

## E21C

### MINING OR QUARRYING

#### Definition statement

*This subclass/group covers:*

Methods or apparatus specific to mining or quarrying.

#### Informative references

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

Drill bits, bore reamers, core taking devices, drilling pipes or rods, handling, racking or connecting arrangements for drilling pipes or rods, counterboring or enlarging drilled holes, flame drilling, or other drilling apparatus, even though they may be disclosed only for mining or quarrying	<a href="#">E21B</a>
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#### E21C 1/00

Rotary-drilling machines (rotary-drilling machines in general B23B; rotary earth drilling E21B3/00; driving of shafts, galleries or tunnels E21D) [N: not used, see subgroup and E21B3/00 ]

#### E21C 3/00

Drilling machines with reciprocating tool that is intermittently turned when out of contact with the working face (portable percussion tools in general B25D)

#### E21C 5/00

Devices for feeding tool to working face (feeding devices for metal-boring machines B23B) [N: not used, see subgroups and E21B19/08 ]

#### E21C 7/00

Dust eliminating or dust removing while drilling ([N: see also E21B21/00]; equipment for preventing the formation of

dust by slitting or dislodging machines E21C35/22;[N: by foam E21B21/14];exhausting dust from mines E21F5/20)

## E21C 11/00

Supports or guides for drilling machines; Columns to which the machine is clamped (feed legs E21C5/11; slitting machines mounted on supports E21C25/64; guiding, slitting, or dislodging machines E21C35/08 )

## E21C 25/00

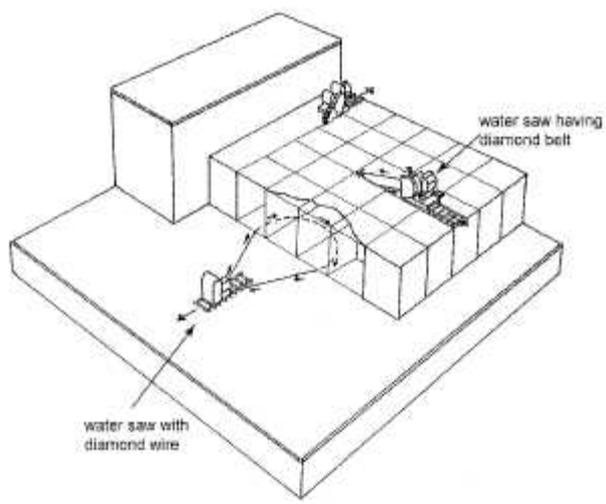
Cutting machines, i.e. for making slits approximately parallel or perpendicular to the seam (dislodging machines with slitting means E21C27/02, E21C27/10, E21C27/18 )

### Definition statement

*This subclass/group covers:*

Machines having cutting means for making a slit or a plurality of slits in the seam, so that the material in the seam can be removed in a subsequent step.

Illustrative example:



### References relevant to classification in this group

*This subclass/group does not cover:*

Dislodging machines with slitting means	<a href="#">E21C 27/02</a> , <a href="#">E21C 27/10</a> , <a href="#">E21C 27/18</a>
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### Informative references

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

Guiding the machine	<a href="#">E21C 35/08</a>
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## E21C 27/00

### Machines which completely free the mineral from the seam

#### Definition statement

*This subclass/group covers:*

Machines that can break the mineral by any means that dislodge it completely from the seam.

#### Informative references

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

Guiding the machine	<a href="#">E21C 35/08</a>
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#### Glossary of terms

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

Planer	A fixed-blade device for continuous longwall mining of narrow seams of friable coal; the machine is operated along the coal face, planing a narrow cut from the solid coal as it travels.
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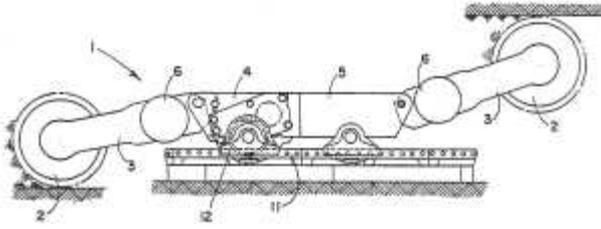
## E21C 27/02

solely by slitting (rods, drums, for same E21C25/10; saws, discs, wheels E21C25/18; chains, chain guides, for same E21C25/28 )

#### Definition statement

*This subclass/group covers:*

Machines which completely free the mineral from the seam solely by slitting; Shearer loaders. Illustrative example:



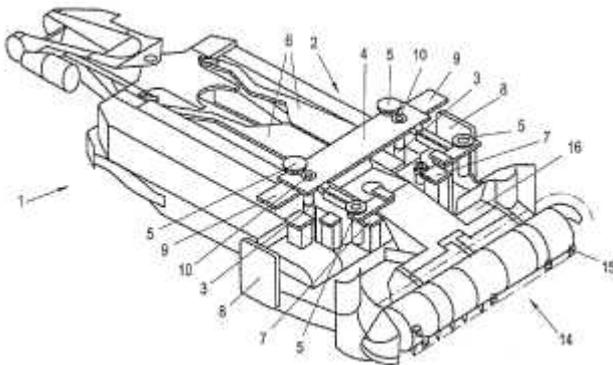
## E21C 27/24

by milling means acting on the full working face, [N: i.e. the rotary axis of the tool carrier being substantially parallel to the working face (similar machines for tunneling E21D9/1026 )]

### Definition statement

*This subclass/group covers:*

Mineral freed by milling means acting on the full working face not involving slitting; Continuous miners. Illustrative example:



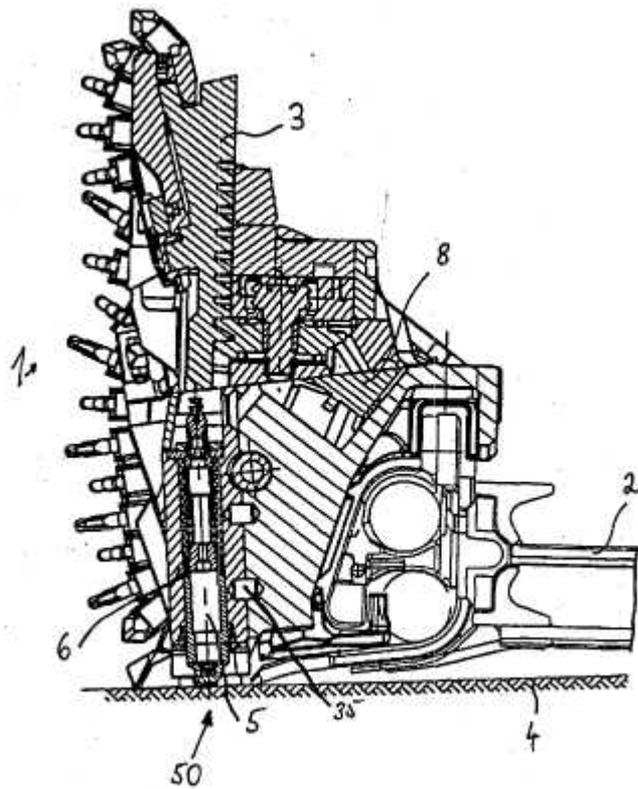
## E21C 27/34

Machine propelled along the working face by cable or chain

### Definition statement

*This subclass/group covers:*

Machine propelled along the working face by cable or chain; Coal ploughs. Illustrative example:



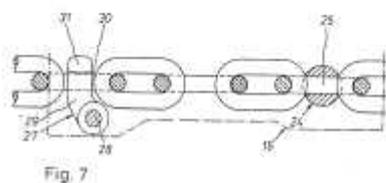
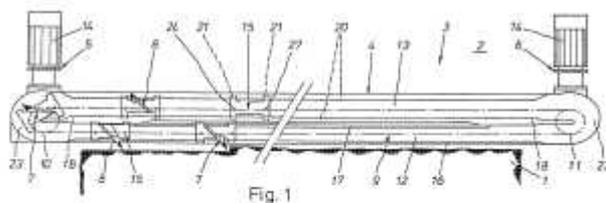
## E21C 29/00

**Propulsion of machines for slitting or completely freeing the mineral from the seam**

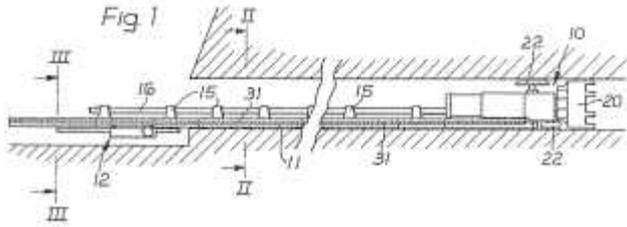
### Definition statement

*This subclass/group covers:*

Propulsion of machines for slitting or completely freeing the mineral from the seam; Propulsion of machines along the seam. Illustrative example:



Propulsion of machines into the seam, as in highwall mining. Illustrative example:



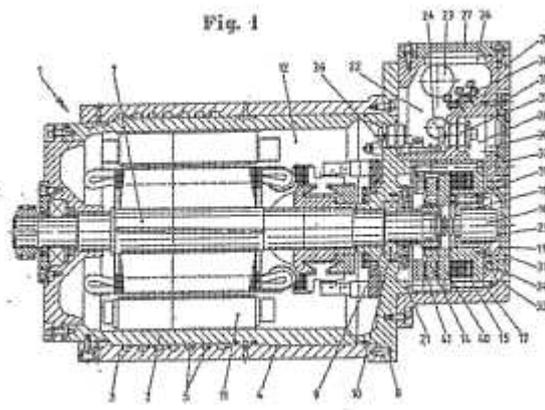
## E21C 31/00

Driving means incorporated in machines for slitting or completely freeing the mineral from the seam

### Definition statement

*This subclass/group covers:*

Drive units for energising any of the parts forming the machine. Illustrative example:



## E21C 33/00

Trucks or other devices for transporting machines for slitting or completely freeing the mineral from the seam

### Informative references

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

Equipment transport systems adapted to underground conditions	<a href="#">E21F 13/006</a>
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## E21C 35/00

Miscellaneous items relating to machines for slitting or

## completely freeing the mineral from the seam

### Definition statement

*This subclass/group covers:*

Specific details of mining machines not disclosed in [E21C 25/00](#) to [E21C 33/00](#).

### Informative references

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

Picks for tearing up asphalt	<a href="#">E01C 23/12</a>
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### Special rules of classification within this group

Means for placing or orienting the machine are classified in [E21D 35/08](#) and subgroups. Inventions relative to obtaining information about the position or the status of the machine and processing that information to control the machine are classified in [E21C 35/24](#). If the positioning is done in combination with operation of a shield for step-by-step movement, then this aspect is classified in [E21D 23/00](#).

## E21C 37/00

### Other methods or devices for dislodging with or without loading (breaking-down by means inserted in slits E21C27/14 )

### Definition statement

*This subclass/group covers:*

Techniques for dislodging minerals for mining applications.

### References relevant to classification in this group

*This subclass/group does not cover:*

Breaking-down by means inserted in slits	<a href="#">E21C 27/14</a>
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### Informative references

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

Excavating tunnels by blasting methods	<a href="#">E21D 9/006</a>
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Rock blasting	<a href="#">E42D 3/04</a>
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## E21C 39/00

**Devices for testing in situ the hardness or other properties of minerals, e.g. for giving information as to the selection of suitable mining tools**

### References relevant to classification in this group

*This subclass/group covers:*

Indicating devices for use during driving of tunnels	<a href="#">E21D 9/003</a>
Rock pressure control devices	<a href="#">E21F 17/18F</a>

## E21C 41/00

**Methods of underground or surface mining (E21C45/00 takes precedence); Lay-outs therefor (for peat E21C49/00 )**

### Definition statement

*This subclass/group covers:*

Methods disclosing sequences of steps or combinations of operations of mining.

### References relevant to classification in this group

*This subclass/group does not cover:*

Obtaining minerals through a borehole drilled from the surface	<a href="#">E21B 43/28</a> - <a href="#">E21B 43/29</a>
Machines for underground mining	<a href="#">E21C 25/00</a> - <a href="#">E21C 39/00</a>
Methods of hydraulic mining, hydraulic monitors	<a href="#">E21C 45/00</a>
Machines for surface mining	<a href="#">E21C 47/00</a>
Mining methods for obtaining peat	<a href="#">E21C 49/00</a>

Methods of underwater mining	<a href="#">E21C 50/00</a>
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## E21C 43/00

[N: IPC4] Methods for preparing for the gasification of coal underground (methods for generating gas C10B)

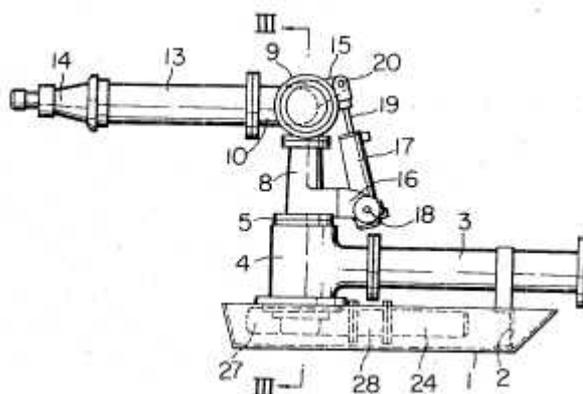
## E21C 45/00

Methods of hydraulic mining; Hydraulic monitors (E21C25/60 takes precedence)

