

EUROPEAN PATENT OFFICE
U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 44

DATE: DECEMBER 1, 2014

PROJECT RP0015

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

<u>Action</u>	<u>Subclass</u>	<u>Group(s)</u>
Symbols newly created:	B33 (New), B33Y (New)	10/00 30/00 40/00 50/00 50/02 70/00 80/00 99/00
Scheme Notes or Guidance Headings to be added:	B33Y	B33Y

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, Deleted, and Modified group(s)
 - B. New, Deleted, and Modified Warning Notice(s)
 - C. New, Deleted, and Modified Note(s)
2. DEFINITIONS
3. REVISION CONCORDANCE LIST (RCL)
4. CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)
5. CROSS-REFERENCE LIST (CRL)

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1. CLASSIFICATION SCHEME CHANGES

A. New, Deleted, and Modified group(s)

SUBCLASS B33Y - ADDITIVE MANUFACTURING, i.e. MANUFACTURING OF THREE-DIMENSIONAL [3-D] OBJECTS BY ADDITIVE DEPOSITION, ADDITIVE AGGLOMERATING OR ADDITIVE LAYERING, e.g. BY 3D PRINTING, STEREOGRAPHY OR SELECTIVE LASER SINTERING

<u>Type*</u>	<u>Symbol</u>	<u>Indent Level</u>	<u>Title</u>
N	B33		{ ADDITIVE MANUFACTURING TECHNOLOGY }
N	B33Y		{ ADDITIVE MANUFACTURING, i.e. MANUFACTURING OF THREE-DIMENSIONAL [3D] OBJECTS BY ADDITIVE DEPOSITION, ADDITIVE AGGLOMERATION OR ADDITIVE LAYERING, e.g. BY 3D PRINTING, STEREOGRAPHY OR SELECTIVE LASER SINTERING }
N	B33Y10/00	0	{ Processes of additive manufacturing }
N	B33Y30/00	0	{ Apparatus for additive manufacturing; Details thereof or accessories therefor }
N	B33Y40/00	0	{ Auxiliary operations or equipment, e.g. for material handling }
N	B33Y50/00	0	{ Data acquisition or data processing for additive manufacturing }
N	B33Y50/02	1	{ for controlling or regulating additive manufacturing processes }
N	B33Y70/00	0	{ Materials specially adapted for additive manufacturing }
N	B33Y80/00	0	{ Products made by additive manufacturing }
N	B33Y99/00	0	{ Subject matter not provided for in other groups of this subclass }

*N = new entries (reclassification involved); C = entries with modified file scope (reclassification involved); M = entries with no change to the file scope (no reclassification); D = deleted entries; F = frozen/entries (deleted pending reclassification completion); U = entries that are unchanged

NOTES:

- To simplify understanding, prior to an N group or N group array, include the U group located immediately prior to the N group or N group array in order to clearly illustrate the location of the N group or N group array in the existing scheme.
- “D = deleted entries” and “F = frozen/entries” may be included, in the scheme changes table above if needed for better understanding of the overall scheme.

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C. New, Deleted, and Modified Note(s)

SUBCLASS B33Y - ADDITIVE MANUFACTURING, i.e. MANUFACTURING OF THREE-DIMENSIONAL [3-D] OBJECTS BY ADDITIVE DEPOSITION, ADDITIVE AGGLOMERATING OR ADDITIVE LAYERING, e.g. BY 3D PRINTING, STEREOLITHOGRAPHY OR SELECTIVE LASER SINTERING

<u>Type*</u>	<u>Location</u>	<u>Old Note</u>	<u>New/Modified Note</u>
N	B33Y		1. This subclass <u>covers</u> additive manufacturing, irrespective of the process or material used.
N	B33Y		2. This subclass is intended to enable a comprehensive search of subject matter related to additive manufacturing by combination of classification symbols of this subclass with classification symbols from other subclasses. Therefore this subclass <u>covers</u> aspects of additive manufacturing (e.g. 3D printing) that might also be entirely or partially covered elsewhere in CPC.
N	B33Y		3. This subclass is for obligatory supplementary classification of subject matter already classified as such in other classification places, when the subject matter contains an aspect of additive manufacturing.
N	B33Y		4. The classification symbols of this subclass are not listed first when assigned to patent documents.
N	B33Y		5. In this subclass, multi-aspect classification is applied, so that aspects of subject matter that are covered by more than one of its groups should be classified in each of those groups.

