EUROPEAN PATENT OFFICE
U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 1213

DATE: JANUARY 1, 2022

PROJECT DP0238

The following classification changes will be effected by this Notice of Changes:

Action	**Subclass**	**Group(s)**
DEFINITIONS:		
Definitions New:	B22F	10/00, 10/14, 10/16, 10/18, 10/30, 10/34, 10/37
	B22F	12/86
Definitions Modified:	B22F	Subclass
	B22F	1/00

No other subclasses/groups are impacted by this Notice of Changes.

This Notice of Changes includes the following *[Check the ones included]:*

1. CLASSIFICATION SCHEME CHANGES
   - ☐ A. New, Modified or Deleted Group(s)
   - ☐ B. New, Modified or Deleted Warning(s)
   - ☐ C. New, Modified or Deleted Note(s)
   - ☐ D. New, Modified or Deleted Guidance Heading(s)
2. DEFINITIONS
   - ☒ A. New or Modified Definitions (Full definition template)
   - ☐ B. Modified or Deleted Definitions (Definitions Quick Fix)
3. ☐ REVISION CONCORDANCE LIST (RCL)
4. ☐ CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)
5. ☐ CHANGES TO THE CROSS-REFERENCE LIST (CRL)

2. A. DEFINITIONS (i.e. new)

Insert: The following new Definitions.

B22F 10/00

Definition statement

This place covers:

Technologies involving the use or application of processes or apparatus that produce three dimensionally shaped structures by selectively depositing successive layers of metallic powder one upon another.

Processes of additive manufacturing, i.e. making, repairing or modifying articles of manufacture by the selective application of multiple layers of metallic powder.

Either the complete product may be built up layer-by-layer or powder can be applied on a prefabricated part, wherein the pre-fabrication step is not limited to additive manufacturing. The powder can be applied as a layer, of which only a part is consolidated and used for the product, or locally at the consolidation area.

In addition to metallic powder, mixtures of metallic particles with organic or inorganic material are also covered by this group. For example, metallic particles having an organic or a (non-metallic) inorganic coating and (non-metallic) inorganic particles having a metallic coating.

Relationships with other classification places

Group B29C 64/00 covers additive manufacturing of plastics or materials in a plastic state, not otherwise provided for.

Subclass B33Y covers additive manufacturing, irrespective of the process or material used. Furthermore, subclass B33Y is for obligatory supplementary classification of subject matter containing an aspect of additive manufacturing already classified as such in other classification places.

References

Limiting references

This place does not cover:

Apparatus or devices specially adapted for additive manufacturing	B22F 12/00

Informative references

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

Preparation of cocoa products	A23G 1/00
Shaping or working of foodstuff	A23P 10/00
Making of dental prostheses	A61C 13/00
Materials for prostheses or for coating prostheses	A61L 27/00
Moulds or cores for foundry moulding	B22C 9/00
Build-up welding by laser	B23K 26/342
Producing shaped articles from ceramic or cementitious material	B28B 1/00
Moulds, cores, mandrels for shaping clay or other ceramic compositions	B28B 7/00
Additive manufacturing of plastics	B29C 64/00
Ancillary operations in connection with laminating processes	B32B 38/00
Forme preparation for the manufacture or reproduction of printing surfaces	B41C 1/00
Typewriters or selective printers for marking on special material	B41J 3/407
Braille printing	B41M 3/16
Processes for producing ornamental structures by superimposing layers	B44C 3/02
Forming processes for shaped ceramic products	C04B 35/622
Culture of cells	C12N 5/00
Photosensitive materials for photographic purposes	G03C 1/00
Photographic processes	G03C 5/00
Photomechanical production of textured or patterned surface	G03F 7/00
Electrographic processes using a charge pattern	G03G 13/00
Electric numerical control systems for the surface or curve machining, making 3D objects	G05B 19/4099
3D modelling for computer graphics	G06T 17/00

Models for surveying; Models for geography, e.g. relief models	G09B 25/06
Discharge tubes for applying thin layers on objects	H01J 37/00
Apparatus or processes for manufacturing printed circuits using printing techniques to apply the conductive material	H05K 3/12

B22F 10/14

Definition statement

This place covers:

The deposition of a liquid bonding agent onto a thin layer of metallic particles forming a powder bed to join the metallic particles and build up a green body layer by layer.

The bonding agent may include organic and inorganic materials.

The powder bed may be formed from mixtures of metallic particles with (non-metallic) inorganic particles, for example (non-metallic) inorganic particles having a metallic coating or metallic particles having a (non-metallic) inorganic coating.

B22F 10/16

Definition statement

This place covers:

The formation layer by layer of a green body by selectively depositing a viscous material comprising activating a binder embedded in a powder bed of metallic particles.

The binder might be activated by a heat source (such as a laser beam, IR-light, etc.) to bond the metallic particles.

