing machines or sawing devices working with straight blades, characterised only by constructional features of

particular parts (constructional features of these parts per se B23Q; details or components, e.g. casings, bodies, of portable power-driven tools not particularly related to the operation performed B25F5/00); Carrying or attaching means for tools, covered by this subclass, which are connected to a carrier at both ends

References relevant to classification in this main group

This subclass/group does not cover:

Constructional features of particular parts per se	B23Q
Details or components, e.g. casings, bodies, of portable power-driven saws not particularly related to the operation performed	B25F 5/00
Straight saw blades	B23D 61/12
Guide fences	B27B 27/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements for stretching the saw blade of hand saws without power drive for sawing wood	B27B 21/06

B23D 53/00

Machines or devices for sawing with strap saw-blades which are effectively endless in use, e.g. for contour cutting

References relevant to classification in this main group

This subclass/group does not cover:

Band or strap sawing machines specially designed for length cutting of trunks with a plurality of band saw blades	B27B 15/08

B23D 55/00

Sawing machines or sawing devices working with strap saw blades, characterised only by constructional features of particular parts (constructional features of these parts per se B23Q))

References relevant to classification in this main group

This subclass/group does not cover:

Constructional features of particular parts per se	B23Q
Constructional features of a shiftable or swinging work-table	B23D 53/06
Strap saw blades, for example with incorporated tensioning devices	B23D 61/12
Guide fences	B27B 27/00

B23D 57/00

Sawing machines or sawing devices not covered by one of the preceding groups B23D45/00 to B23D55/00

Definition statement

This subclass/group covers:

For example: wire saws, chain saws, saws for sawing under water or at places accessible with difficulty.

References relevant to classification in this main group

This subclass/group does not cover:

Constructional features of particular parts per se	B23Q
Saw wires	B23D 61/185
Saw chains	B27B 33/14, B28D 1/124
Details of chain saws, equipment for chain saws	B27B 17/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Grinders for cutting-off using a cutting wire	B24B 27/0633

B23D 59/00

Accessories specially designed for sawing machines or sawing devices (lubricating or cooling machine tools in general B23Q11/12))

References relevant to classification in this main group

This subclass/group does not cover:

Devices for removing chips for machine tools in general	B23Q 11/0042
Lubricating or cooling machine tools in general	B23Q 11/12
Measuring in general	G01
Controlling in general	G05
Mounting for swivelling or tilting a circular saw blade	B27B 5/36
Arrangements for adjusting the cutting depth or the amount of tilting of portable power-driven circular saws for manual operation	B27B 9/02
Guide fences	B27B 27/00

B23D 61/00

Tools for sawing machines or sawing devices (tools for trepanning B23B51/04); Clamping devices for these tools

References relevant to classification in this main group

This subclass/group does not cover:

Tools for trepanning	B23B 51/04
Cut-off wheels of bonded abrasive or with inserted abrasive blocks	B24D 5/12
Saw chains	B27B 33/14, B28D 1/124
Mounting or securing circular saw blades or saw spindles	B27B 5/30 - B27B 5/36
Devices for mounting straight saw blades or other tools	B23D 51/08

Informative references

Attention is drawn to the following places, which may be of interest for search:

Grinders for cutting-off using a cutting wire	B24B 27/0633

B23D 63/00

Dressing the tools of sawing machines or sawing devices for use in cutting any kind of material, e.g. in the manufacture of sawing tools

References relevant to classification in this main group

This subclass/group does not cover:

Heat treatment for saw blades	C21D 9/24
Sharpening the cutting edges or saw teeth of mortise chain cutters	B24B 3/14

B23D 65/00

Making tools for sawing machines or sawing devices for use in cutting any kind of material

References relevant to classification in this main group

This subclass/group does not cover:

Heat treatment for saw blades	C21D 9/24

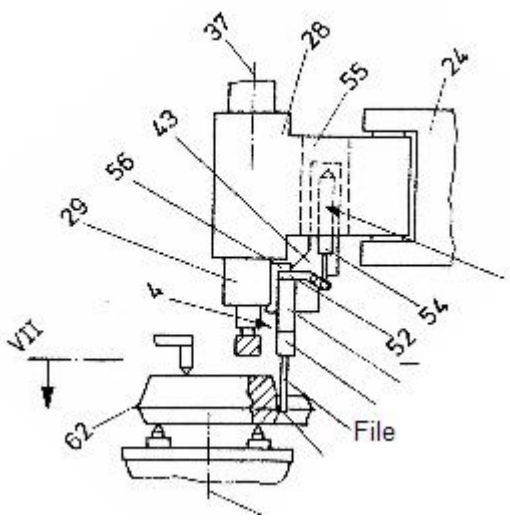
B23D 67/00

Filing or rasping machines or devices (securing arrangements for files or rasps B23D71/00)

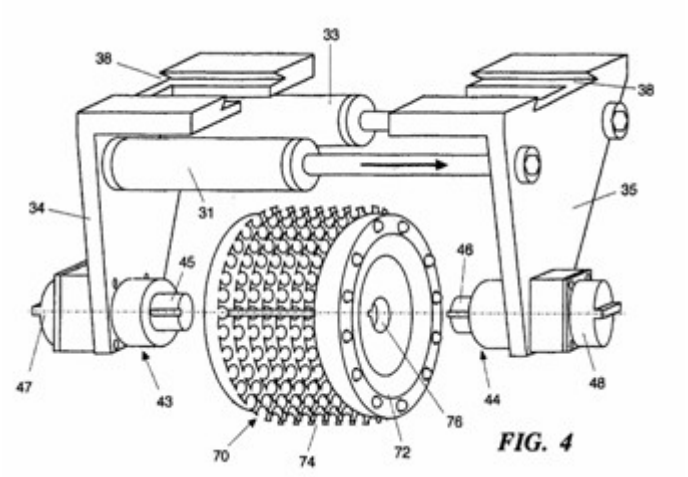
Definition statement

This subclass/group covers:

Filing or rasping machines or devices;.