*N = new note/guidance heading, M = modified note/guidance heading, D = deleted note/guidance heading

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2. A. DEFINITIONS (i.e. new or modified)**B33Y**

ADDITIVE MANUFACTURING, i.e. MANUFACTURING OF THREE-DIMENSIONAL [3D] OBJECTS BY ADDITIVE DEPOSITION, ADDITIVE AGGLOMERATION OR ADDITIVE LAYERING, e.g. BY 3D PRINTING, STEREOLITHOGRAPHY OR SELECTIVE LASER SINTERING

Definition statement

This subclass covers:

Technologies involving the use or application of processes or apparatus that produce three-dimensionally shaped structures by selectively depositing successive layers of material one upon another. In particular it covers processes, apparatus, materials, and other aspects of additive manufacturing, i.e., making, repairing, or modifying articles of manufacture by the selective application of multiple layers of material. The applied layers may be applied directly, as in a printing process, or by selective solidification of material onto a substrate or previously developed layers, for example, by selective sintering of a particulate.

Relationship between large subject matter areas

In order to be considered additive manufacturing for this subclass each layer of material successively applied must essentially be formed directly on the previously applied layer of material, or on a substrate or support in the case of the first applied layer. In this regard, laminating premade layers together is not an aspect of additive manufacturing, and is classified per se in B32B 37/00.

Likewise, build-up welding, for the purpose of restoring dimensional integrity to worn objects, is not an aspect of additive manufacturing, and is classified per se in B23K 9/04 or B23K 26/34. This subclass does cover build-up welding that creates objects per se, or missing or broken pieces of existing objects.

Informative references

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

Preparation of food or foodstuffs	A23L 1/00
Moulded food or foodstuffs	A23L 1/0073
Preparation of cocoa products	A23G
Processes for laying down cocoa products, e.g. chocolate in moulds or drop-by-drop on a surface, optionally with the	A23G 1/0066

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associated hating, cooling portioning, cutting cast-tail, anti-drip processes	
Making of dental prostheses	A61C 13/00
Coating apparatus, in general	B05C
Coating processes, in general	B05D
Manufacture of workpieces or articles from metallic powder characterised by the manner of compacting or sintering	B22F 3/00
Manufacture of work-pieces or articles from metallic powder by selective deposition modelling	B22F 3/008
Selective sintering of metallic powders	B22F 3/1055
Producing shaped articles from ceramic or cementitious material	B28B 1/00
Additive manufacturing of shaped articles from ceramic or cementitious material	B28B 1/001
Shaping by coating a mould, core or other substrate, i.e. by depositing material and stripping-off the shaped article	B29C 41/00
Additive manufacturing of shaped articles from plastics	B29C 67/0051
Moulding by agglomeration	B29C 67/02
Forme preparation	B41C 1/00
Typewriters or selective printers	B41J 2/00
Superimposing layers to produce ornamental structures	B44C 3/02
Braille printing	B41M 3/16
Sintering of ceramic materials	C04B 35/64
Culture of undifferentiated human, animal or plant cells	C12N 5/00
General methods for three-dimensional culture of undifferentiated human, animal or plant cells	C12N 5/0062
Coating by vacuum evaporation, by sputtering or by ion implantation of the coating forming material	C23C 14/00
Photosensitive materials	G03C, G03F 7/004
Photomechanical production of patterned surfaces	G03F 7/00
Electrographic processes using a charge pattern	G03G 13/00
Manufacture of semiconductor or otherwise not provided for electric solid state devices	H01L 21/00
Programme-control systems for surface or curve machining, making 3D objects, e.g. desktop manufacturing	G05B 19/4099
General purpose image data processing	G06T 1/00
Image acquisition in general	G06T 1/0007
Image enhancement for 2D or 3D images	G06T 5/00
Image analysis for 2D or 3D images	G06T 7/00
Image coding, e.g. from bit-mapped to non bit-mapped	G06T 9/00
3D [Three dimensional] image rendering	G06T 15/00
3D [Three dimensional] modelling, e.g. data description of 3D objects	G06T 17/00