The binder may include organic and inorganic materials and may be present in the powder bed as a mixture with the metallic particles or may be present as a coating on the metallic particles.

The powder bed may be formed from mixtures of metallic particles with (non-metallic) inorganic particles, for example (non-metallic) inorganic particles having a

metallic coating or metallic particles having a (non-metallic) inorganic coating, with an additional binder embedded in the said powder bed.

B22F 10/18

Definition statement

This place covers:

The formation layer by layer of a green body by selectively depositing beads of a viscous material composed of a mixture of metal particles embedded in a binder, the mixture having the form of a filament. The binder may include organic and inorganic materials.

For example, the filament material might be extruded by a nozzle in beads.

B22F 10/30

Definition statement

This place covers:

Operations performed before or during the additive manufacturing specially adapted for managing the additive manufacturing process by one or more additive manufacturing apparatuses.

This group typically comprises acquiring, sending or receiving data that will be used in additive manufacturing, either internal or external to the additive manufacturing apparatus.

Relationships with other classification places

Group B29C 64/393 concerns processes for additive manufacturing of plastics.

B22F 10/34

Definition statement

This place covers:

Control of the powder characteristics before or during the additive manufacture. The powder characteristics are controlled or selected in a particular way.

Process control with respect to powder properties such as mixing processes of powders, drying or protecting from oxidation, before being fed to the powder bed.

Relationships with other classification places

The powders and their characteristics per se are classified in group B22F 1/00.

B22F 10/37

Definition statement

This place covers:

Powder bed aspects, e.g. smoothness of the bed, its density or the presence of defects, e.g. spatters.

The classification in group B22F 10/37 is made if the powder bed is seen as a distinct aspect or entity.

B22F12/86

Definition statement

This place covers:

Modular set-up of workstations connected to each other by robots or continuous transport means but clustered.

2. A. DEFINITIONS (Modified)

B22F

Definition statement

Replace: The existing Definition statement with the following modified statement.

Metallic powders per se.

Treatment of metallic powder, e.g. thermal, thermo-mechanical or chemical treatments, making agglomerates.

Manufacture of workpieces or articles from metallic powder characterised by the manner of compacting or sintering or by the special shape of the product.

Manufacture of composite layers, workpieces or articles, comprising metallic powder, by sintering the powder, with or without compacting.

Manufacture of articles from scrap or waste metal particles.

Making metallic powder or suspensions thereof using physical or chemical processes.

Powder metallurgical apparatus or equipment specifically adapted therefor, e.g. furnaces, retorts or sintering apparatus.

Additive manufacturing of workpieces or articles from metallic powder and apparatus or devices therefor.

Relationships with other classification places

Replace: The existing Relationships with other classification places text with the following modified text.

Subclass B22F covers the making of metallic powder including a metallic powder with specific physical characteristics. Non-metal particles or inorganic compounds coated with metal as well as metal particles coated with non-metals or inorganic compounds are classified in subclass B22F. Subclass B22F covers powders containing a substantial proportion of non-metallic material. It means that, when the metal is in a significant

proportion that cannot be seen as an impurity in the metallurgical process, it must be classified in subclass B22F. When the metal is present only as an impurity, it is classified in other places in the IPC. When the subject matter does not refer to a manufacturing process or to articles characterized by having a special shape but only refers to the use of the metallic powder, it is classified in the other places in the IPC, e.g. dental implants using metallic powder are classified in A61C 8/00.

Group C22B 1/14 covers agglomerating; briquetting, granulating, binding or sintering of ores or scrap for obtaining metals

Groups C22C 1/04, C22C 1/05, C22C26/00, C22C29/00, C22C 33/02 and C22C 47/14 cover the making of alloys by powder metallurgy including using mixtures of metallic powder with non-metallic powder, fibres or filaments.

Subclass C22F covers changing the physical structure of non-ferrous metals or alloys by heat treatment or by hot or cold working, including special physical methods, e.g. treatment with neutrons.

Subclass C04B covers preparing or treating powders of inorganic compounds in preparation to the manufacturing of ceramic products, e.g. group C04B 35/622. When the proportion of metallic powder is present not as an impurity in the compounds, it is classified in subclass B22F.

Subclass C08K covers use of inorganic substances including metals as compounding ingredients in compositions based on macromolecular compounds.

Group B01J 2/00 covers chemical or physical processes or devices for granulating materials in general.

Subclass B02C covers crushing, grinding or milling, in general.

Subclass B22F covers the manufacture of workpieces from metallic powder, e.g. by rolling, extrusion or forging. Other aspects of mechanical metal-working without essentially removing material are covered by class B21. In particular, subclasses B21B and B21H cover rolling of metal, subclass B21C covers extrusion of metal and subclasses B21J and B21K cover forging of metal.

Magnets made by pressing, sintering or bonding metals or alloys in the form of particles, e.g. powder, are classified in groups H01F 1/08, H01F 1/22, and in subclass B22F for the process of manufacturing the metallic powder, the powder itself and the process for making the magnet by powder metallurgical techniques.

