G01V

GEOPHYSICS; GRAVITATIONAL MEASUREMENTS; DETECTING MASSES OR OBJECTS; TAGS (means for indicating the location of accidentally buried, e.g. snow-buried, persons A63B 29/02)

Definition statement

This place covers:

Methods and apparatus for geophysical purposes such as

Seismic measurements, including the generation of seismic energy, the detection of seismic signals and their processing.

Measuring the magnetic or electric field of the earth or its modification by geological structures.

Measuring the gravitational field of the earth or its modification by geological structures.

Prospecting or detecting of masses or objects in general, e.g. by seismic, electric, magnetic, gravimetric or optical means, or by the use of nuclear radiation.

Measuring gravitational fields or waves in general, e.g. gravitational forces between two bodies, or gravitational waves of cosmic origin.

Manufacturing, calibrating, cleaning, or repairing such apparatus.

Tags attached to, or associated with, an object, in order to enable detection of the object.

Geophysical modelling, whether or not related to the measurement of a physical parameter.

In this subclass, the geophysical methods apply both to the earth and to other celestial objects, e.g. planets.

Relationships with other classification places

The general subject matter for locating or detecting masses or objects is covered by several subclasses besides G01V: G01S, G01C.

This subclass covers radar, sonar, lidar or analogous systems specifically designed for geophysical use. Radar, sonar, lidar or analogous systems, or details of such systems, if of general interest, are covered by subclass G01S.

This subclass also covers geophysical modelling, whether or not related to the measurement of a physical parameter. Other fields, involving geophysical modelling are E21B and G06F.

In general, documents relating to the functional aspects of the modelling per se, e.g. finite difference modelling, should be classified in the G06F 17/00. Fluid flow simulation and modelling which is not application specific, e.g. using specialized computer or software, is covered by G06F 30/23.

Documents relating to the application aspects of the modelling of physical system or processes should be classified in their application field, that is G01V for geophysics and seismics and E21B for oil production.

More in particular, models relating to the state of the subsurface/formation, e.g. sedimentation models should be classified in G01V 20/00 Geomodelling in general, as this is considered the application field of exploration.

Models used when processing seismic data in general should be classified in G01V 1/28. Models used for velocity profiles should be classified in G01V 1/303.

Modelling related to production of reservoir fluids, e.g. fluid flow models, should be classified in E21B.

Equally, analysis of models for production or simulated production are classified in E21B, like e.g. risk analysis, production forecast, net present value [NPV].

Burglar, theft or intruder alarms actuated by interference with electromagnetic radiation or fields are classified in G08B 13/18 and G08B 13/24.

References

Limiting references

This place does not cover:

Means for indicating the location of accidentally buried, e.g. snow-buried, person	A63B 29/02

Application-oriented references

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

Detecting or locating foreign bodies for diagnostic, surgical or person-identification purposes	A61B

Informative references

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

Survey of boreholes or wells	E21B 47/00
Investigating or analysing earth materials by determining their chemical or physical properties	G01N
Measuring electric or magnetic variables in general, other than direction or magnitude of the earth's field	G01R
Magnetic resonance arrangement in general	G01R 33/20
Radar, sonar, lidar or analogous systems, or details of such systems in general	G01S
Burglar, theft, or intruder alarms	G08B 13/00

Special rules of classification

References G01S and G08B 13/00 are non-limiting in the subclass G01V. CPC will be updated/corrected once this inconsistency is resolved in IPC.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

tags	means arrangements cooperating with a detecting field, e.g. near field, and designed to produce a specific detectable effect; "tags" also means active markers or labels capable of generating a detectable field; tags are not to be confused with transponders (cf Glossary of G01S)
transpondeur	means an arrangement which reacts to an incoming interrogating or detecting wave by emitting a specific answering or identifying wave.

Synonyms and Keywords

In patent documents, the word/expression in the first column is often used instead of the word/expression in the second column, which is used in the classification scheme of this place:

electronic label, electronic marker	tag

G01V 1/00

Seismology; Seismic or acoustic prospecting or detecting

Definition statement

This place covers:

Seismic measurements, including the generation of seismic energy, the detection of seismic signals or their processing.

Presence detection by acoustical means.

Earthquake detection or prediction.

Relationships with other classification places

This group covers the processing of seismic data for detection or prediction of earthquakes, whereas G01V 1/28 covers seismic signal processing, including the processing for the detection of seismic or microseismic events.

