

B23F

MAKING GEARS OR TOOTHED RACKS (by stamping B21D; by rolling B21H; by forging or pressing B21K; by casting B22; arrangements for copying or controlling B23Q; machines or devices for grinding or polishing, in general B24B)

Definition statement

This subclass/group covers:

Methods and machines specially designed to accurately produce the shapes of gears and other toothed members. Such shapes being essential for proper intermeshing of gearing (and toothed member) elements to ensure the required relative motions. The methods and machines use metal removing processes;

Tools which are specially adapted for use in machines for manufacturing toothed members;

Accessories and equipment for gear making machinery.

References relevant to classification in this subclass

This subclass/group does not cover:

Making gears or toothed racks by stamping	B21D
Making gears or toothed racks by rolling	B21H
Making gears or toothed racks by forging or pressing	B21K
Making gears or toothed racks by casting	B22D

Informative references

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

Details, components, or accessories for machine tools, in general	B23Q
Machines or devices for grinding or polishing, per se	B24B
Gears, per se	F16H

Profiles of toothed members	F16H 55/08
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Glossary of terms

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

Gear teeth	In addition to the common meaning of gear teeth, it also covers the teeth or lobes of other accurately-intermeshing members having relative movement of a similar kind, such as rotors of rotary pumps and blowers
Profile	profile may include the outline of both faces or only one face of a tooth, or the opposing faces of adjacent teeth
Straight	straight means that a tooth as a whole (ignoring any curvature of the tooth-face alone, e.g. crowning) is straight in the direction of its length. It accordingly includes the teeth of helical gears and normal bevel gears
Broach-milling	broach-milling refers to milling with a rotary cutter having a number of teeth of progressively increasing depth or width

B23F 1/00

Making gear teeth by tools of which the profile matches the profile of the required surface (special adaptations for making curved teeth B23F9/00)

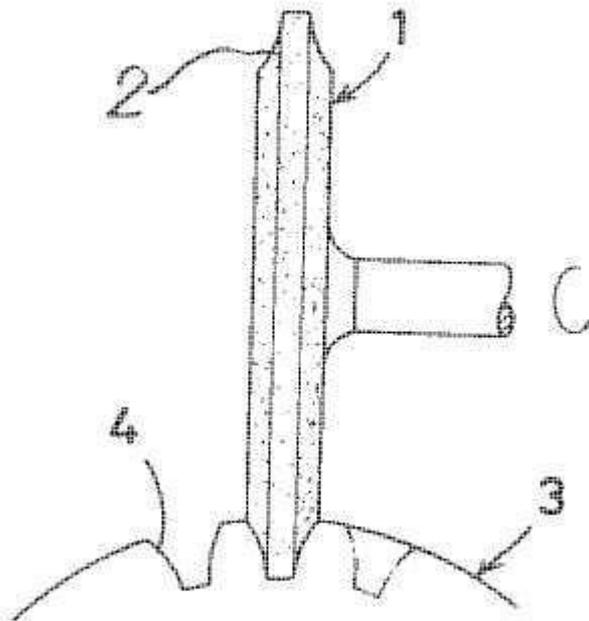
Definition statement

This subclass/group covers:

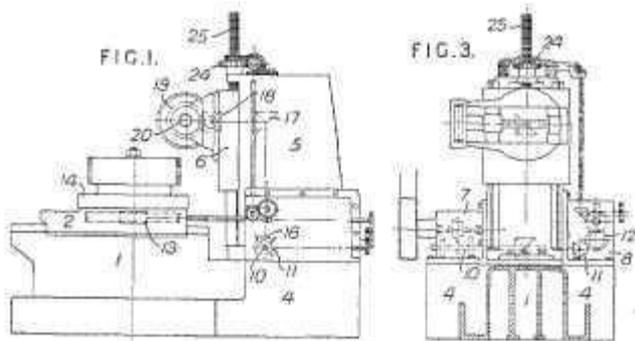
Methods and machines for making gear teeth using a tool which matches the required tooth profile. This group includes making spur and bevel gears. The methods and machines include grinding, planing, milling and broaching. Both rough machining and finishing are included.

Examples are:

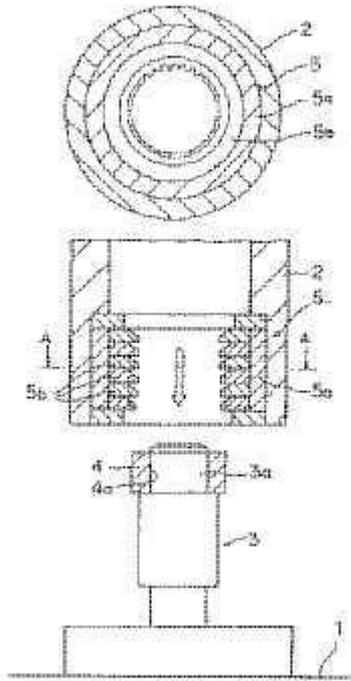
Manufacturing by grinding (JP59161226):



Manufacturing by milling (GB383884):



Manufacturing by broaching (JP4025313)



References relevant to classification in this group

This subclass/group does not cover:

Gear cutting tools	B23F 21/00
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Informative references

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

Gear generating methods and machines for straight teeth	B23F 5/00
Gear generating methods and machines for curved teeth	B23F 9/00

Special rules of classification within this group

Where a machine may be also be used for generating gear straight teeth it is classified in the subgroups of both [B23F 1/00](#) and [B23F 5/00](#).

B23F 1/02

by grinding

Informative references

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

Chamfering gear teeth by grinding	B23F 19/12
Gear generating by grinding	B23F 5/02
Grinding, in general	B24B

B23F 1/023

[N: the tool being a grinding worm]

Informative references

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

Gear generating using a grinding worm	B23F 5/04
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B23F 1/04

by planing or slotting

Informative references

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

Gear generating by planing or slotting	B23F 5/12
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B23F 1/06

by milling

Informative references

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

Milling, in general	B23C
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Gear generating by milling	B23F 5/20
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B23F 3/00

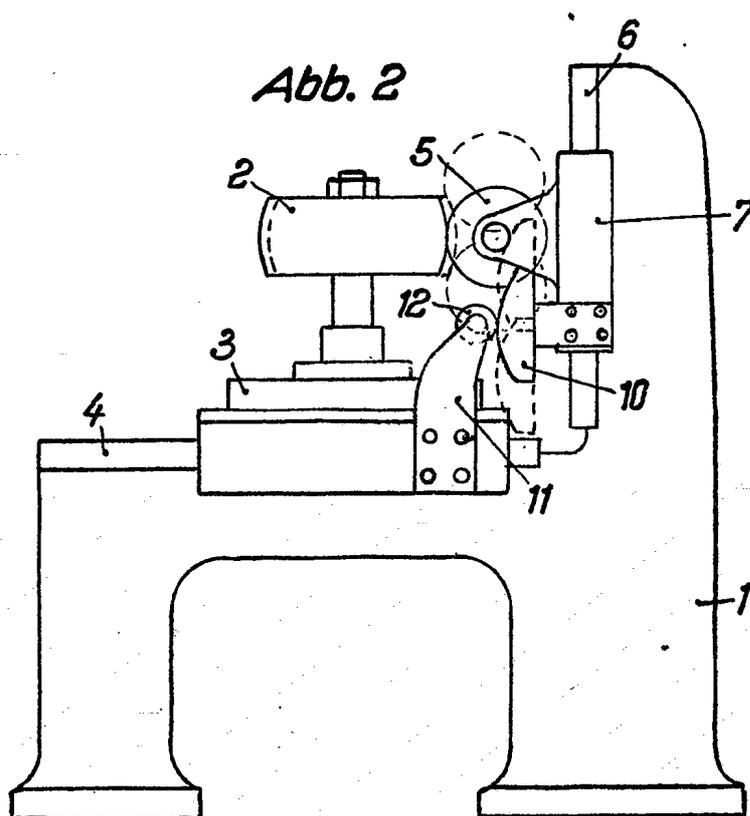
Making gear teeth involving copying operations controlled by templates having a profile which matches that of the required tooth face or part thereof or a copy thereof to a different scale (copying systems or devices per se B23Q35/00)

Definition statement

This subclass/group covers:

Machines and methods for making gear teeth using templates which have a profile matching at least a part of the required tooth profile. This class includes roughing and finishing, including chamfering teeth.

Example: DE763595



Informative references

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

Copying systems or devices per se	B23Q 35/00
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B23F 5/00

Making straight gear teeth involving moving a tool relatively to a workpiece with a rolling-off or an enveloping motion with respect to the gear teeth to be made

Definition statement

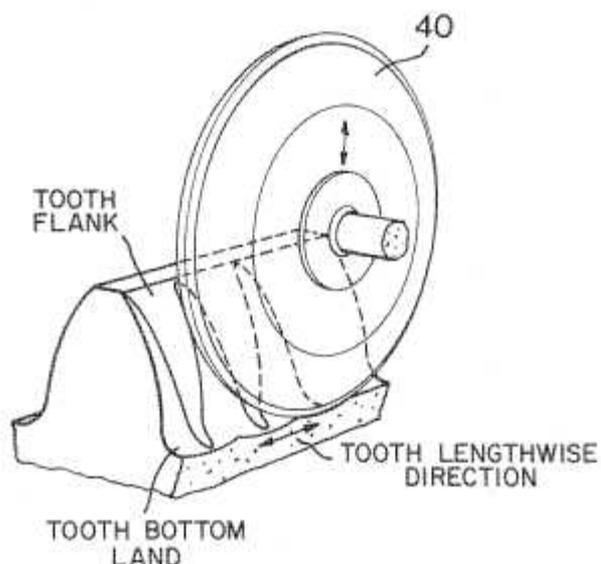
This subclass/group covers:

Machines and methods of making straight gear teeth involving moving the tool relatively to work piece with a rolling-off motion, e.g. generating. The methods include:

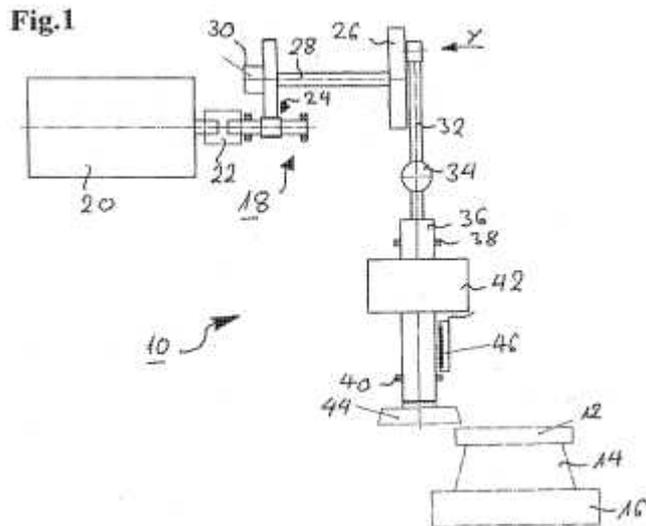
- grinding, with a grinding worm or grinding disc
- planing, including skiving
- milling, including hobbing

