

EUROPEAN PATENT OFFICE
U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 1075

DATE: MAY 1, 2021

PROJECT RP0320

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

<u>Action</u>	<u>Subclass</u>	<u>Group(s)</u>
SCHEME:		
Symbols Deleted:	G11B	5/645, 5/647
Symbols New:	G11B	5/657, 5/658, 5/672, 5/674, 5/676, 5/678
Titles Changed:	G11B	5/62, 5/653, 5/656, 5/66
Warnings New:	G11B	5/64, 5/65, 5/653, 5/656, 5/657, 5/658, 5/66, 5/667, 5/672, 5/674, 5/676, 5/678
Warnings Modified:	G11B	Subclass
DEFINITIONS:		
Definitions New:	G11B	5/62, 5/64, 5/65, 5/653, 5/656, 5/657, 5/658, 5/66, 5/667, 5/672, 5/674, 5/676, 5/678

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)

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1. CLASSIFICATION SCHEME CHANGES

A. New, Modified or Deleted Group(s)

SUBCLASS G11B - INFORMATION STORAGE BASED ON RELATIVE MOVEMENT BETWEEN RECORD CARRIER AND TRANSDUCER ({producing carriers of sound records for needle playback B29C 39/00; recording measured values in a way that does not require playback through a transducer G01D; photosensitive materials or processes for photographic purposes G03C; electrography, electrophotography, magnetography G03G; recording or playback apparatus using mechanically marked tape, e.g. punched paper tape, or using unit records, e.g. punched or magnetically marked cards, G06K; transferring data from one type of record carrier to another G06K 1/18; printing of data from record carriers G06K 3/00; arrangements for producing a permanent visual presentation of the output data G06K 15/00; arrangements or circuits for control of indicating devices using static means to present variable information G09G; coding, decoding or code conversion, in general H03M; circuits for coupling output of reproducer to radio receiver H04B 1/20; circuits {or arrangements} specially adapted for {pictorial or} television signal recording {H04N 1/21}, H04N 5/76, H04N 9/79; loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers or circuits therefor H04R)

<u>Type*</u>	<u>Symbol</u>	<u>Indent Level Number of dots (e.g. 0, 1, 2)</u>	<u>Title</u> <u>"CPC only" text should normally be enclosed in {curly brackets}**</u>	<u>Transferred to[#]</u>
M	G11B 5/62	1	Record carriers characterised by the selection of the material	
C	G11B 5/64	2	comprising only the magnetic material without bonding agent	G11B 5/64, G11B 5/657, G11B 5/658, G11B 5/672, G11B 5/674, G11B 5/676, G11B 5/678
D	G11B 5/645	3	{characterised by the film material}	<administrative transfer to G11B 5/65>
D	G11B 5/647	4	{containing Fe or Ni (G11B 5/656 takes precedence)}	<administrative transfer to G11B 5/653>
C	G11B 5/65	3	characterised by its composition (G11B 5/66 takes precedence)	G11B 5/65, G11B 5/657, G11B 5/658
C	G11B 5/653	4	{containing Fe or Ni (containing Co G11B 5/656; containing inorganic, non-oxide compounds of Si, N, P, B, H or C G11B 5/657; containing oxygen G11B 5/658)}	G11B 5/653, G11B 5/657, G11B 5/658
C	G11B 5/656	4	{containing Co (containing inorganic, non-oxide compounds of Si, N, P, B, H or C G11B 5/657; containing oxygen G11B 5/658)}	G11B 5/656, G11B 5/657, G11B 5/658
N	G11B 5/657	4	{containing inorganic, non-oxide compound of Si, N, P, B, H or C, e.g. in metal alloy or compound (containing oxygen G11B 5/658)}	
N	G11B 5/658	4	{containing oxygen, e.g. molecular oxygen or magnetic oxide}	