References

Informative references

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

Survey of boreholes or wells	E21B 47/00
Measurement of mechanical vibrations or ultrasonic, sonic or infrasonic waves	G01H
Investigating or analysing materials by the use of ultrasonic, sonic or infrasonic waves; Visualisation of the interior of objects by transmitting ultrasonic or sonic waves through the object	G01N 29/00
Sonar systems	G01S 15/00
Alarms responsive to calamitous events, e.g. tornados or earthquakes	G08B 21/10
Methods or devices for transmitting, conducting or directing sound in general	G10K 11/00
Microphones or like acoustic electromechanical transducers	H04R
Earthquake and tsunami warning systems [ETWS]	H04W 4/90

G01V 1/001

{Acoustic presence detection}

Definition statement

This place covers:

Acoustic presence detection for passive detection only, e.g. footsteps by walking person.

Relationships with other classification places

This subgroup covers the passive detection of "presence", i.e. availability/existence of an object or a person, e.g. in a room, by the sound produced.

The term "presence" is not to be confused with the term "event" as is used in other subgroups of G01V 1/00. The term "event" refers to an occurrence of an acoustic effect, for example in earthquake detection (G01V 1/01) or in microseismics (G01V 1/288).

References

Informative references

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

Measuring of sonic vibrations	G01H
Alarm systems	G08B
Burglar, theft, or intruder alarms actuated by interference with mechanical vibrations using passive vibration detection system	G08B 13/1654

G01V 1/003

{Seismic data acquisition in general, e.g. survey design (G01V 1/3808, G01V 1/42 take precedence)}

Definition statement

This place covers:

General design of seismic surveys.

Use of special signals, e.g. for slip sweep arrangements, swept signals or pseudo-random codes.

Use of plurality of generators for generating single coherent signals.

References

Limiting references

This place does not cover:

Marine seismic data acquisition	G01V 1/3808
VSP acquisition	G01V 1/42

Informative references

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

Generating seismic energy per se	G01V 1/02
Control of marine source arrays	G01V 1/3861

G01V 1/01

Measuring or predicting earthquakes

Relationships with other classification places

This group covers the processing of seismic data for detection or prediction of earthquakes whereas G01V 1/28 covers seismic signal processing, including the processing for the detection of seismic or microseismic events.

References

Informative references

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

Alarms responsive to calamitous events, e.g. tornados or earthquakes	G08B 21/10
Earthquake and tsunami warning systems [ETWS]	H04W 4/90

G01V 1/02

Generating seismic energy {(G01V 1/003 takes precedence)}

Definition statement

This place covers:

Details of seismic sources, like ground coupling, ignition or the like.

Types of seismic sources:

using explosions

using fluidic driving means

using mechanical driving means

using spark discharges

using piezoelectric or magnetostrictive driving means

References

Limiting references

This place does not cover:

Seismic data acquisition in general, e.g. survey design	G01V 1/003

Informative references

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

Generating special signals	G01V 1/005
Generating single signals by using more than one generator, other than explosive charge	G01V 1/006
Details exclusively relevant in a marine environment	G01V 1/38
Control of marine source arrays	G01V 1/3861

Generating mechanical vibrations by using piezoelectric or magnetostrictive effect, in general	B06B 1/06, B06B 1/08
Blasting in general	F42D 3/06
Nuclear explosives	G21J
Spark gaps, discharge apparatus, not otherwise provided for	H01T

Special rules of classification

Subject matter relating to application in a marine environment should also be classified as additional information under G01V 1/38.

Subject matter relating to application in a borehole environment should also be classified as additional information under G01V 1/40.

G01V 1/16

Receiving elements for seismic signals; Arrangements or adaptations of receiving elements

Definition statement

This place covers:

Details of receiving elements, like ground coupling, circuits or the like.

Deployment of receiving elements.

Types of receiving elements:

geophones

hydrophones

combinations thereof

Arrangements of receiving elements, e.g. geophone patterns or streamers

Relationships with other classification places

Combinations of receiving elements are classified in G01V 1/18 when they essentially do a measurement on a single location.

For example, a combination of a sound pressure transducer and a particle velocity measuring transducer should be classified in G01V 1/18.