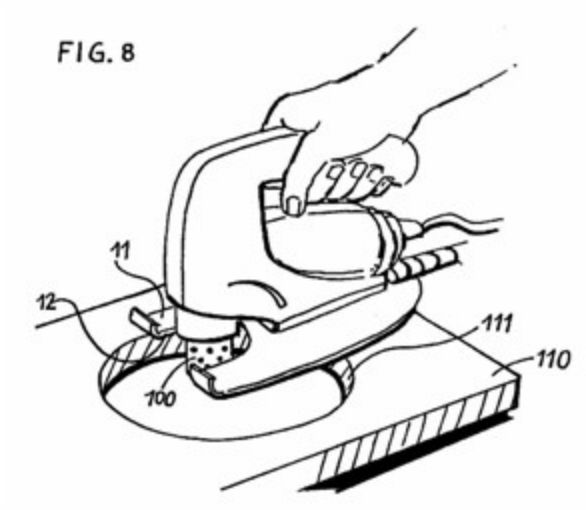


Filing machine with reciprocating tool B23D 67/02 or B23D 67/04



Rasping machine with rotary tool for rubber like materials (tyres)

B23D 67/06, B23D 67/10 (and additionally B23D 71/025)



Hand held rasping machine B23D 67/12

Relationship between large subject matter areas

Filing or rasping is similar in nature to grinding, which is classified in B24B and B24D. The principal difference between grinding and rasping or filing is that in grinding material is removed by a tool having cutting edges of undefined angles. Grinding tools usually consist of abrasive particles embedded in a fixing medium. In filing or rasping the approach and rake angles of the cutting edges are usually known and determined by the configuration of the tool. Files generally have rows or fine teeth arranged in a pattern and are used for relatively precise work. Rasps are in general designed for coarser (rougher) work and may (but may not) have randomly arranged cutting edges.

References relevant to classification in this group

This subclass/group does not cover:

Sharpening saw teeth by filing	B23D 63/10
Sharpening files by etching	C23F 1/06
Methods or machines for the manufacture of files or rasps that use non-mechanical methods	subclass according to non-mechanical method

Informative references

Attention is drawn to the following places, which may be of interest for search:

Farriers' tools including files for horses' hooves	A01L 11/00
Personal grooming including nail files	A45D
Bone rasps and other tools for surgery	A61B
Veterinary instruments for animals' teeth including files	A61D 5/00
Constructional features of machine tools in general	B23Q
Grinding machines and methods	B24B
Abrasive Blasting including sandblasting	B24C
Grinding tools	B24D
Chisels for metal	B25D 3/00
Handles for hand implements	B25G
Rasps for wood	B27G 17/06
Recovery of plastics from other materials including rasping of tyres	B29B 17/02
Retreading tyres	B29B 30/54

Special rules of classification within this group

Classification in ECLA group B23D 67/00 is simply according to a literal interpretation of the group and subgroup headings, taking into account the notes concerning precedence and the references contained within the subgroups.

B23D 69/00

Filing or rasping machines or devices. characterised only by constructional features of particular parts, e.g. guiding arrangements, drives (constructional features of these parts

per se B23Q); Accessories for filing or rasping (attached to the tool B23D71/10)

Definition statement

This subclass/group covers:

Filing or rasping machines or devices. characterised only by constructional features of particular parts, e.g. guiding arrangements, drives

Accessories for filing or rasping.

Special rules of classification within this group

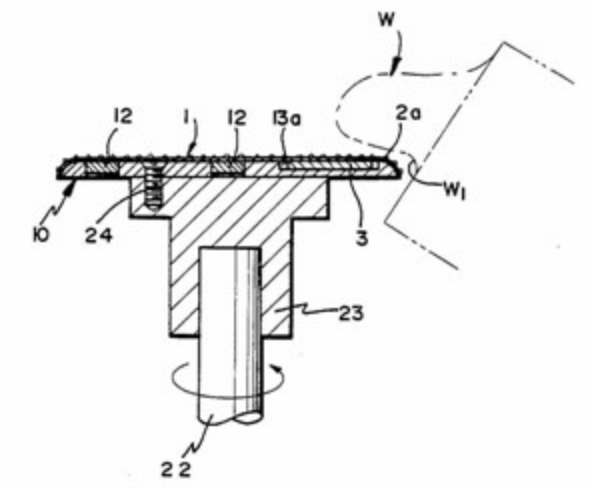
Classification in ECLA group B23D 69/00 is simply according to a literal interpretation of the group and subgroup headings, taking into account the notes concerning precedence and the references contained within the subgroups.