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Type*	Symbol	Indent Level Number of dots (e.g. 0, 1, 2)	Title “CPC only” text should normally be enclosed in {curly brackets}**	Transferred to#
C	G11B 5/66	3	the record carriers consisting of several layers	G11B 5/66, G11B 5/672, G11B 5/674, G11B 5/676, G11B 5/678
C	G11B 5/667	4	including a soft magnetic layer	G11B 5/667, G11B 5/672, G11B 5/674, G11B 5/676, G11B 5/678
N	G11B 5/672	4	{having different compositions in a plurality of magnetic layers, e.g. layer compositions having differing elemental components or differing proportions of elements}	
N	G11B 5/674	4	{having differing macroscopic or microscopic structures, e.g. differing crystalline lattices, varying atomic structures or differing roughnesses}	
N	G11B 5/676	4	{having magnetic layers separated by a nonmagnetic layer, e.g. antiferromagnetic layer, Cu layer or coupling layer}	
N	G11B 5/678	5	{having three or more magnetic layers}	

*N = new entries where reclassification into entries is involved; C = entries with modified file scope where reclassification of documents from the entries is involved; Q = new entries which are firstly populated with documents via administrative transfers from deleted (D) entries. Afterwards, the transferred documents into the Q entry will either stay or be moved to more appropriate entries, as determined by intellectual reclassification; T = existing entries with enlarged file scope, which receive documents from C or D entries, e.g. when a limiting reference is removed from the entry title; M = entries with no change to the file scope (no reclassification); D = deleted entries; F = frozen entries will be deleted once reclassification of documents from the entries is completed; U = entries that are unchanged.

NOTES:

- **No {curly brackets} are used for titles in CPC only subclasses, e.g. C12Y, A23Y; 2000 series symbol titles of groups found at the end of schemes (orthogonal codes); or the Y section titles. The {curly brackets} are used for 2000 series symbol titles found interspersed throughout the main trunk schemes (breakdown codes).
- U groups: it is obligatory to display the required “anchor” symbol (U group), i.e. the entry immediately preceding a new group or an array of new groups to be created (in case new groups are not clearly subgroups of C-type groups). Always include the symbol, indent level and title of the U group in the table above.
- All entry types should be included in the scheme changes table above for better understanding of the overall scheme change picture. Symbol, indent level, and title are required for all types.
- “Transferred to” column must be completed for all C, D, F, and Q type entries. F groups will be deleted once reclassification is completed.
- When multiple symbols are included in the “Transferred to” column, avoid using ranges of symbols in order to be as precise as possible.
- For administrative transfer of documents, the following text should be used: “< administrative transfer to XX>”, “<administrative transfer to XX and YY simultaneously>”, or “<administrative transfer to XX, YY ...and ZZ simultaneously>” when administrative transfer of the same documents is to more than one place.
- Administrative transfer to main trunk groups is assumed to be the source allocation type, unless otherwise indicated.
- Administrative transfer to 2000/Y series groups is assumed to be “additional information”.
- If needed, instructions for allocation type should be indicated within the angle brackets using the abbreviations “ADD” or “INV”: <administrative transfer to XX ADD>, <administrative transfer to XX INV>, or < administrative transfer to XX ADD, YY INV, ... and ZZ ADD simultaneously>.

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- In certain situations, the “D” entries of 2000-series or Y-series groups may not require a destination (“Transferred to”) symbol, however it is required to specify “<no transfer>” in the “Transferred to” column for such cases.
- For finalisation projects, the deleted “F” symbols should have <no transfer> in the “Transferred to” column.
- For more details about the types of scheme change, see CPC Guide.