Arrangements of receiving elements for simultaneously measuring on a plurality of locations should be classified in G01V 1/20

References

Informative references

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

Integrated optoseismic systems	G01V 1/226
Fibre-optical receiving elements	G01H 9/004
Accelerometers in general	G01P
Transducer mountings in general	G10K 11/004

Electromechanical transducers	H04R

Special rules of classification

Subject matter relating to application in a marine environment should also be classified as additional information under G01V 1/38.

Subject matter relating to application in a borehole environment should also be classified as additional information under G01V 1/40.

G01V 1/18

Receiving elements, e.g. seismometer, geophone {or torque detectors, for localised single point measurements}

References

Informative references

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

Microphones or like acoustic electromechanical transducers	H04R

G01V 1/22

Transmitting seismic signals to recording or processing apparatus

Definition statement

This place covers:

Transmission of seismic signals, e.g. by wire or radio signals.

Integrated combinations of receiving elements and transmission systems, e.g.optoseismic systems

References

Informative references

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

Signal transmitting systems in general	G08C
Transmission systems in general	H04B

Special rules of classification

Subject matter relating to application in a marine environment should also be classified as additional information under G01V 1/38.

Subject matter relating to application in a borehole environment should also be classified as additional information under G01V 1/40.

G01V 1/24

Recording seismic data

Definition statement

This place covers:

Recording systems for seismic data always containing a memory structure for intermediate or final storage. This also covers seismographs that use paper as storage.

Amplitude control. e.g. for dynamic compression (for analogue systems).

Storage in acquisition units.

Time reference systems for synchronisation of the seismic data.

References

Informative references

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

Transforming one recording into another	G01V 1/32
Clock synchronisation-related issues	G01V 2200/12
Recording measured values in general	G01D
Amplitude control in general	H03G

Special rules of classification

Subject matter relating to application in a marine environment should also be classified as additional information under G01V 1/38.

Subject matter relating to application in a borehole environment should also be classified as additional information under G01V 1/40.

G01V 1/28

Processing seismic data, e.g. for interpretation or for event detection (G01V 1/48 takes precedence)

Definition statement

This place covers:

Processing seismic data:

application of seismic models

application of particular components of seismic signal, e.g. shear waves

event detection in seismic signals, e.g. microseismics

Analysis of seismic data:

determining seismic cross-section or geostructures

determining velocity profiles or traveltimes

determining physical properties of the subsurface

determining seismic attributes

time lapse or 4D effects

Transforming representations of seismic data

Displaying data

Correcting seismic data; eliminating unwanted energy:

static or dynamic corrections

seismic filtering

specially adapted for continuous agitation of the ground

Relationships with other classification places

4D effects in G01V 1/00 cover effects over time to the subsurface formation as a result of production from that formation.

The group E21B 47/00 covers 4D effects related to the fluid flow per se.

4D effects in G01V 99/00 cover long term geophysical effects, e.g. sedimentation processes, which do not relate to seismic measurements per se.

References

Limiting references

This place does not cover:

Processing of acoustic logging data	G01V 1/48

Informative references

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

4D effects related to the fluid flow per se	E21B 47/00
Computing in general	G06

Special rules of classification

Subject matter relating to application in a marine environment should also be classified as additional information under G01V 1/38.

Subject matter relating to application in a borehole environment should also be classified as additional information under G01V 1/40.

For details which are not covered by specific subgroups of G01V 1/28, the Orthogonal Indexing Codes G01V 2210/00 and subcodes should be applied.

For further details, including details which may already be covered by specific subgroups of G01V 1/28, the Orthogonal Indexing Codes G01V 2210/00 and subcodes should also be applied.

G01V 2210/00 covers "Details of seismic processing or analysis", e.g.:

Aspects of acoustic signal generation or detection.

Trace signal pre-filtering to select, remove or transform specific events or signal components, i.e. trace in and trace out.

Noise handling.

Transforming data representation.

Corrections and adjustments related to wave propagation.

Analysis.

Other details related to processing.

G01V 1/38

specially adapted for water-covered areas (G01V 1/28 takes precedence)

Definition statement

This place covers:

Marine seismic data acquisition. This also covers survey design.

Positioning of marine seismic devices, including determining the position.

Deployment of marine seismic devices, i.e. bringing into position prior to use, of streamers, ocean bottom cables [OBC] or nodes.

Control of source arrays, e.g. for far field control.