B23D 71/00

Filing or rasping tools; Securing arrangements therefor (tool holders for machine tools B23Q3/00; handles for hand implements B25G)

Definition statement

This subclass/group covers:



Rotary filling tool B23D 71/005

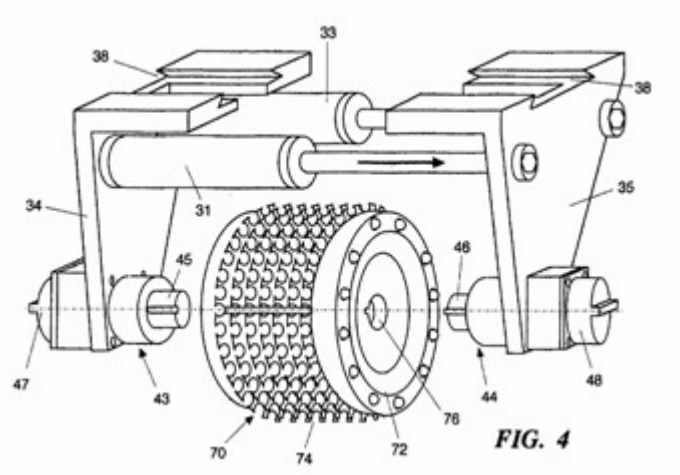


FIG. 4

Rasping machine with rotary tool for rubber like materials (tyres)

B23D 71/025 (and additionally B23D 67/06, B23D 67/10)

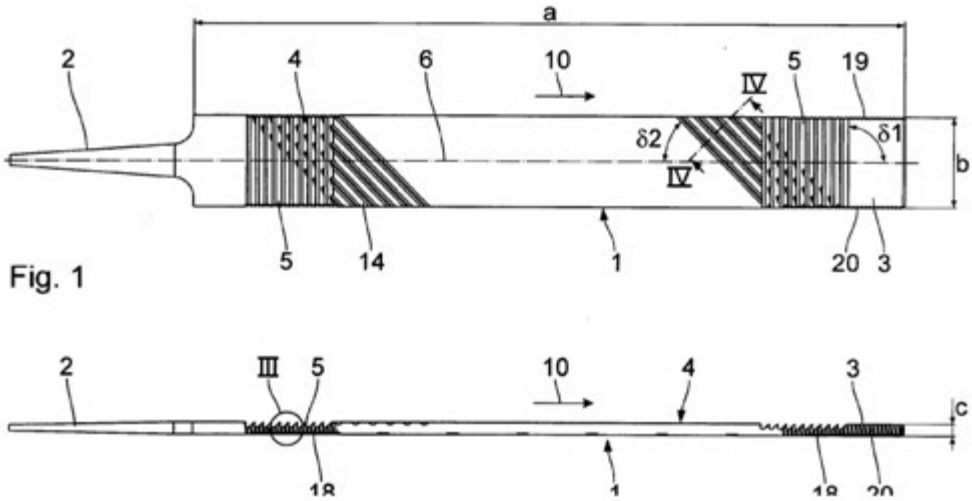
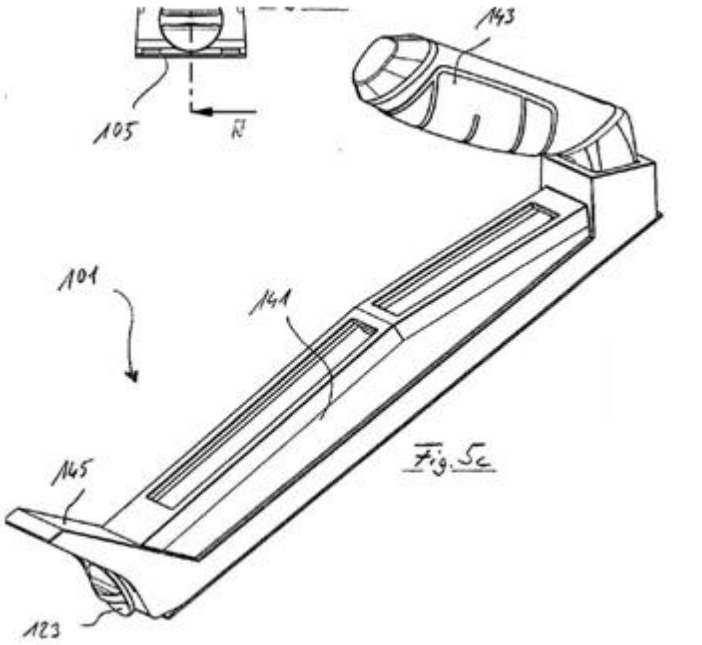


Fig. 1

Hand file B23D 71/04



Hand rasp with single interchangeable blade B23D 71/06

Special rules of classification within this group

Classification in ECLA group B23D 71/00 is simply according to a literal interpretation of the group and subgroup headings, taking into account the notes concerning precedence and the references contained within the subgroups.

B23D 73/00

Making files or rasps

Definition statement

This subclass/group covers:

Making files or rasps.

Special rules of classification within this group

Classification in ECLA group B23D 73/00 is simply according to a literal interpretation of the group and subgroup headings, taking into account the notes concerning precedence and the references contained within the subgroups.

B23D 75/00

Reaming machines

Relationship between large subject matter areas

A reaming tool usually includes a short inclined major cutting edge and a longer calibrating auxiliary edge. A reaming tool is also used such that its axis is generally coincident with the axis of the bore being reamed and the feed movement is generally along this axis. Some fine boring heads (B23B 29/03, B23B 29/034) also exhibit these properties. Conversely milling tools (B23C 5/00) generally have longer major cutting edges, shorter auxiliary cutting edges and the feed motion between tool and workpiece is transverse to the axis of rotation of the tool, except in plunge milling.

Many of the adjustment mechanisms for cutting inserts within a milling tool (B23C 5/24) would also be applicable to reaming tools.