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Manipulating 3D models or images for computer graphics	G06T 19/00
Geography, e.g. relief models	G09B25/06
Electron-beam or ion-beam tubes for localised application of thin layers on objects	H01J 37/3178
Manufacturing printed circuits by printing of conductive patterns	H05K 3/12
Manufacturing printed circuits by ink-jet printing of conductive patterns	H05K 3/125

Special rules of classification within this subclass

- This subclass is for obligatory supplementary classification of subject matter already classified as such in other classification places, when the subject matter contains an aspect of additive manufacturing.
- The classification symbols of this subclass are not listed first when assigned to patent documents.
- In this subclass, multi-aspect classification is applied, so that aspects of subject matter that are covered by more than one of its groups should be classified in each of those groups.

Glossary of terms

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

3D printing	Additive manufacturing where the buildup of successive layers of material includes the use of a printer-like device having a servo controlled head for dispensing materials that form the layers, similar to that used by inkjet printers
Stereolithography	Additive manufacturing technique where the successive layers of material are formed by selectively hardening regions of polymeric material successively applied to the structure, typically by the use of laser light.

Synonyms and Keywords

In patent documents the following abbreviations are often used:

SLS	Selective laser sintering
DTM	Desktop manufacturing
LOM	Laminated Object Modelling
3DP, 3D-printing	Three-dimensional printing

SFF	Solid Freeform Fabrication
FDM	Fused Deposition Modelling
3DD	Three-dimensional deposition
SDM	Selective Deposition Modelling
LDM	Layered deposition modelling
3DM	Three-dimensional modelling
BPM	Ballistic Particle Modelling

B33Y 10/00

Processes of additive manufacturing

Definition statement

This group covers:

Processes and methods for manufacturing objects using additive manufacturing techniques.
 Illustrative example of subject matter classified in this group:

(US 2010/0255213)

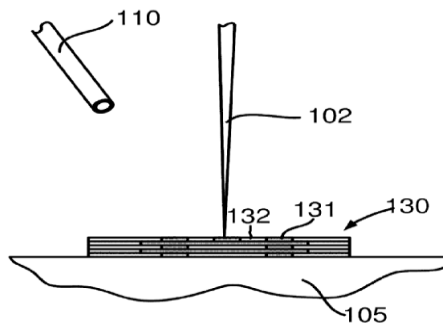


FIG. 2C

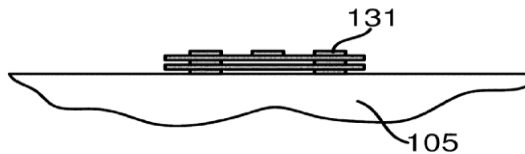


FIG. 2D

B33Y 30/00

Apparatus for additive manufacturing; Details thereof or accessories therefor

Definition statement

This group covers:

- Machines and systems for carrying out additive manufacturing methods to produce objects
- Subcombinations of machines that carry out additive manufacturing methods to produce objects
- Accessories for machines that carry out additive manufacturing methods. Accessories include things attachable to or used in conjunction with an additive manufacturing machine that have a direct association with the additive manufacturing machine, per se. Examples of accessories included in this group are devices to protect operators from harm by additive manufacturing machines, platforms to support structures being manufactured, and devices for calibrating additive manufacturing machines.