References

Limiting references

This place does not cover:

Marine seismic processing and analysis	G01V 1/28

Informative references

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

Seismic data acquisition in general	G01V 1/003
Constructional details of marine seismic streamers	G01V 1/201
Marine VSP	G01V 1/42
Equipment for marine deployment in general	B63B
Control of attitude or depth of underwater vessels	B63G

Special rules of classification

Classification in G01V 1/38 usually also requires classification in one of the subgroups G01V 1/02 - G01V 1/375

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

OBC	Ocean Bottom Cable
ROV	Remotely Operated Vehicles

G01V 1/40

specially adapted for well-logging

Definition statement

This place covers:

Seismic or acoustic well-logging:
- Seismic logging in this group concerns investigation of the formation as a whole extending far away from the borehole, e.g. VSP or inter-well seismic tomography.
- Acoustic logging in this group concerns close range investigations of the vicinity of the borehole.
- Structural details directly related to acoustic and seismic well-logging.

Relationships with other classification places

Acoustic logging in G01V 1/00 concerns close range investigations of the vicinity of the borehole. Acoustic logging of the borehole itself is covered by E21B 47/00.

References

Informative references

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

VSP seismic processing and analysis	G01V 1/28
Structural details for well-logging in general	G01V 11/002
Survey of boreholes or wells	E21B 47/00

Special rules of classification

Further constructional details should be classified as additional information in G01V 1/523 or G01V 1/52.

G01V 3/00

Electric or magnetic prospecting or detecting; Measuring magnetic field characteristics of the earth, e.g. declination, deviation

Definition statement

This place covers:

Detecting the presence of objects as well as Geophysical prospecting by magnetic or electric means, e.g.

with propagation of electric current;

with magnetic or electric fields produced or modified by objects, structures or detecting devices;

with electromagnetic waves

with electron or nuclear magnetic resonance

Measuring magnetic field characteristics and properties of the earth, both as local deviations and of the earth as a whole.

Special adaptations of the techniques above for well-logging or for use during transport

Relationships with other classification places

G01V 3/00 covers detecting and prospecting by electric or magnetic means, also if the prospecting is applied in boreholes. However, it does not cover the analysis of core samples, as taken from a borehole, which is covered by the appropriate classes in G01N.

Investigating or analysing of materials by the use of electric, electro-chemical or magnetic means are classified in G01N 27/00. Investigating or analysing of materials by NMR are classified in G01N 24/00.

Magnetic resonance is classified in a number of technical fields. In particular G01V 3/14 and G01V 3/32 cover specific adaptations of magnetic resonance to geophysical measurements. As such, those groups strongly relate to G01R 33/20 and subgroups and to G01N 24/00 and subgroups. For a more complete explanation of the relationship, see G01N 24/00.

Magnets and magnetic materials as such are classified in H01F.

References

Informative references

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

Seismo-electric effect	G01V 11/007
Compasses, magnetic field measurements for navigation or surveying purposes	G01C 17/00
Investigating or analysing of materials by NMR	G01N 24/00
Investigating or analysing of materials by the use of electric, electro-chemical or magnetic means	G01N 27/00
Investigating or analysing of earth materials	G01N 33/24

Special rules of classification

Further details of subgroups:

G01V 3/08:

The distinction between electric and magnetic (i.e. G01V 3/08) on the one hand, and electromagnetic (i.e. G01V 3/12) on the other is not directly based on the frequency. Instead, it is mostly based on whether the wave character is important. If the wavelength is much larger than the dimensions of the structures or objects under investigation, the field is considered to be static and the subject matter is covered by G01V 3/08 and subgroups. If the dimensions are comparable to, or larger than a wavelength, the subject matter falls under G01V 3/12.

G01V 3/083:

Further details should be classified as additional information with Indexing Codes G01V 2003/084 - G01V 2003/086.

G01V 3/104:

G01V 3/101 takes precedence.

G01V 3/12:

Millimetre waves: G01V 8/005.

G01V 3/14:

Classification in this group may also require classification in G01N 24/00.

G01V 3/15 - G01V 3/175:

Classification in one of these groups usually also requires classification in groups
G01V 3/02 - G01V 3/14 if relevant.

G01V 3/165 - G01V 3/175:

These groups are only used when adapted for use on an aircraft.

G01V 3/17:

Millimetre waves: G01V 8/005.