References relevant to classification in these groups

This subclass/group does not cover:

This groups does not cover:

Boring heads	B23B 29/03
Chucks suitable for reaming and other tools	B23B 31/00
Milling tools	B23C 5/00
Honing devices or tools	B24B 33/00
Handles for hand implements	B25G

Informative references

Attention is drawn to the following places, which may be of interest for search:

Adjustment of cutting insert in turning tool holder	B23B 27/16
Boring heads with tools adjustable radially before commencing machining	B23B 29/03403
Chucks for holding tools	B23B 31/02
Drilling tools	B23B 51/00
Drilling tools with provision for cooling	B23B 51/06

Milling cutters with shafts	B23C 5/10
Milling cutters with provision for cooling	B23C 5/28
Milling cutters having adjustable bits or teeth	B23C 5/24
Constructional details of machine tools in general not particularly related to the operation being performed	B23Q
Provision of cooling within machine tools	B23Q 11/10

Special rules of classification within this group

Classification in ECLA group B23D 75/00 is simply according to a literal interpretation of the group and subgroup headings, taking into account the notes concerning precedence and the references contained within the subgroups.

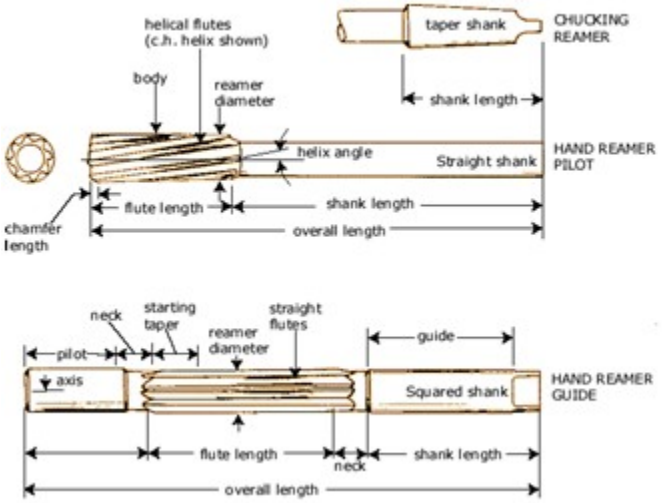
B23D 77/00

Reaming tools

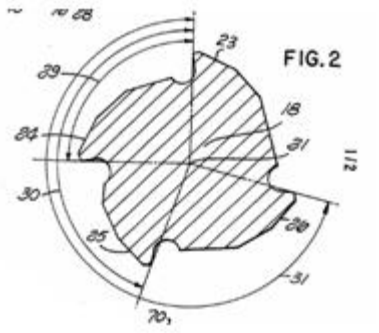
Definition statement

This subclass/group covers:

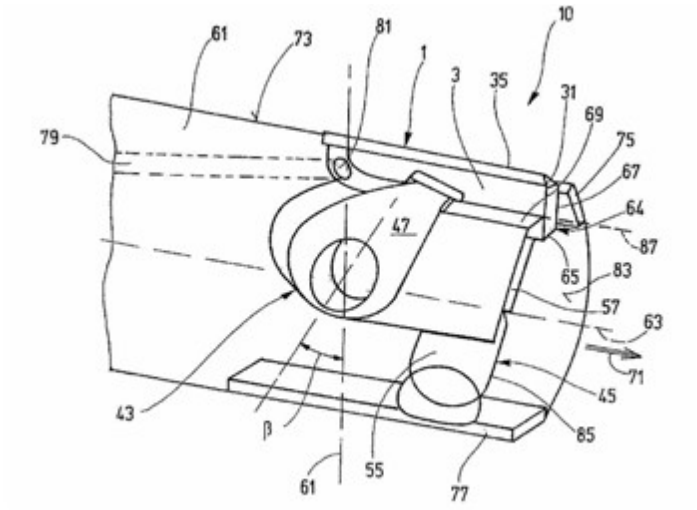
Reaming tools



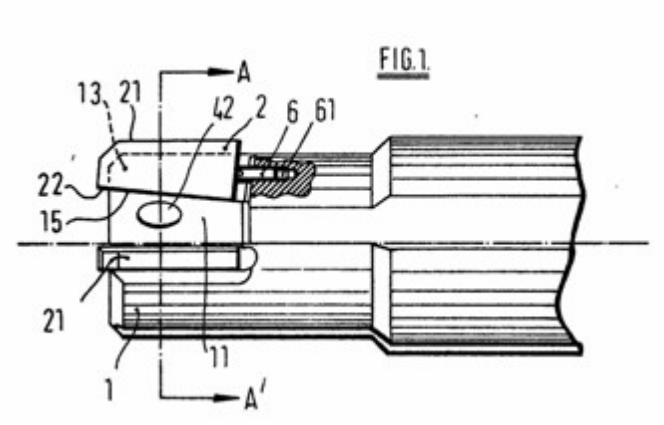
Reamer. Nomenclature of reamer shown [B23D 77/00]



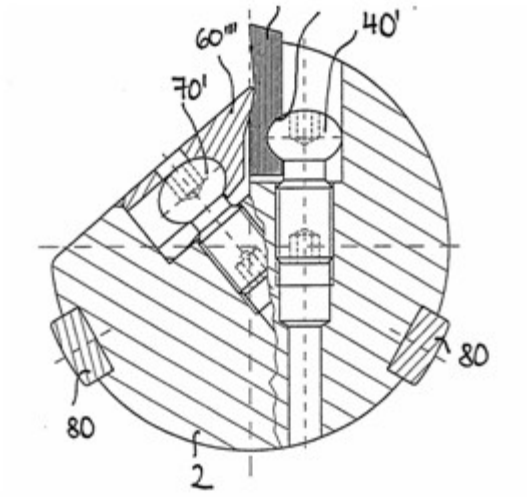
Reamer with unequal distribution of flutes to prevent chatter (vibration) [B23D 77/003]