Example(s):

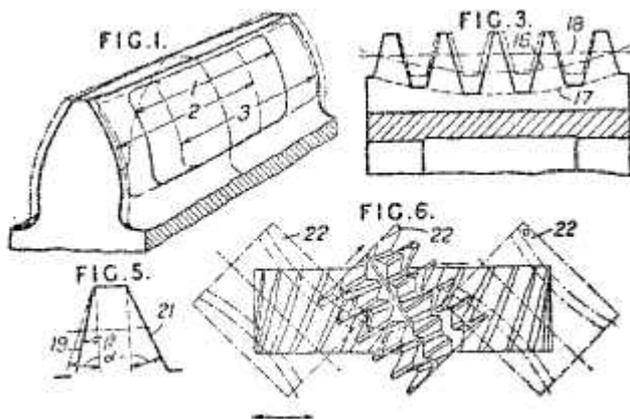
By grinding (US4400916)



by planing or slotting (EP1342524)



by hobbing (GB406730)



Informative references

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

Making curved gear teeth	B23F 9/00
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B23F 5/04

the tool being a grinding worm

Informative references

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

Making straight gear teeth involving moving a hob relatively to a workpiece with a rolling-off motion (spur gears)	B23F 5/22
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Making straight gear teeth involving moving a hob relatively to a workpiece with a rolling-off motion (bevel gears)	B23F 5/24
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Special rules of classification within this group

Methods and machines which may use either a grinding worm or a hob are to be classified in both [B23F 5/04](#) and [B23F 5/22](#)

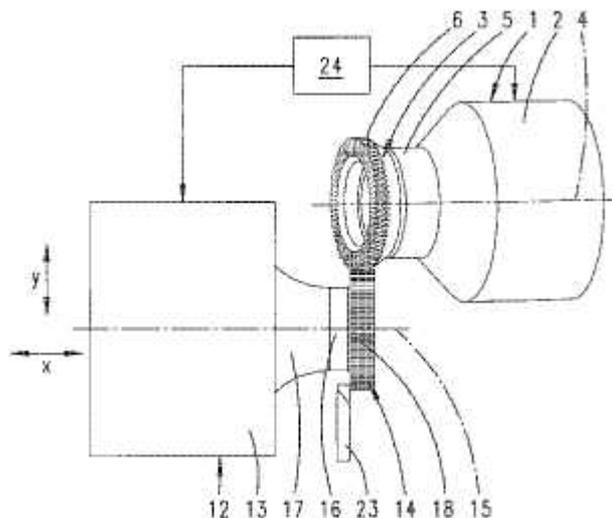
B23F 5/163

[N: the tool and workpiece being in crossed axis arrangement, e.g. skiving, i.e. "Waelzschaelen"]

Definition statement

This subclass/group covers:

Example (DE102007015357)



Synonyms and Keywords

In patent documents the following expressions/words "Skiving" and "hob peeling" are often used as synonyms.

B23F 5/22

the tool being a hob for making spur gears

Informative references

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

Gear manufacturing hobs, per se	B23F 21/16
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B23F 5/24

the tool being a hob for making bevel gears

Informative references

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

Taper hobs for manufacturing bevel gears	B23F 21/18
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B23F 7/00

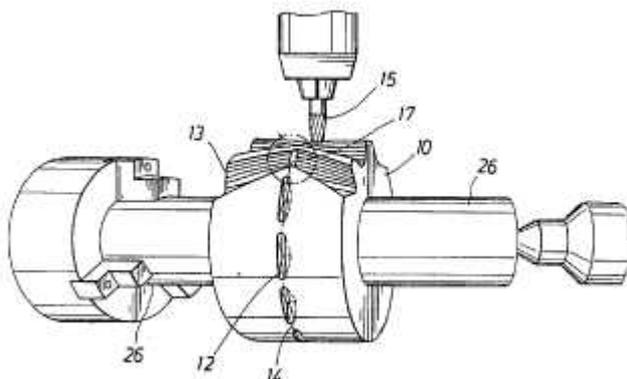
Making herringbone gear teeth

Definition statement

This subclass/group covers:

Methods and machines for making herringbone teeth.

Example (US20040031152):



Synonyms and Keywords

In patent documents the following expressions/words " Herringbone gears" and " double helical gears" are often used as synonyms.

B23F 9/00

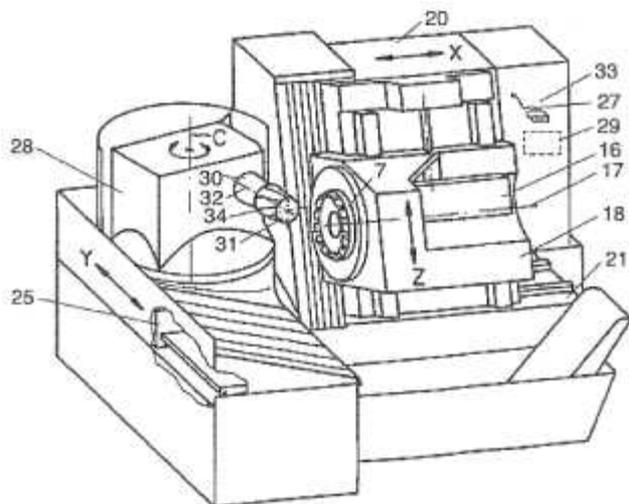
Making gears having teeth curved in their longitudinal direction

Definition statement

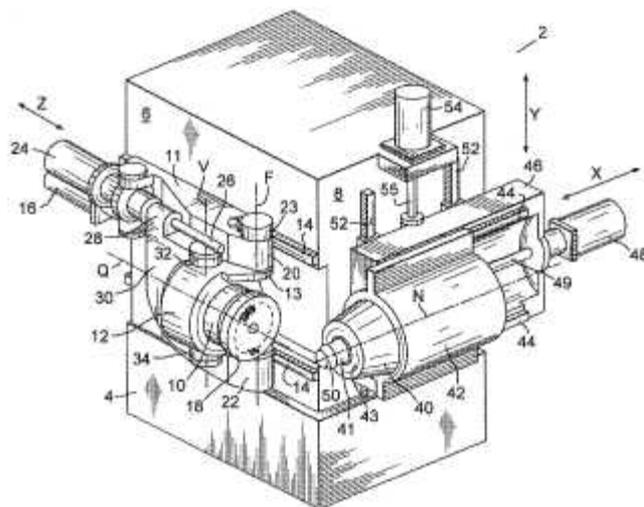
This subclass/group covers:

Methods and machines for making gears having teeth curved in their longitudinal direction, e.g. spiral bevel gears, hypoid gears.

Example (US20050064794)



(US20020154961)



B23F 9/025

[N: with a face-mill-type, i.e. cup-shaped, grinding wheel]

Informative references

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

Face-mill-type grinding tools	B23F 21/023
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Special rules of classification within this group

Methods and machines relating to both face-mill-type grinding and face milling using milling cutters are classified in both [B23F 9/025](#) and [B23F 9/10](#).

B23F 9/06

having a shape similar to a spur-wheel or part thereof

Informative references

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

Gear shaper cutters having a shape similar to a spur gear or part thereof	B23F 21/10
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B23F 9/082

[N: with a hob]

References relevant to classification in this group

This subclass/group does not cover:

Face hobbing	B23F 19/101
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Informative references

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

Hobs for gear cutting	B23F 21/16
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B23F 9/084

[N: the hob being tapered]

Informative references

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

Tapered hobs	B23F 21/18
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B23F 9/10

with a face-mill

Informative references

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

Face mills for gear cutting	B23F 21/22
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Special rules of classification within this group

Methods or machines relating to both face-mill-type grinding and face milling using a milling tool are classified in both [B23F 9/10](#) and [B23F 9/025](#).

B23F 9/105

[N: with continuous indexing, i.e. with continuous work rotation]

Definition statement

This subclass/group covers:

Methods and machines for manufacturing curved gear teeth by milling with a face mill with continuous indexing, i.e. face hobbing.

B23F 11/00

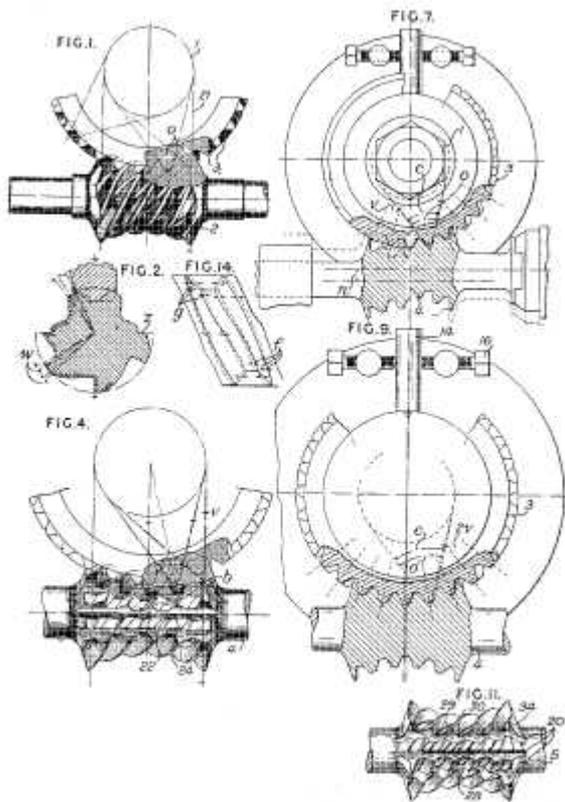
Making worm wheels, e.g. by hobbing

Definition statement

This subclass/group covers:

Methods and machines for manufacturing worm wheels, where worm wheels are the mating gears for worms. Both rough and finish machining are included.