G01V 3/18 - G01V 3/34:

These classes take precedence over groups G01V 3/02 - G01V 3/14.

G01V 3/32:

Classification in this group may also require classification in G01N 24/00.

G01V 3/36:

G01V 3/34 takes precedence.

G01V 3/40:

This group does not cover earth magnetic field measurements for the purpose of navigation or surveying, which is covered by G01C 17/00.

G01V 5/00

Prospecting or detecting by the use of ionising radiation, e.g. of natural or induced radioactivity

Definition statement

This place covers:
- Detecting hidden objects
- Specially adapted for surface logging (e.g. from aircraft)
- Specially adapted for well-logging

References

Informative references

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

Survey of borehole or wells	E21B 47/00
Investigating or analysing materials	G01N 23/00
Radar or analogous systems specially adapted for specific applications (e.g. Terahertz scanners)	G01S 13/88
Measurment of nuclear or X-radiation	G01T
Scintillation detectors	G01T 1/20
Semiconductor detectors	G01T 1/24
Measuring neutron radiation	G01T 3/00
Detector interrogation using an external network	G01T 7/00

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

SNM	Special Nuclear Material

G01V 5/20

Detecting prohibited goods, e.g. weapons, explosives, hazardous substances, contraband or smuggled objects

Definition statement

This place covers:

The detection of objects using ionising radiation for the purpose of preventing contraband or smuggling.

The ionising radiation scanning of equipment to prevent the bringing of forbidden objects into restricted areas.

Relationships with other classification places

This group is an application-oriented place that covers the specific application of detecting contraband, smuggling or attempts to carry concealed and forbidden objects (e.g. weapons or explosives) into restricted areas (e.g. the secure zones of airports).

G01N 23/00 is instead the function-oriented place covering the investigation of materials (e.g. the detection of contamination in industrial production lines) per se, whereas G01T is the function-oriented place covering radiation detectors per se.

References

Informative references

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

Investigating or analysing materials by the use of wave or particle radiation, e.g. X-rays or neutrons	G01N 23/00
Measurement of nuclear or X-radiation per se	G01T

G01V 5/22

Active interrogation, i.e. by irradiating objects or goods using external radiation sources, e.g. using gamma rays or cosmic rays

Definition statement

This place covers:

The detection of hidden objects by irradiating the equipment or person presumed to carry concealed objects with ionising radiation. The ionising radiation source can be natural or artificial, but is external to the inspected equipment.

The detection of hidden objects by inducing secondary emission through irradiation by an external source, e.g. neutron activation or X-ray fluorescence.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Active	Using ionising radiation impinging from an external source

G01V 5/222

measuring scattered radiation

References

Informative references

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

Investigating or analysing materials by using scattering of the radiation by the materials	G01N 23/20

G01V 5/26

Passive interrogation, i.e. by measuring radiation emitted by objects or goods

Definition statement

This place covers:

The detection of hidden objects by detecting the ionising radiation emanating from them.

Relationships with other classification places

Relative to G01T 1/167 ("Measuring radioactive content of objects"), this group is application-oriented, that is, it is restricted to measuring the radioactive content of objects, with the aim of identifying concealed radioactive objects within other objects, packages or equipment.

When the aim of the measurement is prospection to identify minerals containing radioactive elements, classification is made either in G01V 5/02 for surface logging or G01V 5/06, when well-logging is performed.

References

Informative references

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

Measuring radioactive content of objects, e.g. contamination	G01T 1/167
Detection arrangements for nuclear explosions	G21J 5/00

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Passive	Using ionising radiation originating from the object to be detected

G01V 7/00

Measuring gravitational fields or waves; Gravimetric prospecting or detecting

Definition statement

This place covers:

Measuring the magnitude and orientation of a gravity field.

Prospecting or detecting through anomalies in the earth gravity field.

Relationships with other classification places

The following place may also be relevant for classification:

The measurement of gravity is closely related to the measurement of acceleration as is generally covered by G01P 15/00. As such, comparable methods and devices may be found and classified in both places whenever a change in speed or motion is concerned.