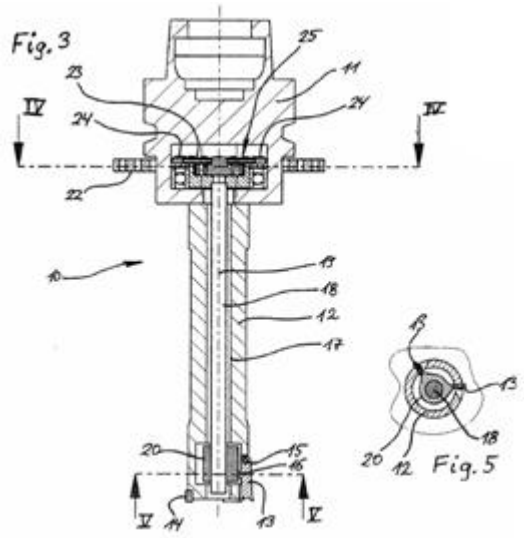
securing arrangement for insert in reamer [B23D 77/025]



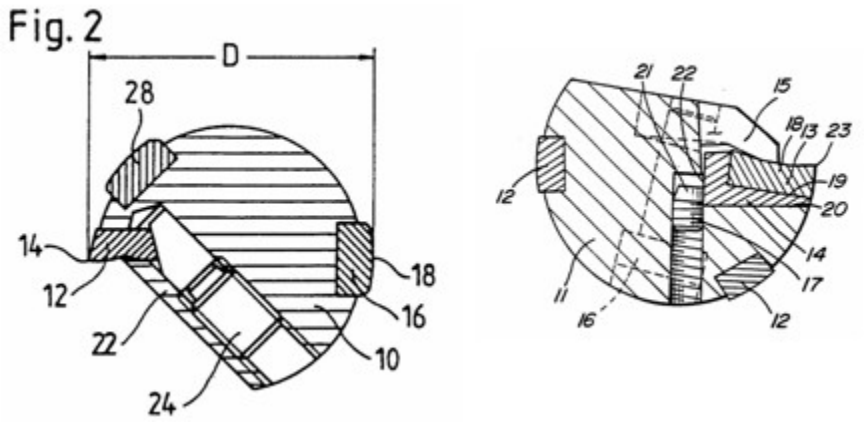
Adjustment of diameter by oblique planes (15,22) B23D 77/042



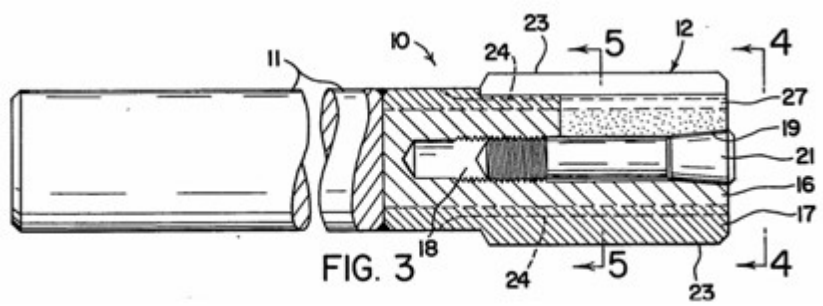
Adjustment of diameter by screws B23D 77/044



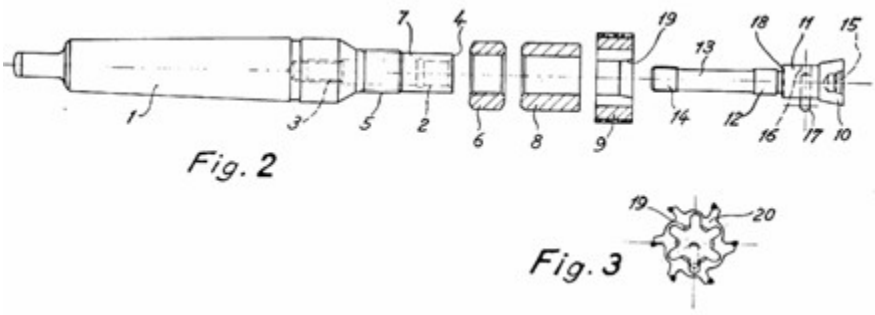
adjustment of diameter by radial cams B23D 77/046



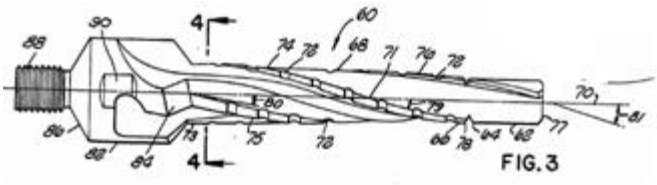
Adjustment of diameter by conical screws [B23D 77/048]



Expandable reamer with slots [B23D 77/08]



Expandable reamer without slots [B23D 77/10]



Tapered reamer [B23D 77/12]

Relationship between large subject matter areas

A reaming tool usually includes a short inclined major cutting edge and a

longer calibrating auxiliary edge. A reaming tool is also used such that its axis is generally coincident with the axis of the bore being reamed and the feed movement is generally along this axis. Some fine boring heads (B23B 29/03, B23B 29/034) also exhibit these properties. Conversely milling tools (B23C 5/00) generally have longer major cutting edges, shorter auxiliary cutting edges and the feed motion between tool and workpiece is transverse to the axis of rotation of the tool, except in plunge milling.

Many of the adjustment mechanisms for cutting inserts within a milling tool (B23C 5/24) would also be applicable to reaming tools.