Example of manufacturing by hobbing (GB362448, Figure 4):



Informative references

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

Making worms	B23F 13/00
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B23F 13/00

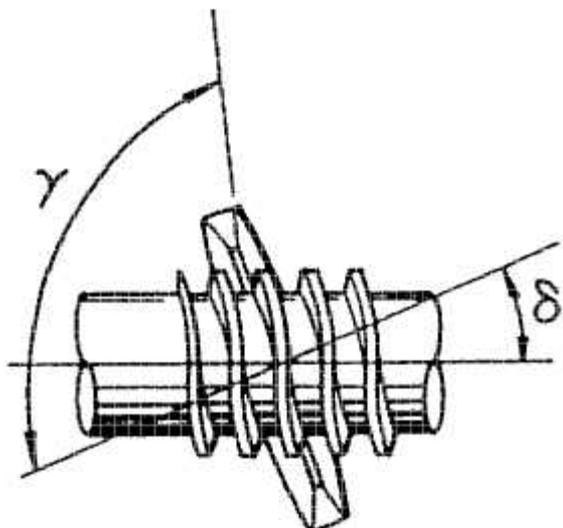
Making worms by methods essentially requiring the use of machines of the gear-cutting type (making screw-thread B23G)

Definition statement

This subclass/group covers:

Machines and methods of the gear-cutting type used for making worms. Both rough and finish machining are included.

Example (US5647703)



Informative references

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

Making worm wheels	B23F 11/00
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B23F 13/06

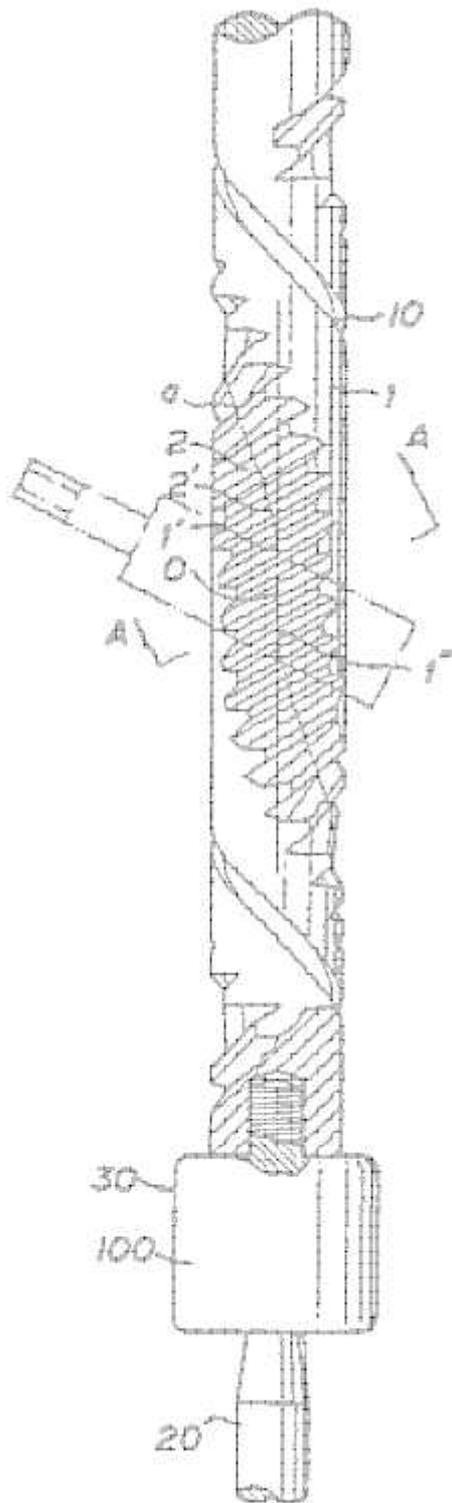
Making worms of globoidal shape

Definition statement

This subclass/group covers:

Methods and machines for making globoidal, e.g. hourglass shape worms.

Example (US3875635)



B23F 15/06

Making gear teeth on the front surface of wheels, e.g. for

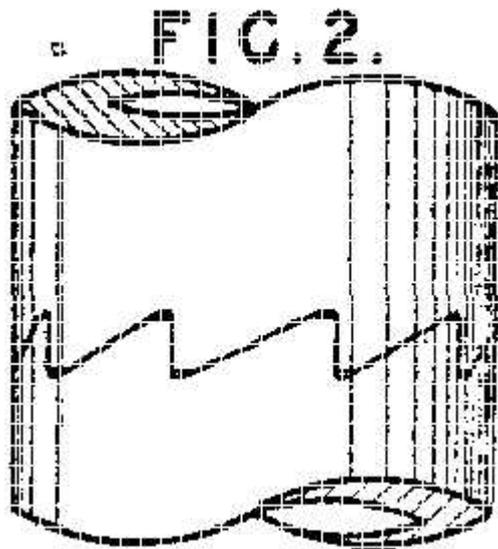
clutches or couplings with toothed faces

Definition statement

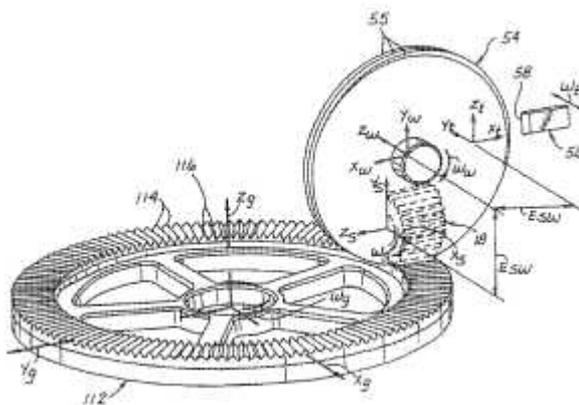
This subclass/group covers:

Methods and machines for making gear teeth on the front surface of wheels.

Example, clutches (GB594492)



Example: Face gears (EP0906171):



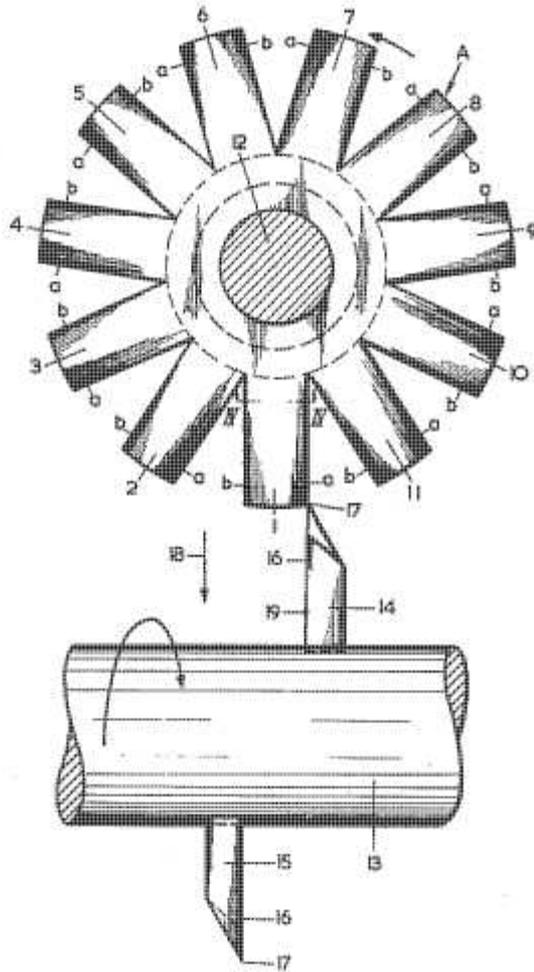
B23F 15/08

Making intermeshing rotors, e.g. of pumps

Definition statement

This subclass/group covers:

Example (US4034645):



B23F 17/00

Special methods or machines for making gear teeth, not covered by the preceding groups

Definition statement

This subclass/group covers:

Special methods and machines for making gear teeth, not covered by other groups. Examples are methods and machines for making gear pairs, machines for machining tooth roots and machines which combine different machining operations.

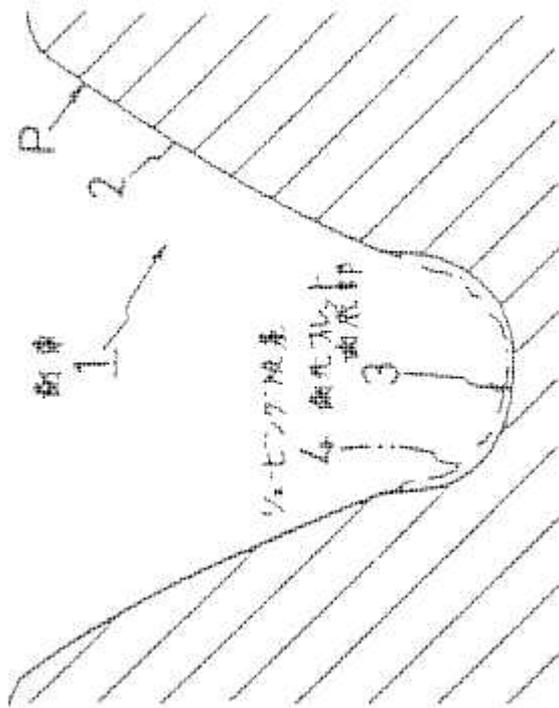
B23F 17/005

[N: for machining tooth fillet or tooth root]

Definition statement

This subclass/group covers:

Example (JP61117014):



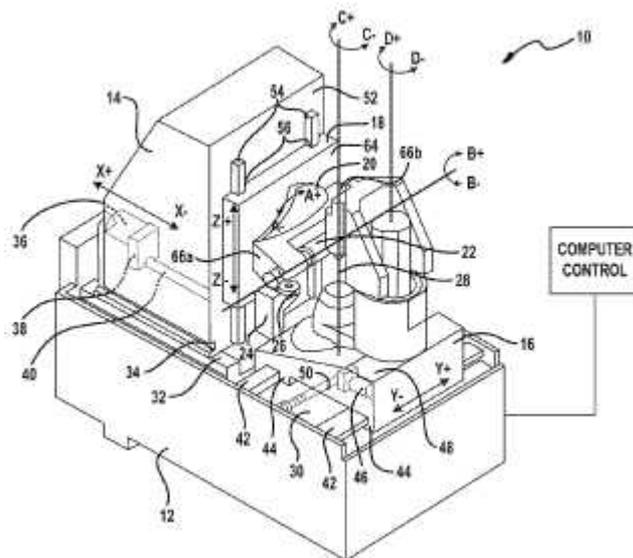
B23F 17/006

[N: using different machines or machining operations]

Definition statement

This subclass/group covers:

Example (US20090060672)



B23F 17/008

[N: Features relating to transfer of work gears between different work stations]

Informative references

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

Arrangements for handling work with machine tools, in general	B23Q 7/00
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B23F 19/00

Finishing gear teeth by other tools than those used for manufacturing gear teeth

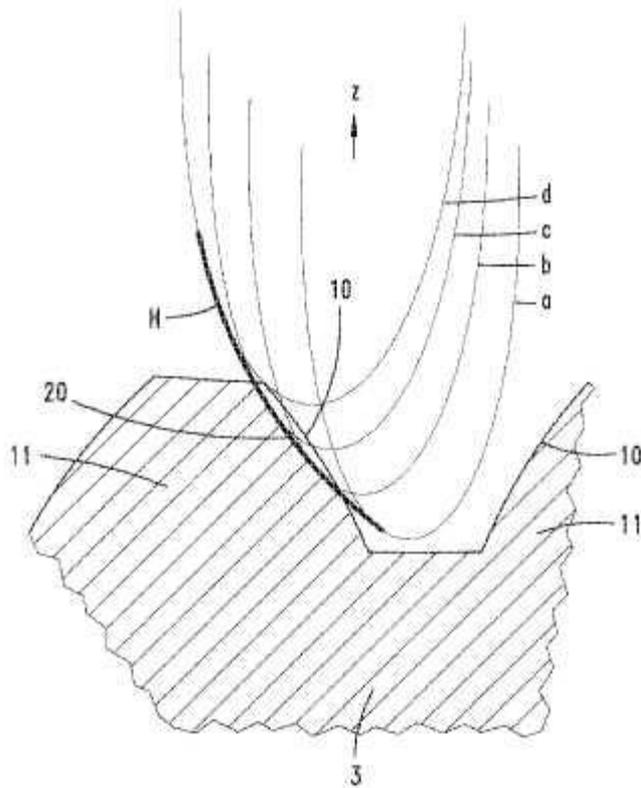
Definition statement

This subclass/group covers:

Methods and machines for finishing gear teeth. The finishing process may include modifying the tooth form by crowning, by chamfering and by the provision of undercuts and stop notches. The group also includes deburring.