References

Informative references

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

Measuring slope or direction of boreholes	E21B 47/02
Clinometers	G01C 9/00
Weighing	G01G

G01V 7/04

Electric, photoelectric, or magnetic indicating or recording means

References

Informative references

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

Indicating or recording measured values in general	G01D

G01V 7/16

specially adapted for use on moving platforms, e.g. ship, aircraft

Special rules of classification

Documents, classified in this subgroup, may also require classification in one of the subgroups G01V 7/02 - G01V 7/14

G01V 8/00

Prospecting or detecting by optical means

Definition statement

This place covers:

Prospecting by optical means, e.g. by spectroscopic means, but also by optical inspection.

Detection of objects by optical means, usually through interruption of a beam of light.

In this main group, the term "optical" includes ultraviolet, infrared, visible light and millimetre waves.

Relationships with other classification places

The main group G01S 17/00 concerns location or presence detection by means of reflection or reradiation of electromagnetic waves from the object. In G01V 8/00, the detection normally occurs through interruption of a beam or set of beams. In the context of G01V 8/00, the term "reflectors" only refers to means for deflecting the optical beam. It does not refer to the object to be detected.

Infrared radiation is considered to be light when used in e.g. light curtains. Documents, using infrared radiation as a measure of local temperature (e.g. thermal imaging), should be classified in G01V 9/005.

References

Informative references

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

Safety devices in passenger lifts	B66B 13/24
Safety devices for doors and the like, operated by disruption of energy beams	E05F 15/43
Safety devices acting in conjunction with the control or operation of a machine	F16P 3/14
Photogrammetry; Photographic surveying	G01C 11/00
Measurement of the characteristics of light	G01J
Investigating or analysing materials by optical means	G01N 21/00
Optical components or systems	G02B
Counting of objects, carried by a conveyor	G06M 7/00
Burglar, theft or intruder alarms, activated by interference with heat, light or radiation	G08B 13/18
Detecting movement of traffic	G08G 1/01
Semiconductor devices sensitive to light	H01L 31/00
Switches using optical detectors	H03K 17/941

Special rules of classification

Further details of subgroups

G01V 8/10 - G01V 8/26

Documents should be classified in the lowest possible subgroup. If e.g. the document discloses both a system with a single beam and with multiple beams, but the latter is merely a juxtaposition of several single beam arrangements, it should be classified in the appropriate class for single beams. Details of single elements (transmitters or receivers), even if used in single beam or multiple beam systems, should be classififed in G01V 8/10.

G01V 8/14 and G01V 8/22

Detection by reflection from the object itself is covered by G01S 17/00

G01V 8/18 and G01V 8/26

Optical scanning system per sé: G02B 26/10

G01V 9/00

Prospecting or detecting by methods not provided for in groups G01V 1/00 - G01V 8/00

Definition statement

This place covers:

Prospecting or detecting by a specific measuring method, other than those, provided for in groups G01V 1/00 - G01V 8/00,

like:

by parascientific methods,

by thermal methods,

by detection of gases representative of underground layers, e.g. for seep detection or the determination of underground water existence or flow.

References

References out of a residual place

Examples of places in relation to which this place is residual:

Seismic or acoustic prospecting or detecting	G01V 1/00
Measuring or predicting earthquakes	G01V 1/01
Electric or magnetic prospecting or detecting	G01V 3/00
Prospecting or detecting by the use of nuclear radiation	G01V 5/00
Measuring induced radiation, e.g. thermal neutron activation analysis	G01V 5/234
Gravimetric prospecting or detecting	G01V 7/00
Prospecting or detecting by optical means	G01V 8/00

Informative references

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

Prospecting or detecting when the measuring method is irrelevant	G01V 11/00
Geomodelling in general	G01V 20/00
Prospecting or detecting, where no measuring method is involved (e.g. model building)	G01V 99/00

Special rules of classification

Further details of subgroups

G01V 9/002:

This subgroup covers prospecting and detecting by parascientific methods, or by methods that are not based on formal science.

Parascientific features take precedence over features from other groups in G01V, e.g. if a dowsing tool makes use of magnets, it would be classified in G01V 9/002.

G01V 9/005:

In this subgroup, infrared radiation is used as an indicator of local temperature, e.g. for thermal imaging. If it is used as the optical beam of a light curtain, the document should be classified in G01V 8/00.

G01V 9/007:

Analysing earth materials: G01N 33/24

Analysing gases per se: G01N

G01V 11/00

Prospecting or detecting by methods combining techniques covered by two or more of main groups G01V 1/00 - G01V 9/00

Definition statement

This place covers:

Prospecting or detecting using a combination of methods.