Subclass B33Y covers additive manufacturing, irrespective of the process or material used. Furthermore, the subclass B33Y is for obligatory supplementary classification of subject matter containing an aspect of additive manufacturing already classified in other classification places.

References

Limiting references

Replace: The existing Limiting references table with the following modified table.

Making non-ferrous alloy compositions by powder metallurgy	C22C 1/04
Making non-ferrous alloys from mixtures of metallic powder with non-metallic powder	C22C 1/05
Alloys containing diamond	C22C26/00
Alloys based on metal compounds, e.g. cermets	C22C 29/00
Non-ferrous alloys containing metal compounds	C22C 32/00
Making ferrous alloys by powder metallurgy	C22C 33/02
Making alloys containing metallic or non-metallic fibres or filaments by powder metallurgy	C22C 47/14

Application-oriented references:

Replace: The existing Application-oriented references table with the following modified table.

Making ceramics by compacting or sintering	C04B
Shaped ceramic products characterised by their composition	C04B 35/00
Burning or sintering process for ceramic compositions	C04B 35/64
Production or refining of metals; Pretreatment of raw materials	C22B
Sintering; Agglomerating of raw materials for obtaining metals	C22B 1/16
Electrolytic production, recovery or refining of metallic powder	C25C 5/00
Magnets or magnetic bodies characterised by the magnetic materials in the form of particles, e.g. powder	H01F 1/06, H01F 1/20

Magnets made by pressing, sintering or bonding metals or alloys in the form of particles, e.g. powder, together	H01F 1/08, H01F 1/22
Magnetic cores made from powder	H01F 3/08
Devices using superconductivity or hyperconductivity characterised by the material	H01L 39/12

Informative references

Replace: The existing Informative references table with the following modified table.

Dental implants	A61C 8/00
Prostheses implantable into the body	A61F 2/02
Use of metals or alloys for artificial teeth, for filling or for capping teeth	A61K 6/84
Use of metals or alloys for prostheses or for coating prostheses	A61L 27/04
Chemical or physical processes or devices for granulating materials in general	B01J 2/00
Catalysts comprising metals	B01J 23/00
Methods for preparing or activation of catalysts	B01J 37/00
Crushing, grinding or milling, in general	B02C
Disposal of solid waste	B09B
Melting down metal particles in a mould	B22D 23/06
Soldering or unsoldering; Welding; Cladding or plating by soldering or welding	B23K
Abrasive tools	B24D
Cutting tools	B26D, B26F
Presses specially adapted for forming articles from material in particulate or plastic state	B30B 11/00
Layered products characterised by features of a layer formed of particles, e.g. chips, chopped fibres, powder	B32B 5/16
Printing	B41J, B41M
Chemical aspects of powdering or granulating of macromolecular substances	C08J 3/12

Metallic pigments or fillers	C09C 1/62
Compressing powdered coating material, e.g. by milling	C23C 24/06
Earth or rock drilling tools	E21B 10/00, E21B 11/00, E21B 12/00
Structural composition and use of special materials in brasses, bushes and linings of sliding contact bearings	F16C 33/12
Conductive material dispersed in non-conductive organic material	H01B 1/22
Selection of a metal for the legs of a junction of a thermoelectric device	H01L 35/20
Elements or alloys used as active materials in battery in electrodes	H01M 4/38
Printed circuits	H05K

Glossary of terms

Replace: The existing Glossary of terms table with the following modified table.

Compacting	join or press firmly together.
Sintering	forming powder into a coherent mass by heating the powder whereby adjacent particles are joined by diffusion or superficial melting.
Alloy	a composition of plural elements at least one of which is a metal in the oxidation state zero. Also includes material containing any combination of fibres, filaments, whiskers and particles, e.g. carbides, diamond, oxides, borides, nitrides or sulfides, embedded in a metallic matrix.
Furnace	covers kilns, ovens or retorts.

B22F 1/00

Relationships with other classification places

Replace: The existing Relationships with other classification places text with the following modified text.

Main group B82Y 5/00 covers nanobiotechnology or nanomedicine. Furthermore, main group B82Y 5/00 is for obligatory supplementary classification of subject matter containing an aspect of nanobiotechnology or nanomedicine already classified in other classification places.

Main group B82Y 30/00 covers nanotechnology for materials or surface science. Furthermore, main group B82Y 30/00 is for obligatory supplementary classification of subject matter containing an aspect of nanotechnology for materials or surface science already classified in other classification places.

Compositions of metal and ceramic powder, e.g. cermets, are classified in C22C.

References

Delete: The entire Limiting references section.

Insert: The following new Glossary of terms section.

Glossary of terms

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

"Nanosize" or "nanoscale"	relate to a controlled geometrical size below 100 nanometres (nm) in one or more dimensions.