Example (EP1106290)

Fig. 1



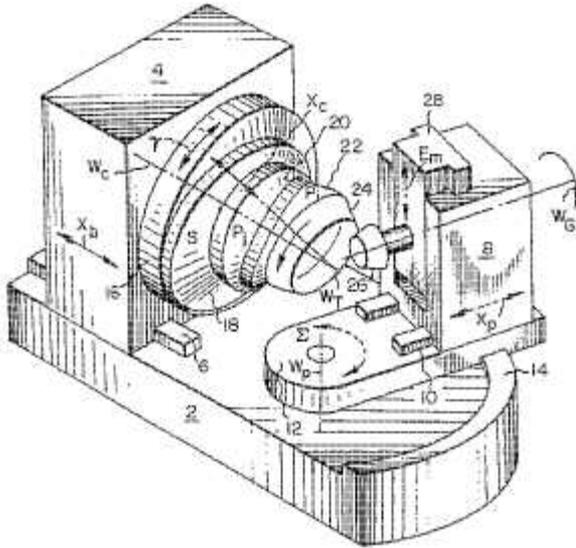
B23F 19/005

[N: using a face-mill-type tool, e.g. a milling or a grinding tool]

Definition statement

This subclass/group covers:

Example: (US5580298)



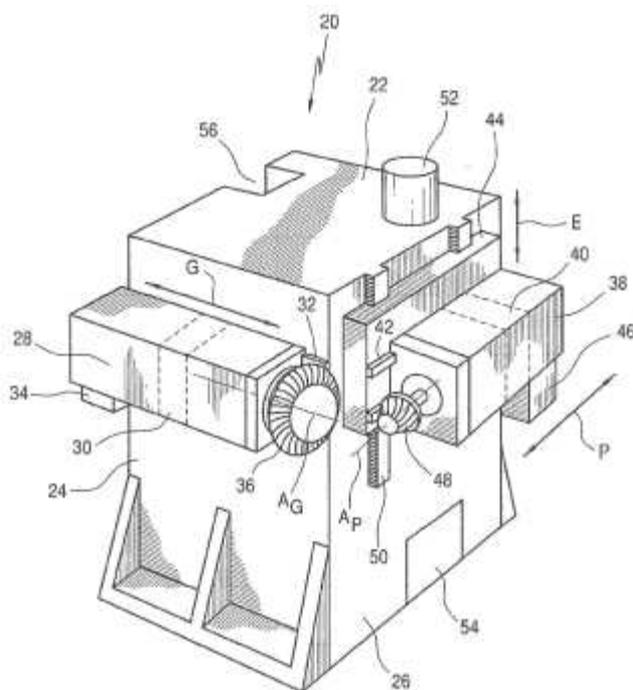
B23F 19/02

Lapping gear teeth

Definition statement

This subclass/group covers:

Example (US20080113592)



Informative references

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

Lapping in general	B24B 37/00
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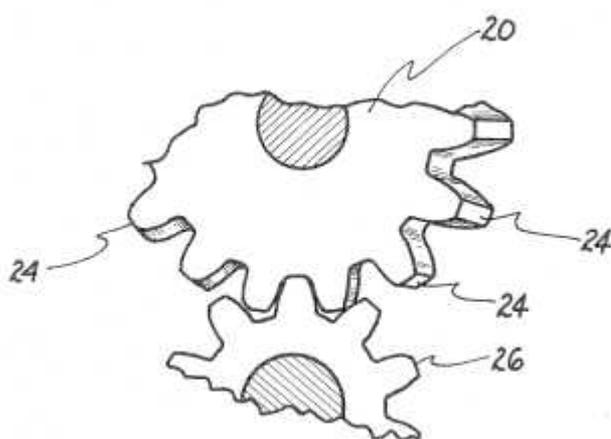
B23F 19/05

Honing gear teeth

Definition statement

This subclass/group covers:

Example (US4077164)



Informative references

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

Honing tools for gear teeth	B23F 21/03
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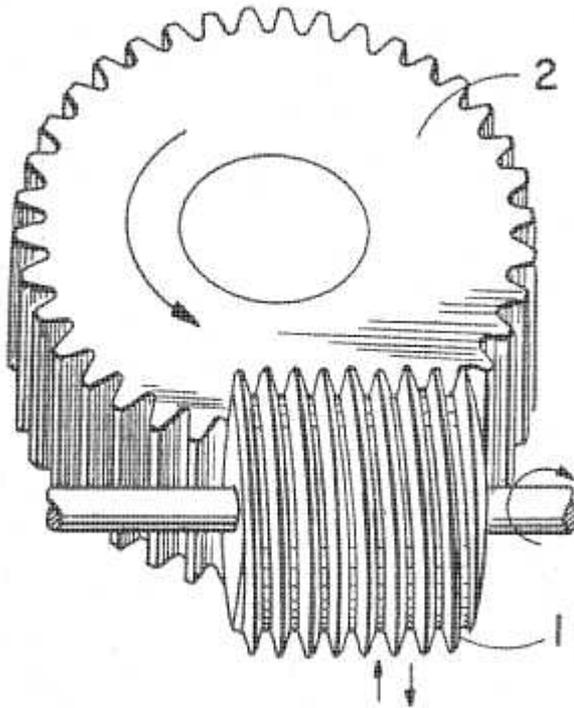
B23F 19/052

[N: by making use of a tool in the shape of a worm]

Definition statement

This subclass/group covers:

Example (US3740904)



Informative references

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

Honing worms for gear teeth	B23F 21/035
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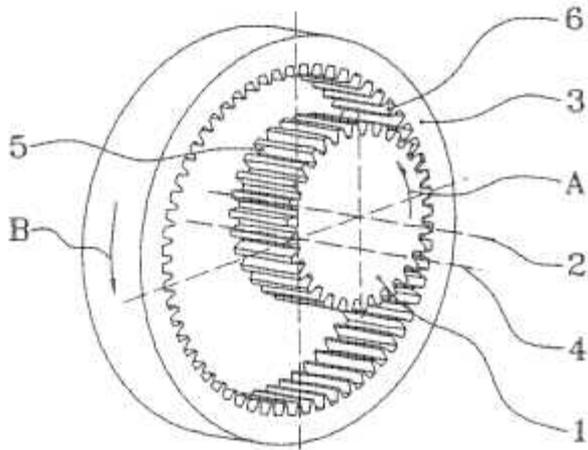
B23F 19/057

[N: by making use of a tool in the shape of an internal gear]

Definition statement

This subclass/group covers:

Example (DE4317306)



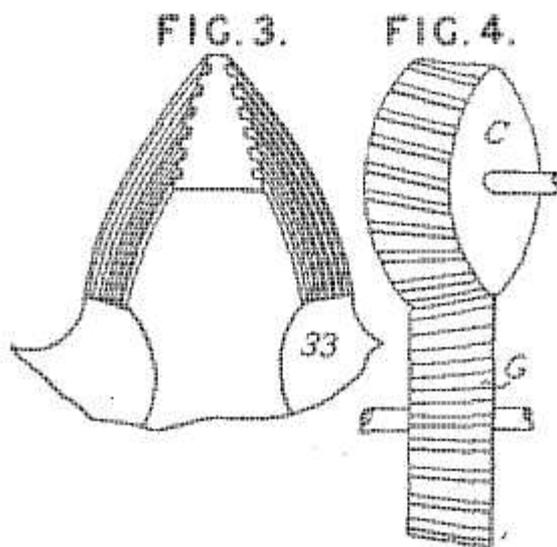
B23F 19/06

Shaving the faces of gear teeth

Definition statement

This subclass/group covers:

Example (GB801289):



Informative references

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

Shaving cutters for gear teeth	B23F 21/28
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B23F 19/063

[N: by making use of a tool in the shape of an internal gear]

Informative references

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

Shaving cutters in the shape of an internal gear	B23F 21/286
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B23F 19/10

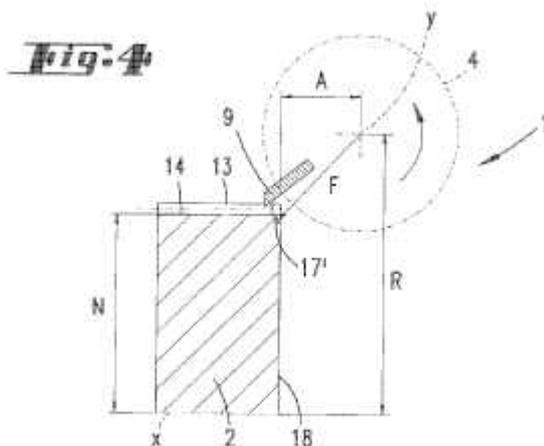
Chamfering the end edges of gear teeth

Definition statement

This subclass/group covers:

Methods and machines for chamfering and deburring, including secondary deburring of the end edges of gear teeth.

Example (EP1022082)



B23F 19/107

[N: the tool being a fly cutter]

Informative references

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

Fly cutters for use in gear manufacture	B23F 21/20
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B23F 21/00

Tools specially adapted for use in machines for manufacturing gear teeth

Definition statement

This subclass/group covers:

Tools specially adapted for use in machines for manufacturing gear teeth such as:

- Grinding tools
- Honing tools
- Planing or slotting tools
- Milling tools
- Broach and broach-milling tools

Glossary of terms

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

Inserted cutting elements	is understood as meaning that the tool has a body and cutting elements which take the form of inserts are fixed into the body.
Inserted cutting elements in exchangeable arrangement	is understood as meaning that the inserted cutting elements can be removed and replaced by new inserts when required.