References relevant to classification in these groups

This subclass/group does not cover:

This groups does not cover:

Boring heads	B23B 29/03
Chucks suitable for reaming and other tools	B23B 31/00
Milling tools	B23C 5/00
Honing devices or tools	B24B 33/00
Handles for hand implements	B25G

Informative references

Attention is drawn to the following places, which may be of interest for search:

Adjustment of cutting insert in turning tool holder	B23B 27/16
Boring heads with tools adjustable radially before commencing machining	B23B 29/03403
Chucks for holding tools	B23B 31/02
Drilling tools	B23B 51/00
Drilling tools with provision for cooling	B23B 51/06
Milling cutters with shafts	B23C 5/10

Milling cutters with provision for cooling	B23C 5/28
Milling cutters having adjustable bits or teeth	B23C 5/24
Constructional details of machine tools in general not particularly related to the operation being performed	B23Q
Provision of cooling within machine tools	B23Q 11/10

Special rules of classification within this group

For B23D 77/00 and subgroups a 2000-series Indexing Code system is present (L23D 2277/00). Indexing Codes this series should be allocated at every opportunity. When classifying reaming tools particular attention should be paid to the Indexing Codes. Indexing Codes should also be added routinely to give details of the workpiece or tool configuration, when this is not implicit in the ECLA system.

For example a document showing a particular reaming tool having a particular configuration of adjustment mechanism for the cutting blade and showing explicit provision for coolant may be given a class in the ECLA only for the details of the adjustment mechanism as this forms the subject of the invention. Such a document should also be allocated Indexing Codes relating to the provision of coolant and/or further details of the reaming tool itself to allow easy retrieval.

The 200-series Indexing Codes relating to the material of tool or workpiece should also be routinely allocated where available. However in this instance, where a material is generally used for a particular part (e.g. tungsten carbide for an cutting insert or blade, steel for a reaming cutter body), the Indexing Code for the material concerned should only be allocated if further details of the material itself are present in the document.

Classification in ECLA groups B23D 75/00 to B23D 77/14 is simply according to a literal interpretation of the group and subgroup headings, taking into account the notes concerning precedence and the references contained within the subgroups.

B23D 79/00

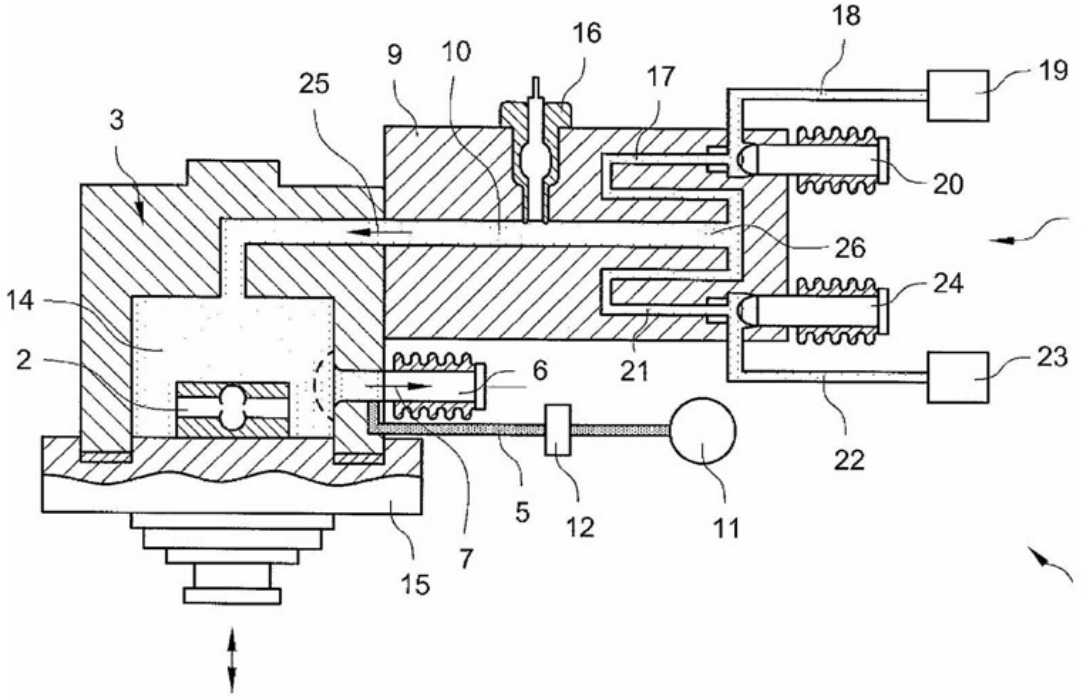
Methods, machines, or devices not covered elsewhere, for

working metal by removal of material (by combined operations 81/00; cutting by electron-beam B23K15/00, by laser beam B23K26/00; by electro-erosion B23H; tool holders for machine tools B23Q3/00; handles for hand implements B25G)

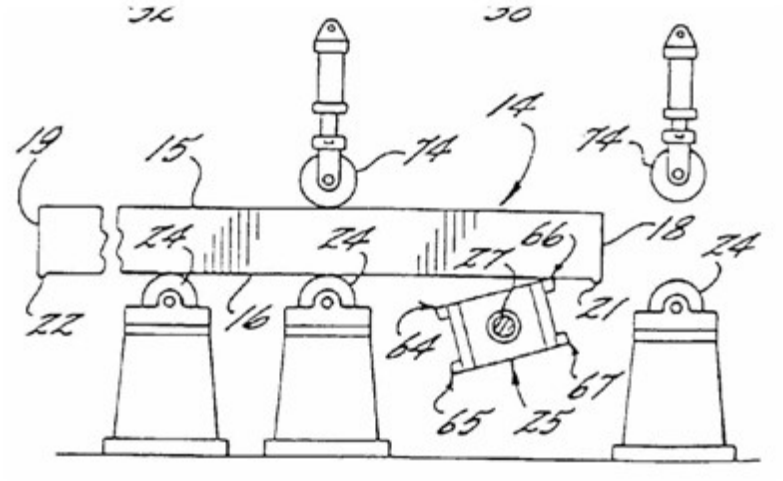
Definition statement

This subclass/group covers:

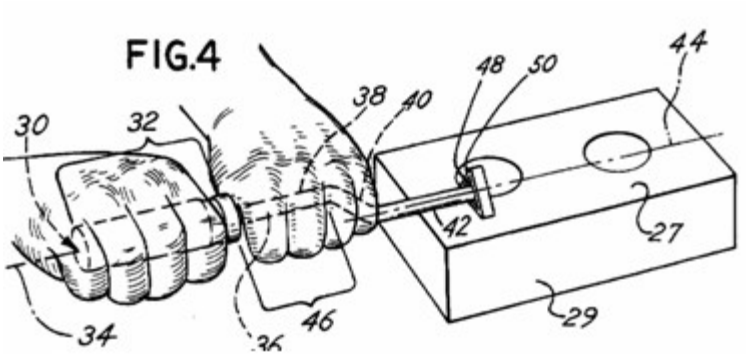
Methods, machines, or devices not covered elsewhere, for working metal by removal of material.



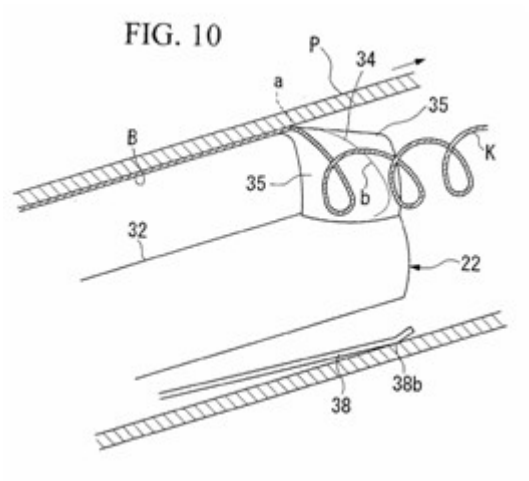
Thermal deburring of workpiece (2) in a chamber (14) by igniting a mixture of gas (from supply 19) and oxygen (from supply 23) using a spark providing device (16). This type of device is commonly used to deburr inaccessible intersections of drilling within workpieces. B23D 79/005



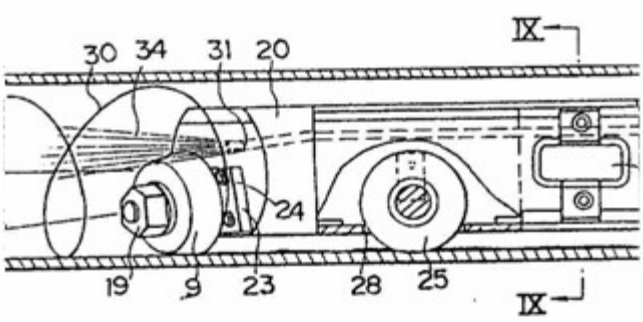
Scraping (deburring) device to remove dross from end of cut metal workpiece B23D 79/02



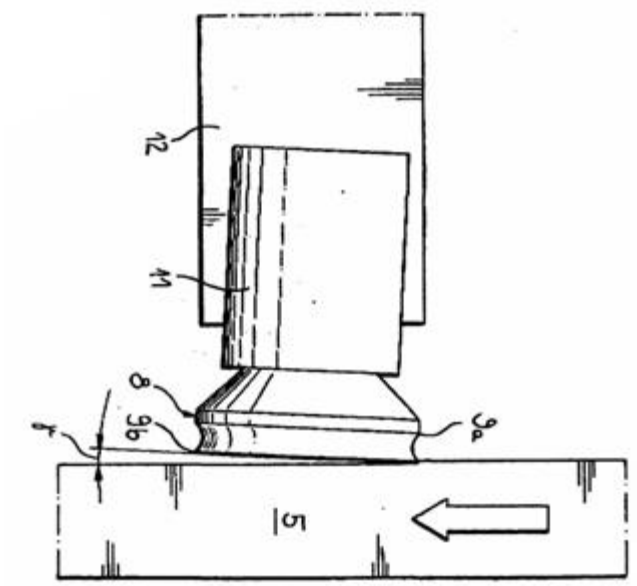
Hand scraping device for deburring and/or cleaning B23D 79/02