Illustrative example of subject matter classified in this group:

(US 2007/0023977)

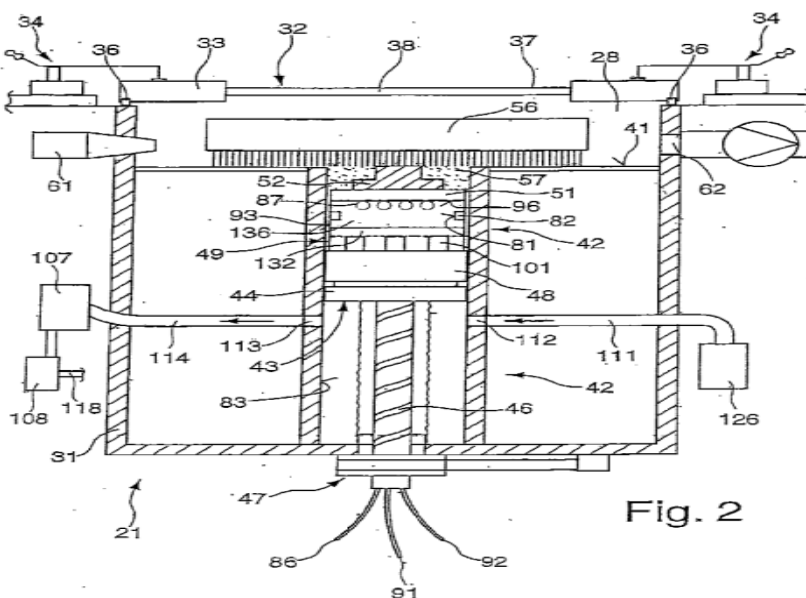


Fig. 2

Relationship between large subject matter areas

Apparatus for treating or handling the raw materials for creating objects or the objects themselves outside of the additive manufacturing apparatus are classified in B33Y 40/00.

B33Y 40/00

Auxiliary operations or equipment, e.g. for material handling

Definition statement

This group covers:

The handling or treating of materials used in an additive manufacturing process, or the subsequent treating or handling of objects produced by an additive manufacturing process. Also covered are ancillary components or process steps not directly involving the additive manufacturing process or apparatus, per se, such as cleaning raw materials used in the additive manufacturing process, or recycling residual material from the manufacturing process.

Illustrative example of subject matter classified in this group:

(US 2013/0075957)