Prospecting or detecting where the method is irrelevant.

Special rules of classification

Further details of subgroups

G01V 11/002:

Transmission systems, specifically adapted for use in a borehole.

Components of downhole systems.

Transmission systems, suitable for both logging signals (i.e. G01V) and well survey signals (i.e. E21B) are classified in this group.

Transmission of seismic signals as such is classified in G01V 1/22.

Signal transmission in general: H04B.

G01V 11/005:

This subgroup contains means for locking sondes against the borehole wall,

means for centralising sondes in the borehole and means for determining the position and orientation of logging tools.

Combinations of measurement tools with locking mechanisms, e.g. in order to provide a better acoustical or electrical contact with the borehole wall, are classified in the appropriate class for the measurement method.

G01V 11/007:

When the seismo-electric effect is used for the purpose of earthquake prediction, the document should only be classified in G01V 1/01.

G01V 13/00

Manufacturing, calibrating, cleaning, or repairing instruments or devices covered by groups G01V 1/00 – G01V 11/00

References

Informative references

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

Testing or calibrating of vibration detectors as such	G01H 3/005

G01V 15/00

Tags attached to, or associated with, an object, in order to enable detection of the object (record carriers for use with machines having a detectable tag or marker G06K 19/00)

Definition statement

This place covers:

Tags for objects that, due to their nature or to special circumstances, are not readily detectable in themselves by any of the methods in G01V 1/00 - G01V 9/00, e.g. buried PVC pipes but also e.g. merchandise that is in risk of theft.

It is not intended for identification of a particular object (e.g. among a group of similar objects) or for carrying information about the object.

References

Informative references

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

Means for indicating the location of accidentally buried persons	A63B 29/00
Methods or arrangements for sensing record cariers	G06K 7/00
Record carriers for use with machines and with at least a part designed to carry digital markings (e.g. RFID)	G06K 19/00
Identification tags	G07C 9/00
Theft detection systems using tags	G08B 13/2402
Signs, labels	G09F
Aerials, structurally associated with other equipment or articles	H01Q 1/22
Installation of electric cables underground	H02G 9/00

Special rules of classification

Reference G06K 19/00 is non-limiting in the subclass G01V. CPC will be updated/corrected once this inconsistency is resolved in IPC.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

tags	means arrangements cooperating with a detecting field, e.g. near field, and designed to produce a specific detectable effect; "tags" also means active markers or labels capable of generating a detectable field; tags are not to be confused with transponders (cf Glossary of G01S)

G01V 20/00

Geomodelling in general

Definition statement

This place covers:

The modelling of geological structures or phenomena, where the model is expressed in terms of variables that are largely independent from measured quantities associated with specific techniques. Elements of the model (e.g. formation layer compositions) may have been obtained from a specific technique, but the modelling does not directly use peculiarities from that specific technique, and the output of this modelling is not expressed in terms of the variables of that specific technique. In other words, the geomodelling covered in this group may make use of specific geophysical techniques (seismic, electromagnetic, etc.), but these specific geophysical techniques only provide black box inputs to the geomodel covered in this group.

Relationships with other classification places

Modelling based on seismic variables (e.g. behaviour of S-waves or P-waves) is classified in G01V 1/30, or in G01V 1/01 if the purpose of the modelling is to make predictions about earthquakes. When seismic data are involved, classification is performed in this group only if the model has been re-expressed in terms of more basic variables (e.g. stress or density) that are no longer necessarily tied to seismology.

References

Application-oriented references

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

Earthquake prediction	G01V 1/01

Informative references

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

Processing seismic data	G01V 1/28
Automatic control systems specially adapted for drilling operations, e.g. computer-controlled drilling systems; Systems specially adapted for monitoring a plurality of drilling variables or conditions	E21B 44/00
Digital computing or data processing equipment or methods, specially adapted for solving equations	G06F 17/11
Digital computing or data processing equipment or methods, specially adapted for matrix or vector computation	G06F 17/16
Computational materials science	G16C 60/00

G01V 99/00

Subject matter not provided for in other groups of this subclass

Definition statement

This place covers:

Geomodels or geomodelling, not related to particular measurements

References

Informative references

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

Models for seismic processing	G01V 1/282
Velocity profiles	G01V 1/303
Modelling, related to reservoir fluids, e.g. fluid flow models	E21B
Modelling algorithms per se	G06F 17/00