Removal of internal bead from pipe by scraping B23D 79/023



Removal of internal pipe bead with additional equipment (hot gas31) B23D 79/025



Scraping device with rotating cutting tool B23D 79/04

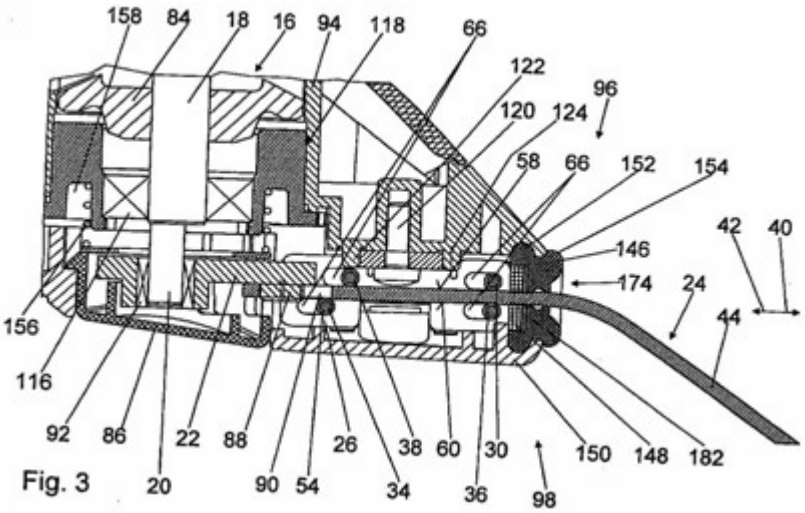
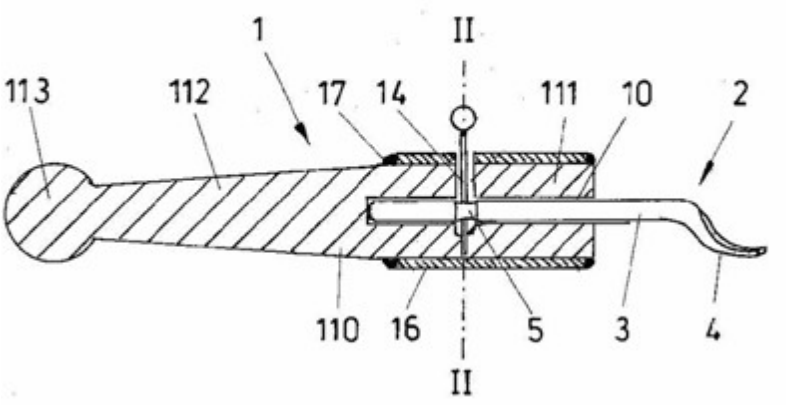
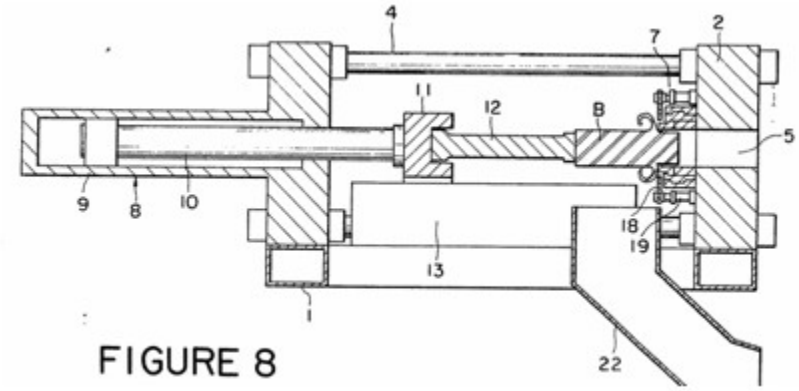


Fig. 3

Scraping devices with reciprocating tool B23D 79/06



Hand scraping device for deburring B23D 79/08



Bar peeling device not working by turning B23D 79/12

Relationship between large subject matter areas

This groups is only used when the removal of metal cannot be classed in a more suitable field elsewhere in ECLA.

Attention is also drawn to the notes for B23, which define the term "metal" as including other materials unless the context determines otherwise. In this group the inclusion of the word "metal" indicates that this group should not be used for the removal of materials other than metal.

References relevant to classification in this group

This subclass/group does not cover:

Cleaning using scrapers	B08B
Removal of material by turning, boring, drilling; in particular:Deburring by use of a drilling tool	B23B B23B 51/10

Chucks suitable to hold scraping and other tools	B23B 31/00
Removal of material by milling; in particular: Deburring by milling	B23C B23C 3/12
Removal of matreial by planing (shaping), slotting, shearing, broaching, sawing, filing, rasping or reaming	B23D 1/00 -B23D 77/00
Removal of material by combined operations all classed within B23D	B23D 81/00
Removal of material by combined operations not all classed within B23D	B23P 13/00 B23P 23/23
Cutting using flames (e.g. oxy-acetylene)	B23K 7/00
Cutting (including deburring) using an arc	B23K 9/013
Cutting (including deburring) using Plasma	B23K 10/00
Cutting (including deburring) by electron-beam	B23K 15/00
Cutting (including deburring) by laser beam	B23K 26/00
Cutting (including deburring) by electro-erosion (EDM) or electro-chemical machining (ECM)	B23H
Constructional details of machine tools not particularly related to the operation being performed	B23Q
Work holding devices for machine tools	B23Q 3/00 B25B
Removal of material by grinding; in particular:Deburring or cleaning by grinding	B24B, B24D B24B 9/00 B24B 27/033

Cutting using liquid jets containing abrasiveDeburring using liquid jets using liquid without abrasive particles	B24C
Handles suitable for hand scraping implements	B25G
Severing using a liquid jet, not containing abrasive particles	B26F 3/004

Informative references

Attention is drawn to the following places, which may be of interest for search:

Machines or devices for chamfering the ends of bars or tubes	B23B 5/16
Auxiliary devices for flash removal after welding	B23K 37/08

Special rules of classification within this group

Classification in ECLA group B23D 79/00 is simply according to a literal interpretation of the subgroup headings, taking into account the notes concerning precedence and the references contained within the subgroups.

B23D 81/00

Methods, machines, or devices for working metal, covered by more than one main group in this subclass (in combination with other metal-working operations B23P13/00, B23D23/00)

Definition statement

This subclass/group covers:

Methods, machines, or devices for working metal, covered by more than one main group in B23D 1/00 to B23D 79/12.

References relevant to classification in this group

This subclass/group does not cover:

Making metal objects by operations essentially involving machining but	B23P 13/00

not covered by a single other subclass	
Making specific metal objects by operations not covered by a single other subclass	B23P 15/00
Machines or arrangements of machines for performing specified combinations of different metal-working operations not covered by a single other subclass	B23P 23/00