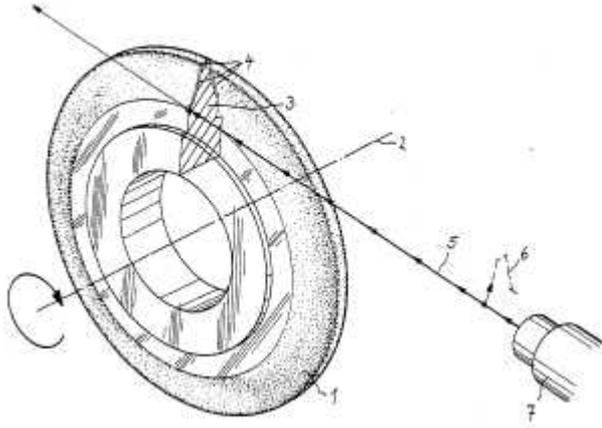
B23F 21/02

Grinding discs; Grinding worms (truing grinding tools B24B ; grinding tools in general B24D)

Definition statement

This subclass/group covers:

Example (US4533812):



B23F 21/023

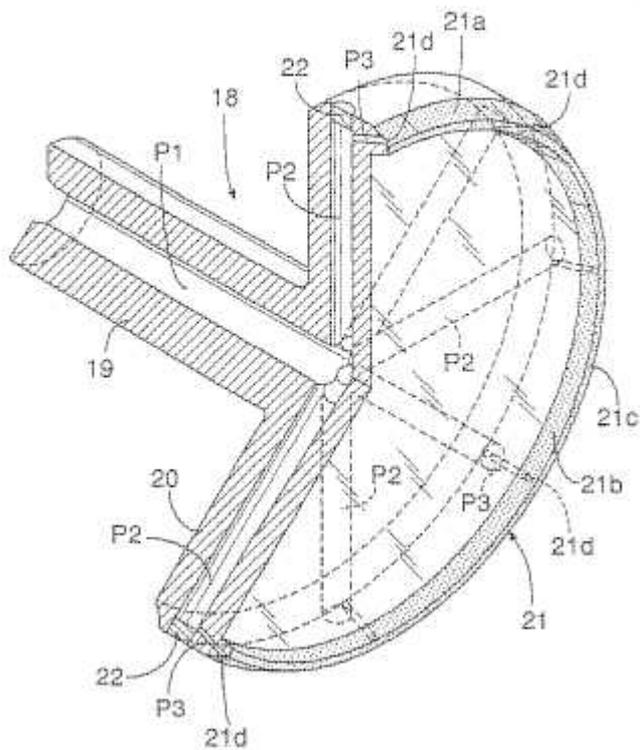
[N: Face-mill-type, i.e. cup-shaped, grinding wheels]

Definition statement

This subclass/group covers:

Example (EP1184122)

FIG.3



Informative references

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

Making curved gear teeth with a cup-shaped grinding wheel	B23F 9/025
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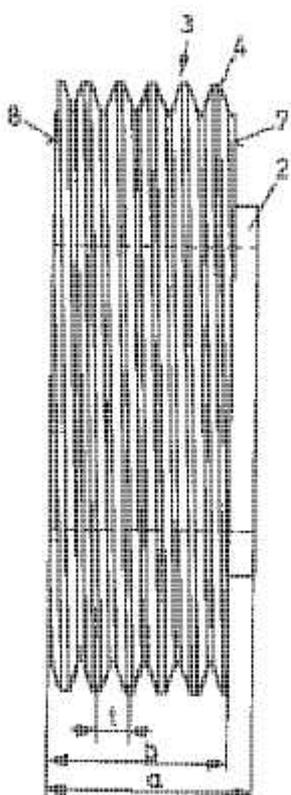
B23F 21/026

[N: Grinding worms]

Definition statement

This subclass/group covers:

Example (JP6297243):



Informative references

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

Making straight teeth where the profile matches the profile of the required surface using a grinding worm	B23F 1/023
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Generating straight teeth using a grinding worm	B23F 5/04
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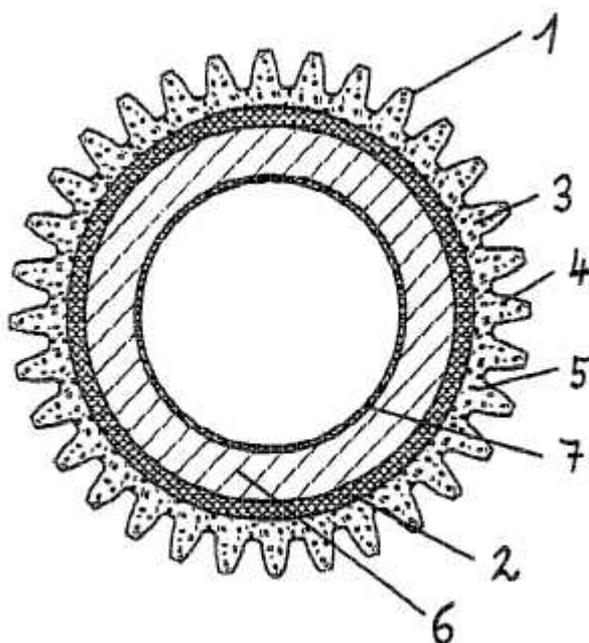
B23F 21/03

Honing tools

Definition statement

This subclass/group covers:

Example (WO9924203)



Informative references

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

Honing gear teeth	B23F 19/05
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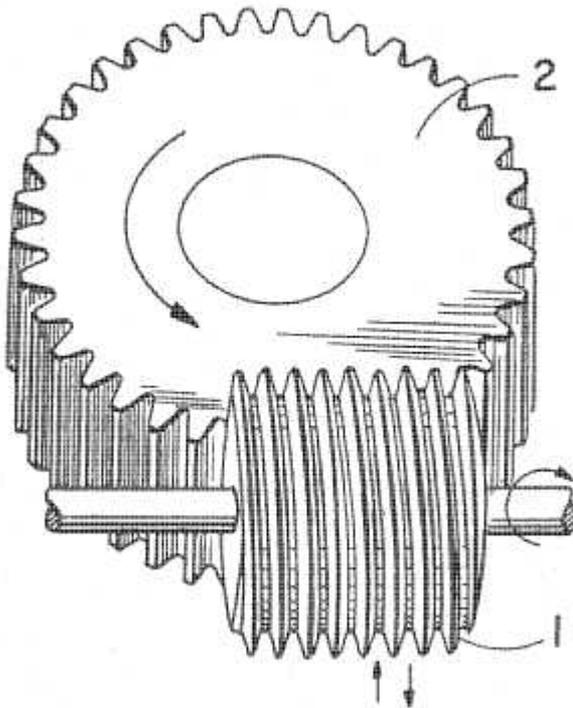
B23F 21/035

[N: Honing worms]

Definition statement

This subclass/group covers:

Example (US3740904)



Informative references

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

Honing gear teeth with a honing worm	B23F 19/052
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B23F 21/04

Planing or slotting tools

Informative references

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

Generating straight teeth by planing or slotting	B23F 5/12
Making curved teeth by planing or slotting	B23F 9/04

B23F 21/06

having a profile which matches a gear tooth profile

Informative references

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

Making straight teeth where the profile of the tool matches the profile of the required surface by planing or slotting	B23F 1/04
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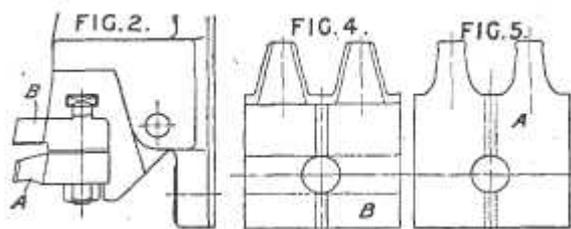
B23F 21/08

having the same profile as a tooth or teeth of a rack

Definition statement

This subclass/group covers:

Example (GB146769):



Informative references

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

Making straight gear teeth using a rolling-off or enveloping motion by planing or slotting where the tool has the same profile as a tooth or teeth of a rack	B23F 5/14
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B23F 21/10

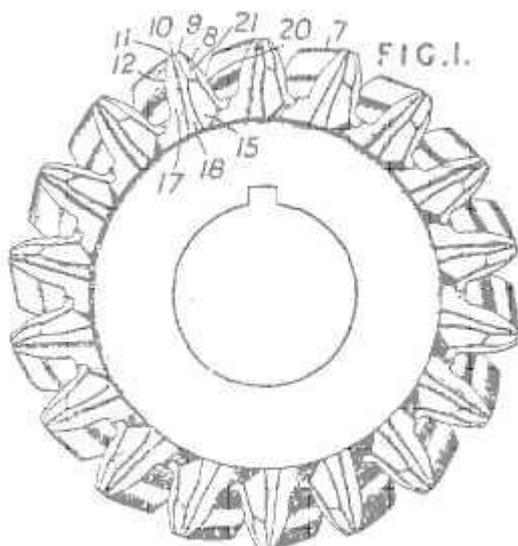
Gear-shaper cutters having a shape similar to a spur wheel or part thereof

Definition statement

This subclass/group covers:

Gear shaper cutters having a shape similar to a spur wheel or part thereof, e.g. pinion cutters

Example (GB220192)



Informative references

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

Making straight teeth involving a rolling-off motion by planing or slotting using a tool having the same profile as a spur wheel	B23F 5/16
Making curved teeth by planing or slotting using a tool having the same profile as a spur wheel	B23F 9/06

B23F 21/12

Milling tools

Informative references

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

Milling cutters, in general	B23C 5/00
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B23F 21/122

[N: having a shape similar to that of a gear or part thereof, with cutting edges situated on the tooth contour lines]