### Definition statement

*This subclass/group covers:*

Methods of hydraulic mining; Hydraulic monitors; Excavating alluvial or other mineral deposits by means of high-pressure water jets. Illustrative example:



### References relevant to classification in this group

*This subclass/group does not cover:*

Slitting by jets of water	<a href="#">E21C 25/60</a>
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### Synonyms and Keywords

In patent documents the following expressions/words "hydraulic mining", "hydraulic excavation"; "hydraulic extraction", "hydroextraction" and "hydrolicking" are often used as synonyms.

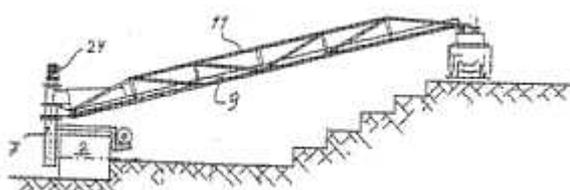
## E21C 47/00

## Machines for obtaining or the removal of materials in open-pit mines (obtaining peat E21C49/00 )

### Definition statement

*This subclass/group covers:*

Machines for obtaining or the removal of materials in open-pit mines.  
Illustrative example:



### References relevant to classification in this group

*This subclass/group does not cover:*

Surface transport of mined material	<a href="#">B65G</a>
Methods of surface mining	<a href="#">E21C 41/26</a>
Mining methods for obtaining peat	<a href="#">E21C 49/00</a>

## E21C 49/00

### Obtaining peat; Machines therefor (treating peat C10F)

#### Definition statement

*This subclass/group covers:*

Methods and machinery for draining and preparing the peat deposit before exploitation, as well as for the extraction of peat.

### References relevant to classification in this group

*This subclass/group does not cover:*

Treating peat	<a href="#">C10F</a>
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## E21C 50/00

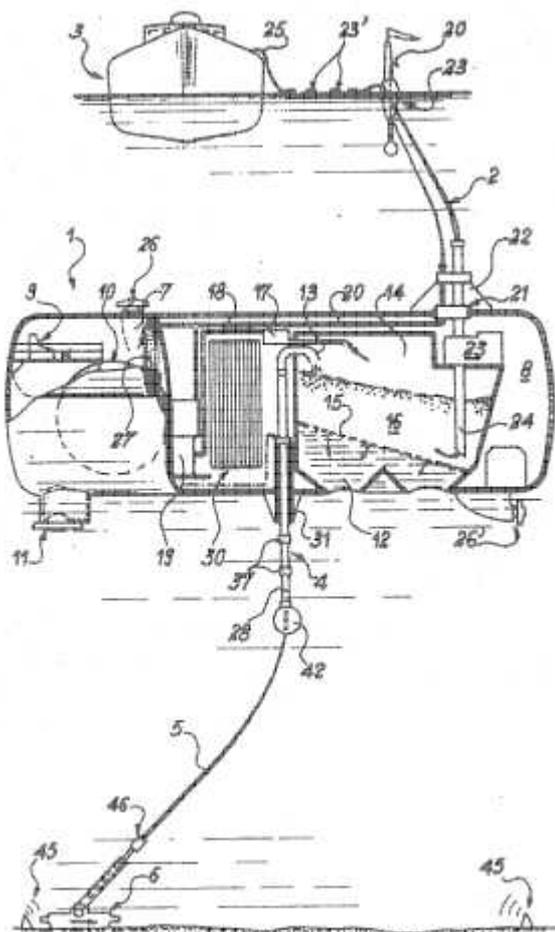
### Obtaining minerals from underwater, not otherwise provided

for (suction dredgers or component parts thereof E02F3/88; equipment for conveying or separating excavated material E02F7/00; dippers G01N1/12 )

**Definition statement**

*This subclass/group covers:*

Methods and machinery for obtaining minerals from sea bodies, such as ocean floors, or lake or river beds.



**References relevant to classification in this group**

*This subclass/group does not cover:*

Suction dredgers or component parts thereof	<a href="#">E02F 3/88</a>
Equipment for conveying or separating excavated material	<a href="#">E02F 7/00</a>
Dippers	<a href="#">G01N 1/12</a>

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## **E21C 51/00**

**Apparatus for, or methods of, winning materials from extraterrestrial sources (cosmonautics B64G)**

### **Informative references**

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

Cosmonautics	<a href="#">B64G</a>
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