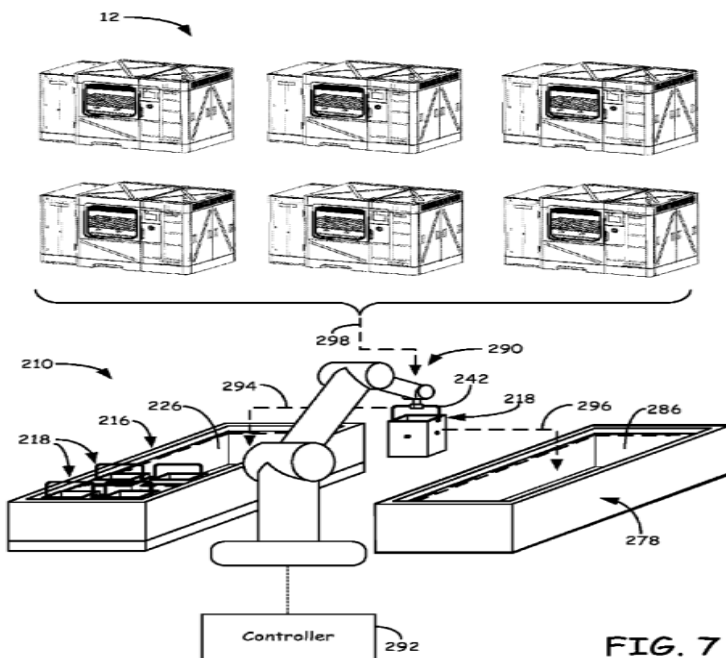


FIG. 7

B33Y 50/00

Data acquisition or data processing for additive manufacturing

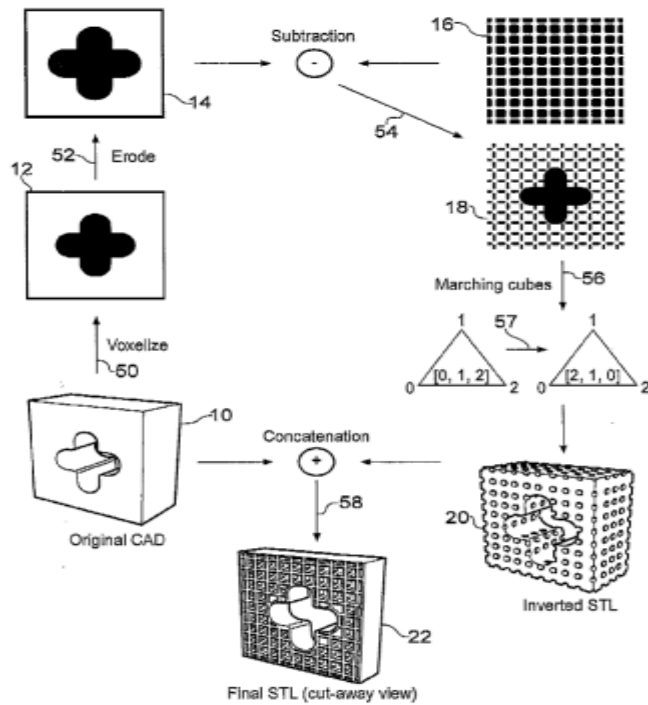
Definition statement

This group covers:

- Data processing aspects related to an object to be manufactured in an additive manufacturing process, for example, combining together data from different sources to produce composite production data for said object to be made.
- Acquiring, sending, or receiving data that will be used in additive manufacturing, either internal or external to the additive manufacturing apparatus.

Illustrative example of subject matter classified in this group:

(US 2011/0205583)



B33Y 50/02

for controlling or regulating additive manufacturing processes

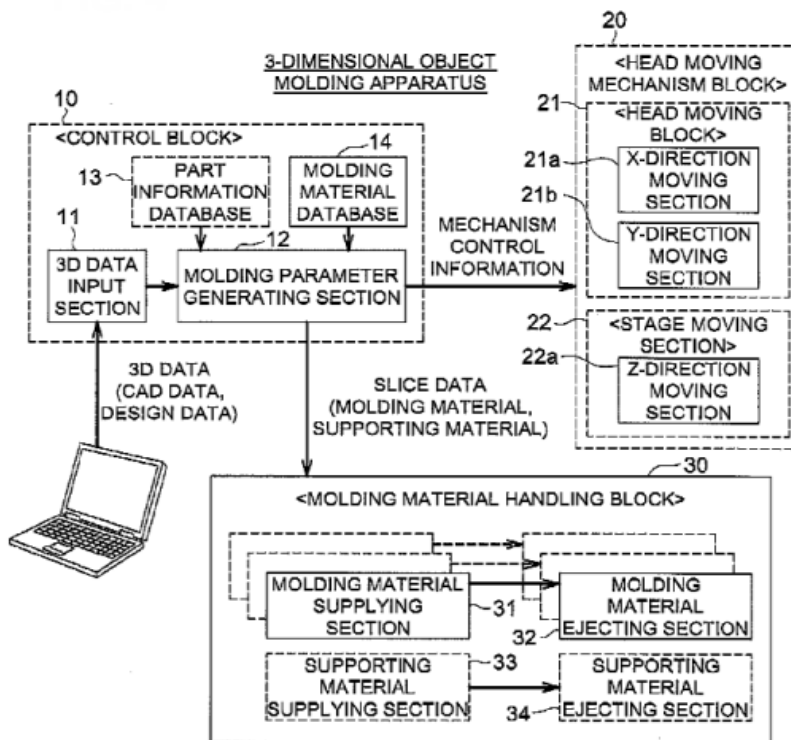
Definition statement

This group covers:

Data processing specially adapted for managing the additive manufacturing process performed by one or more additive manufacturing apparatuses.