Informative references

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

Making straight teeth involving moving a tool relatively to a workpiece with a rolling-off motion by milling using a tool that has a shape similar to that of a gear or part thereof, with cutting edges situated on the tooth contour lines	B23F 5/202
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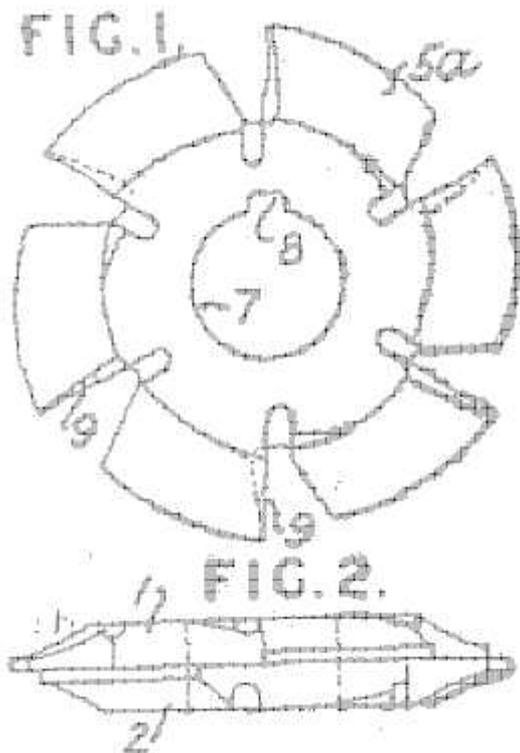
B23F 21/14

Profile cutters of disc type

Definition statement

This subclass/group covers:

Example (GB590978):



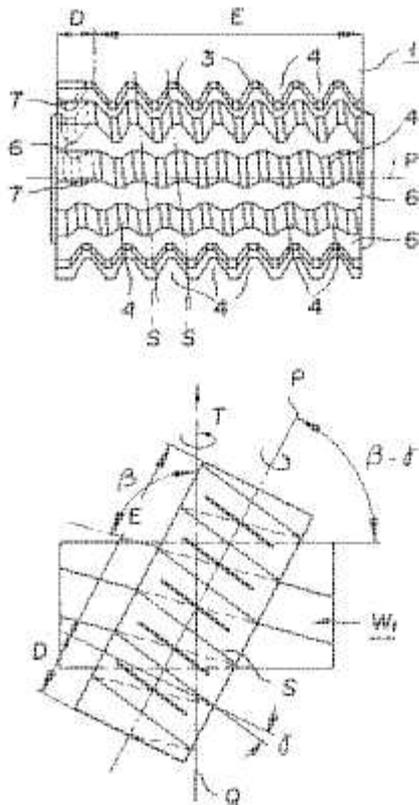
B23F 21/16

Hobs

Definition statement

This subclass/group covers:

Example (JP59001120):



Informative references

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

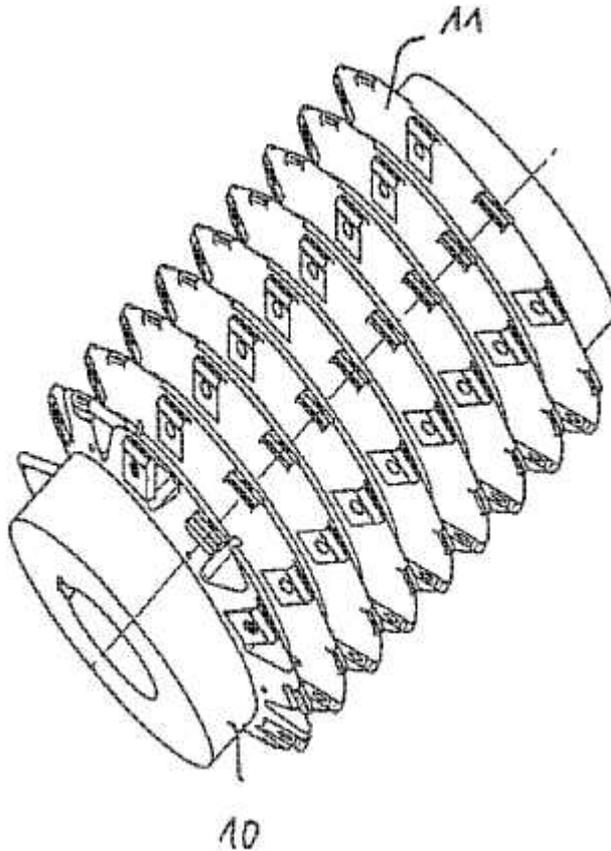
Hobbing straight gear teeth	B23F 5/22
Hobbing curved gear teeth	B23F 9/082

B23F 21/166

[N: in exchangeable arrangement]

Definition statement

This subclass/group covers:
Example (DE1020090037903)

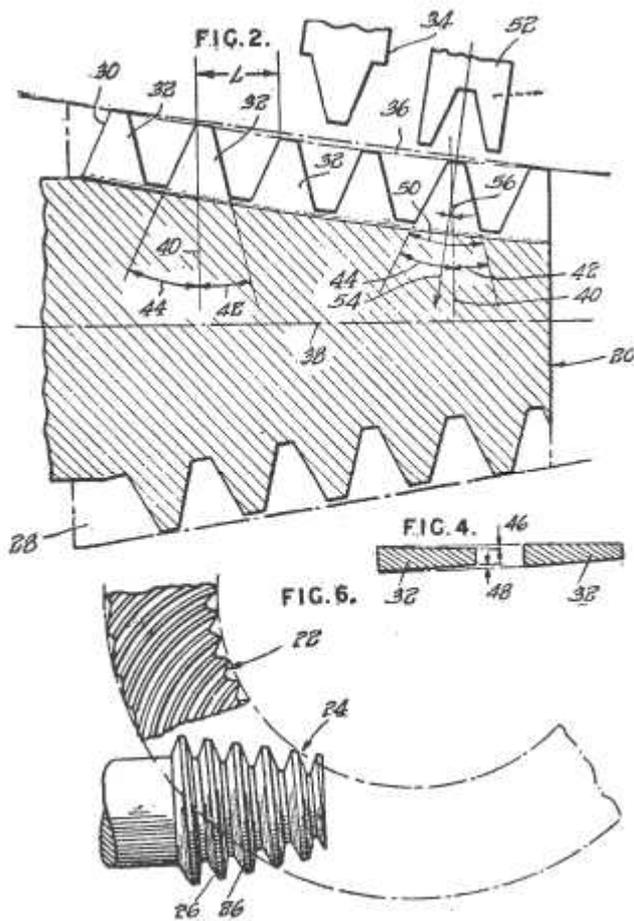


B23F 21/18

Taper hobs, e.g. for bevel gears

Definition statement

This subclass/group covers:
Example (GB955699):



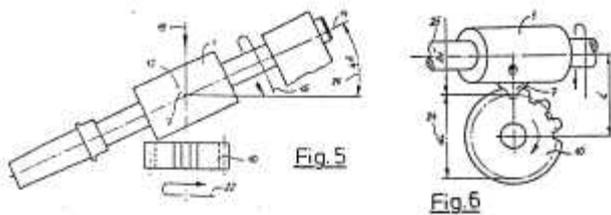
B23F 21/20

Fly cutters

Definition statement

This subclass/group covers:

Example (EP0088807):



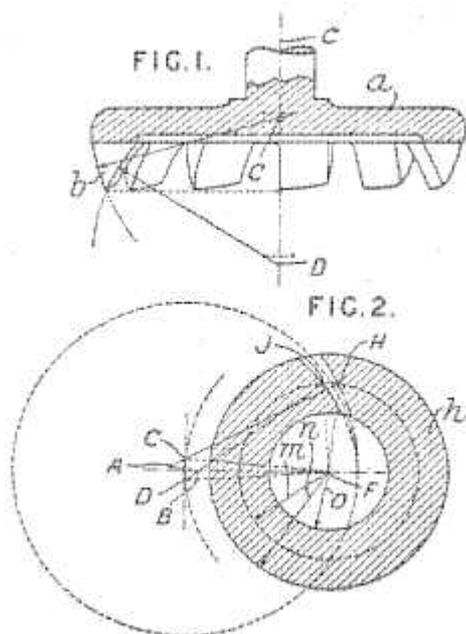
B23F 21/22

Face-mills for longitudinally-curved gear teeth

Definition statement

This subclass/group covers:

Example (GB 473050):



Informative references

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

Making curved gear teeth by face milling	B23F 9/10
Making curved gear teeth by face hobbing	B23F 9/105

B23F 21/226

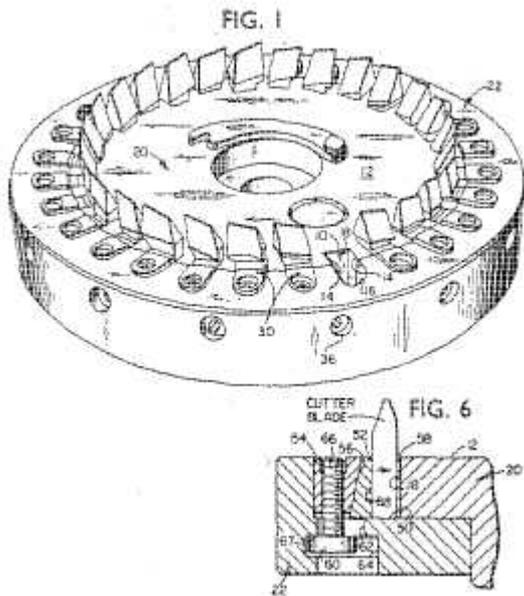
[N: in exchangeable arrangement]

Definition statement

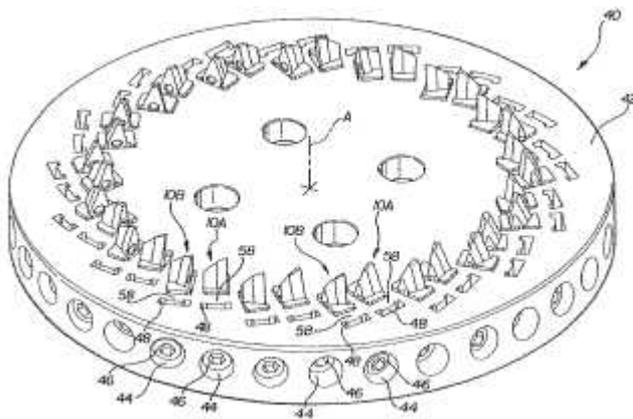
This subclass/group covers:

Examples:

Face milling cutter (US3571876)



Face milling cutter for face hobbing (US6609858):



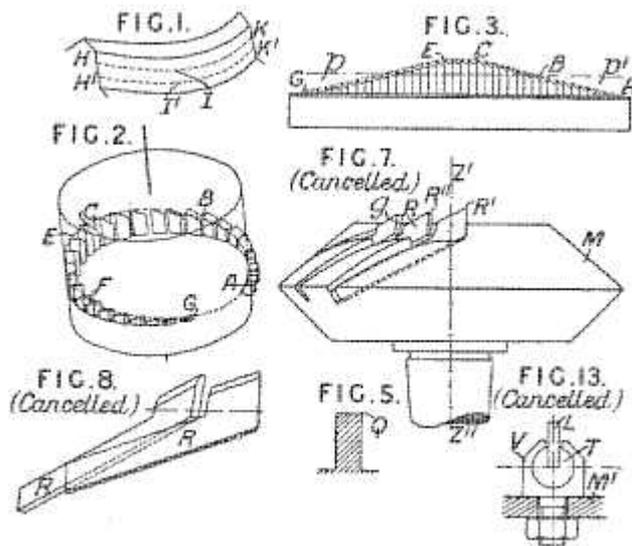
B23F 21/24

Broach-milling tools

Definition statement

This subclass/group covers:

Example (GB364012, Figures 2 and 3):



Informative references

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

Broach-milling of gear teeth using a tool whose profile matches the profile of the required surface	B23F 1/083
Broach-milling straight teeth involving a rolling-off motion	B23F 5/28

B23F 21/26

Broaching tools

Definition statement

This subclass/group covers:

Example (US20040109731)



Informative references

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

Broaching gear teeth using tools where the profile matches the	B23F 1/08
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required surface profile	
Broaching straight teeth using a rolling-off motion	B23F 5/28
Broaching curved gears	B23F 9/003

B23F 21/266

[N: mounted on an endless chain or belt]

Informative references

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

Broaching straight teeth with tools mounted on endless belt or chain	B23F 5/285
Broaching curved teeth with tools mounted on an endless belt or chain	B23F 9/006

B23F 21/268

[N: Pot broaches]

Informative references

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

Pot broaching using tools whose profile matches that of the required surface	B23F 1/086
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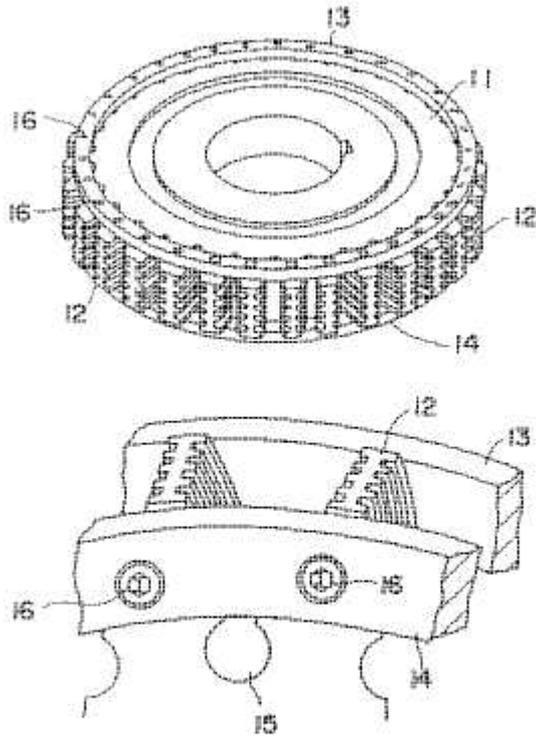
B23F 21/28

Shaving cutters

Definition statement

This subclass/group covers:

Example (JP62114817):



Informative references

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

Shaving gear teeth	B23F 19/06
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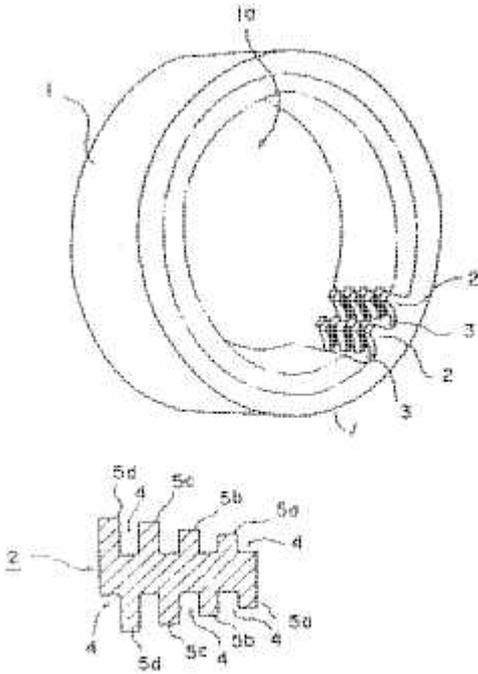
B23F 21/286

[N: having the shape of an internal gear]

Definition statement

This subclass/group covers:

Example (JP61030322):



Informative references

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

Shaving gear teeth using a tool in the shape of an internal gear	B23F 19/063
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B23F 23/00

Accessories or equipment combined with or arranged in, or specially designed to form part of, gear-cutting machines (tool-guiding mechanisms, see the relevant groups for making gear teeth; accessories or equipment not restricted to gear-cutting machines B23Q)

Definition statement

This subclass/group covers:

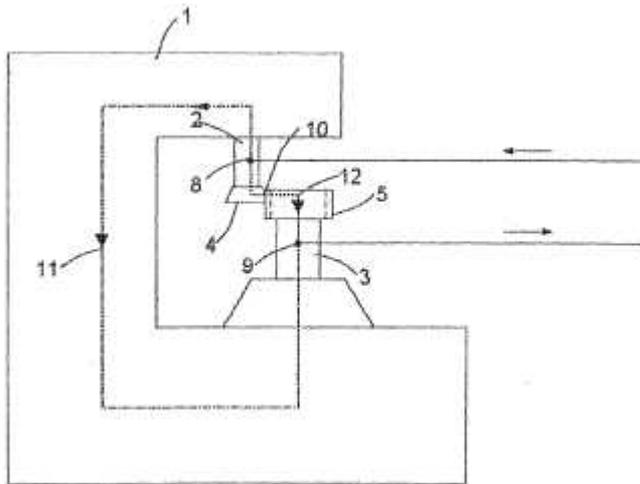
Accessories and equipment specially designed to form part of gear cutting machines, e.g.

- generating, indexing and synchronising mechanisms

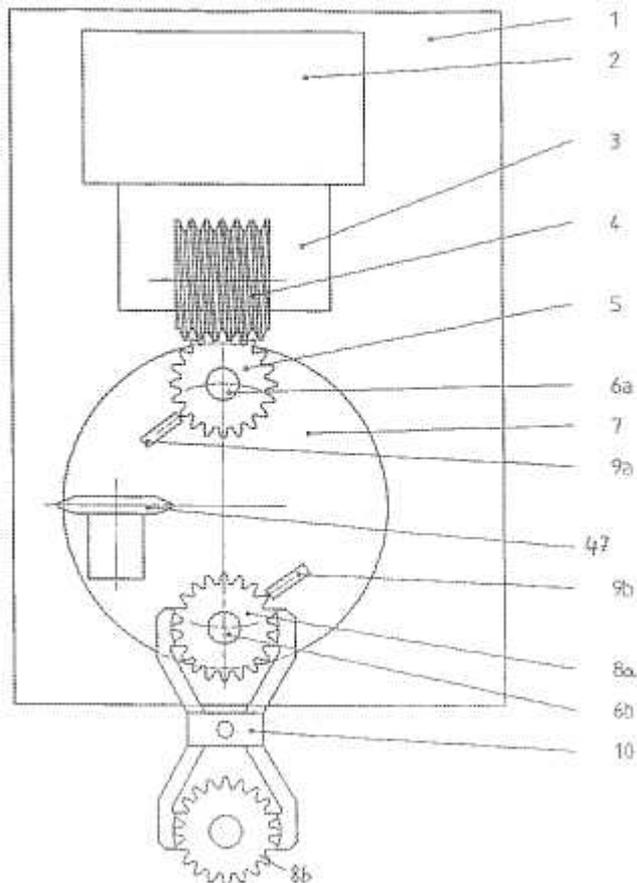
- loading, unloading and work holding equipment
- Tool holders
- Dressing arrangements for grinding wheels

Examples:

Tool / workpiece contact detecting device (US20030002943)



Loading / unloading (US6565418):



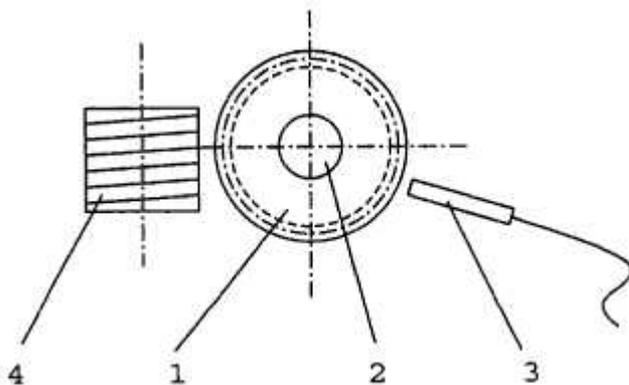
B23F 23/006

[N: Equipment for synchronising movement of cutting tool and workpiece, the cutting tool and workpiece not being mechanically coupled]

Definition statement

This subclass/group covers:

Example (US20050055836):



Informative references

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

Numerical control (NC) of machine tools in general	G05B 19/18
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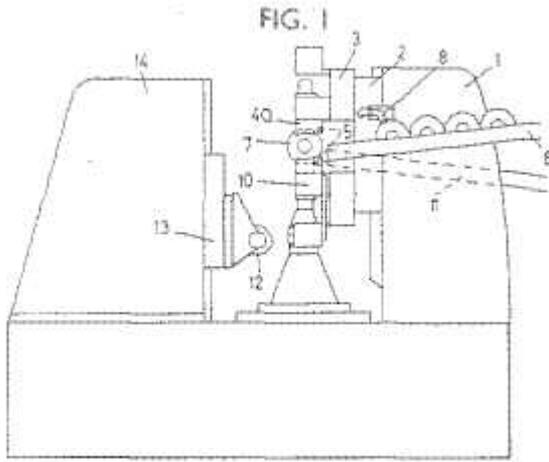
B23F 23/04

Loading [N: or unloading] arrangements

Definition statement

This subclass/group covers:

Example (GB1394518)