Illustrative example of subject matter classified in this group:

(US 2013/0053995)



B33Y 70/00

Materials specially adapted for additive manufacturing

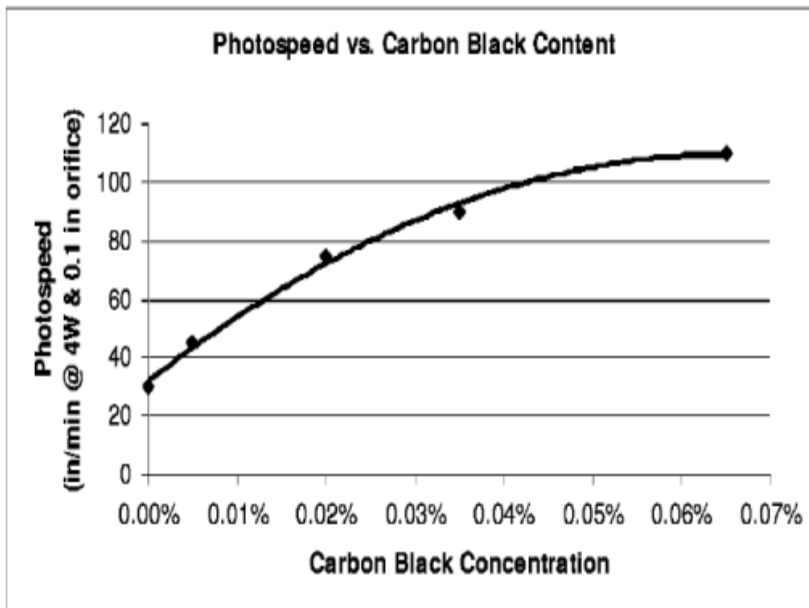
Definition statement

This group covers:

Subject matter related to the composition, structure, or other properties of the materials used in an additive manufacturing process to make an object.

Illustrative example of subject matter classified in this group:

(US 2008/0122141)



B83Y 80/00

Products made by additive manufacturing

Definition statement

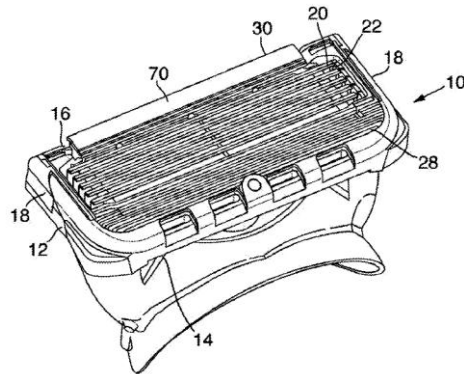
This group covers:

Products obtained by additive manufacturing

Illustrative example of subject matter classified in this group:

(US 2014/0033538)

Fig.1.



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4. CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)

<u>CPC</u>	<u>IPC</u>	<u>Action*</u>
B33Y 10/00	CPC Only	Add to concordance
B33Y 30/00	CPC Only	Add to concordance
B33Y 40/00	CPC Only	Add to concordance
B33Y 50/00	CPC Only	Add to concordance
B33Y 50/02	CPC Only	Add to concordance
B33Y 70/00	CPC Only	Add to concordance
B33Y 80/00	CPC Only	Add to concordance
B33Y 99/00	CPC Only	Add to concordance

*Action column:

- For a new (N) CPC symbol, provide an IPC symbol and complete the Action column with “new CPC/IPC.”
- For an existing CPC symbol where the existing IPC symbol needs to be changed, provide an updated IPC symbol and complete the Action column with “new IPC.”
- For a deleted (D) CPC symbol complete the Action column with “delete CPC/IPC.”
- For a 2000 series CPC symbol with no IPC equivalent, complete the Action column with “CPCONLY”.

NOTE: Frozen (F) symbols are not included in the CICL table above.