Informative references

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

Handling work in machine tools in general	B23Q 7/00
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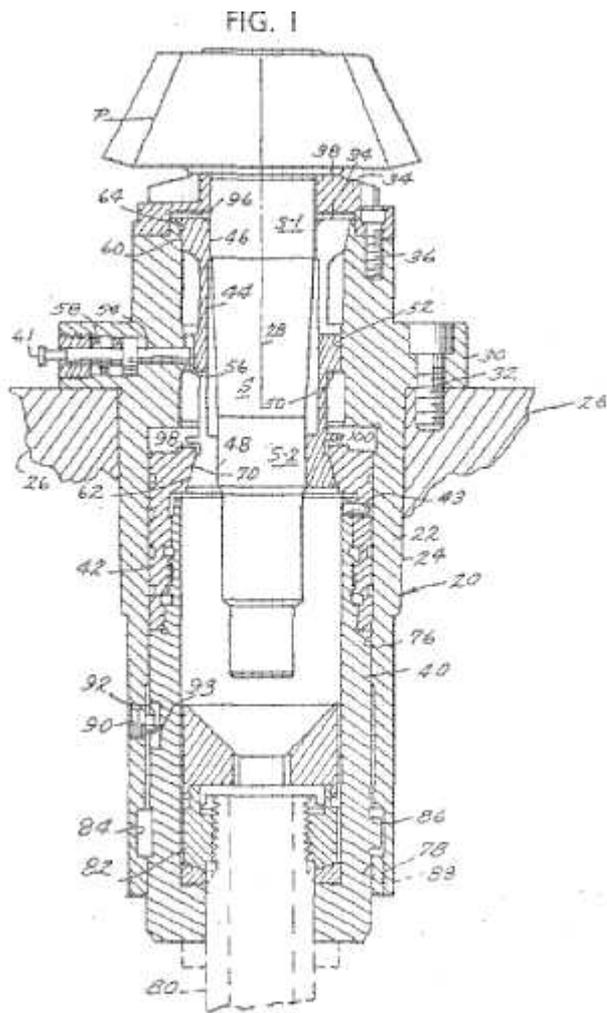
B23F 23/06

Chucking arrangements

Definition statement

This subclass/group covers:

Example (GB1256167):



Informative references

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

Chucks, in general	B23B 31/02
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B23F 23/10

Arrangements for compensating irregularities in drives or indexing mechanisms

Informative references

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

Automatic control and compensation for machine tools, in general	B23Q 15/00
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B23F 23/1206

[N: Tool mountings]

Definition statement

This subclass/group covers:

Tool mountings, i.e. actual clamping device

Informative references

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

Workpiece mounting, e.g. chucking arrangements	B23F 23/06
Gear cutting tool holders	B23F 23/1237

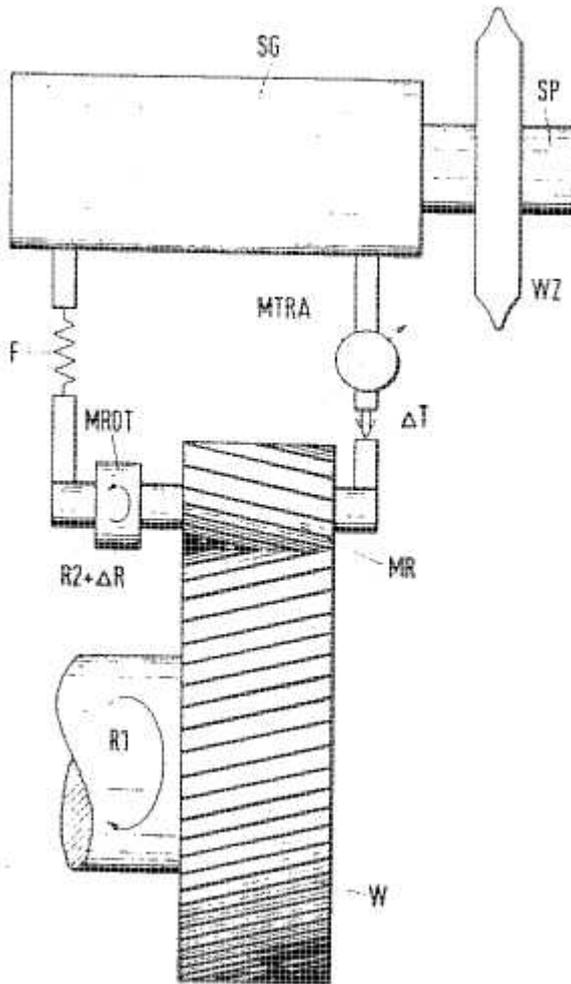
B23F 23/1218

[N: Checking devices for controlling workpieces in machines for manufacturing gear teeth]

Definition statement

This subclass/group covers:

Example (US5174070):



Informative references

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

Measuring arrangements using mechanical means for measuring contours of gears	G01B 5/202
Measuring arrangements using electrical or magnetic means for measuring contours of gears	G01B 7/283
Testing of gearings	G01M 13/021

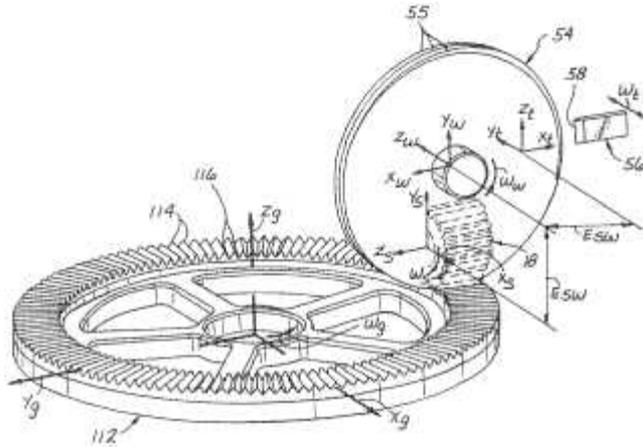
B23F 23/1225

[N: Arrangements of abrasive wheel dressing devices on gear-cutting machines (dressing devices per se B24B53/00)]

Definition statement

This subclass/group covers:

Example (US6146253 (dressing tool, 56))



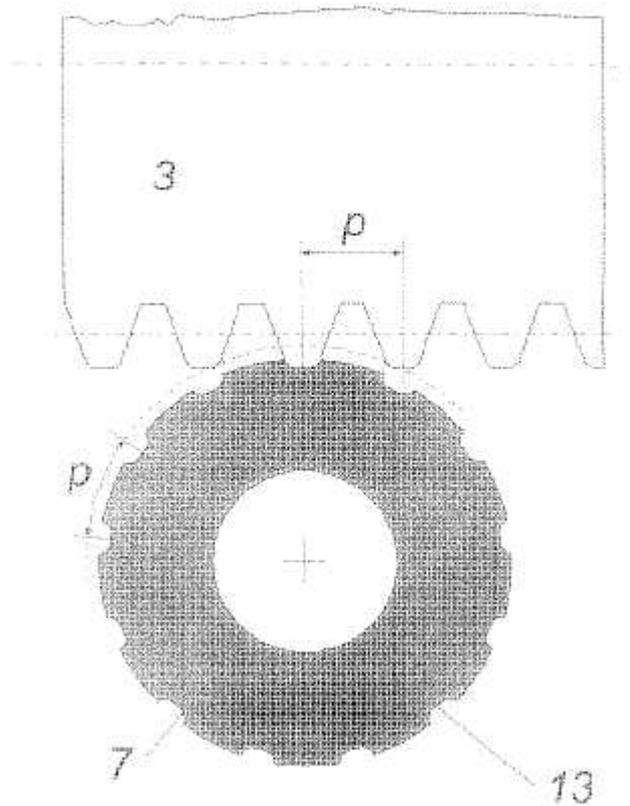
B23F 23/1231

[N: using a gear-shaped dressing tool]

Definition statement

This subclass/group covers:

Example (JP20060035421)



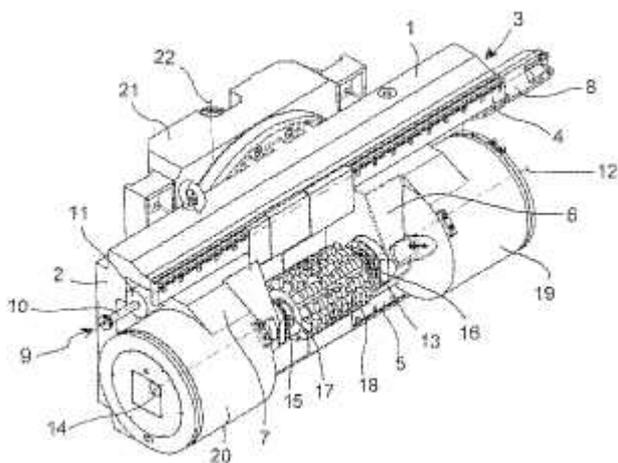
B23F 23/1243

[N: Hob holders] In this phase, definitions are only mandatory for main group level and above.

Definition statement

This subclass/group covers:

Example (DE1020090039752)



Informative references

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

Hobs for manufacturing gear teeth	B23F 21/16
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B23F 23/125

[N: Face mill holders]

Informative references

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

Face-milling tools for cutting curved teeth	B23F 21/22
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B23F 23/1256

[N: Rack cutter holders]

Informative references

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

Planing or slotting tools having the same profile as a tooth or teeth of a rack	B23F 21/08
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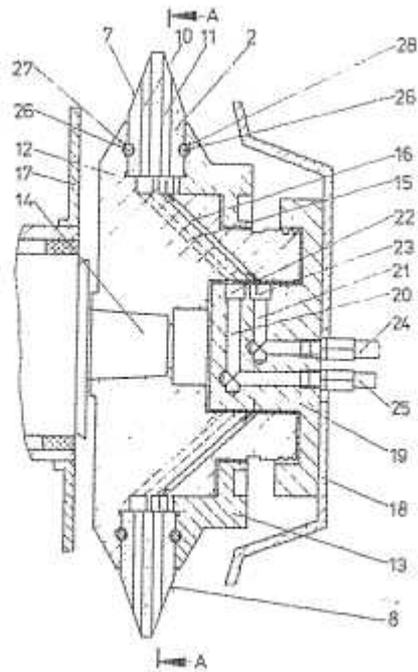
B23F 23/1262

[N: Grinding disc holders; Disc-type milling-cutter holders]

Definition statement

This subclass/group covers:

Example (DE3415498):



Informative references

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

Securing milling cutters to the driving spindle, in general	B23C 5/26
Grinding discs for use in gear manufacturing machines	B23F 21/02
Profile cutters of disc type for use in gear manufacturing machines	B23F 21/14

B23F 23/1268

[N: Face-mill-type grinding wheel holders]

Informative references

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

Face mill type grinding wheels for use in gear cutting machines	B23F 21/023
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Synonyms and Keywords

In the patent documents the following expressions/words " Face mill type grinding wheel" and "cup-shaped grinding wheel " are often used as synonyms.

B23F 23/1275

[N: Grinding or honing worm holders]

Informative references

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

Grinding worms for use in gear manufacturing machines	B23F 21/026
Honing worms for use in gear manufacturing machines	B23F 21/035

B23F 23/1281

[N: Honing, shaving or lapping tool holders]

Informative references

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

Honing tools for use in gear manufacturing machines	B23F 21/03
Shaving tools for use in gear manufacturing machines	B23F 21/28

B23F 23/1287

[N: Pinion shaper cutter holders]

Informative references

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

Pinion shaped cutters for use in gear manufacturing machines	B23F 21/10
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