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B. New, Modified or Deleted Warning(s)

SUBCLASS G11B - INFORMATION STORAGE BASED ON RELATIVE MOVEMENT BETWEEN RECORD CARRIER AND TRANSDUCER ({producing carriers of sound records for needle playback B29C 39/00; recording measured values in a way that does not require playback through a transducer G01D; photosensitive materials or processes for photographic purposes G03C; electrography, electrophotography, magnetography G03G; recording or playback apparatus using mechanically marked tape, e.g. punched paper tape, or using unit records, e.g. punched or magnetically marked cards, G06K; transferring data from one type of record carrier to another G06K 1/18; printing of data from record carriers G06K 3/00; arrangements for producing a permanent visual presentation of the output data G06K 15/00; arrangements or circuits for control of indicating devices using static means to present variable information G09G; coding, decoding or code conversion, in general H03M; circuits for coupling output of reproducer to radio receiver H04B 1/20; circuits {or arrangements} specially adapted for {pictorial or} television signal recording {H04N 1/21}, H04N 5/76, H04N 9/79; loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers or circuits therefor H04R)

<u>Type*</u>	<u>Location</u>	<u>Old Warning</u>	<u>New/Modified Warning</u>
M	G11B	In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.	<p><u>Replace</u> the existing warning with the updated warning shown below.</p> <p>1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:</p> <p>G11B 5/673 covered by G11B 5/66 and G11B 5/672-G11B 5/678.</p> <p>G11B 5/738 covered by G11B 5/73, G11B 5/733, G11B 5/7334 and G11B 5/736 - G11B 5/7377.</p> <p>G11B 7/30 covered by G11B 7/00.</p> <p>2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.</p>
N	G11B 5/64		<p><u>Insert</u> the following new warning.</p> <p>Group G11B 5/64 is impacted by reclassification into groups G11B 5/657 - G11B 5/658 and G11B 5/672 -G11B 5/678. All groups listed in this Warning should be considered in order to perform a complete search.</p>
N	G11B 5/65		<p><u>Insert</u> the following new warning.</p> <p>Group G11B 5/65 is impacted by reclassification into groups G11B 5/657 - G11B 5/658. All groups listed in this Warning should be considered in order to perform a complete search.</p>

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<u>Type*</u>	<u>Location</u>	<u>Old Warning</u>	<u>New/Modified Warning</u>
N	G11B 5/653		<p><u>Insert</u> the following new warning.</p> <p>Group G11B 5/653 is impacted by reclassification into groups G11B 5/657 - G11B 5/658. All groups listed in this Warning should be considered in order to perform a complete search.</p>
N	G11B5/656		<p><u>Insert</u> the following new warning.</p> <p>Group G11B 5/656 is impacted by reclassification into groups G11B 5/657 - G11B 5/658. All groups listed in this Warning should be considered in order to perform a complete search.</p>
N	G11B5/657		<p><u>Insert</u> the following new warning.</p> <p>Group G11B 5/657 is incomplete pending reclassification of documents from groups G11B 5/64 and G11B 5/65 - G11B 5/656. All groups listed in this Warning should be considered in order to perform a complete search.</p>
N	G11B5/658		<p><u>Insert</u> the following new warning.</p> <p>Group G11B 5/658 is incomplete pending reclassification of documents from groups G11B 5/64 and G11B 5/65 - G11B 5/656. All groups listed in this Warning should be considered in order to perform a complete search.</p>
N	G11B5/66		<p><u>Insert</u> the following new warning.</p> <p>Group G11B 5/66 is impacted by reclassification into groups G11B 5/672 - G11B 5/678. All groups listed in this Warning should be considered in order to perform a complete search.</p>
N	G11B5/667		<p><u>Insert</u> the following new warning.</p> <p>Group G11B 5/667 is impacted by reclassification into groups G11B 5/672 - G11B 5/678. All groups listed in this Warning should be considered in order to perform a complete search.</p>
N	G11B5/672		<p><u>Insert</u> the following new warning.</p> <p>Group G11B 5/672 is incomplete pending reclassification of documents from groups G11B 5/64 and G11B 5/66 - G11B 5/667. All groups listed in this Warning should be considered in order to perform a complete search.</p>

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<u>Type*</u>	<u>Location</u>	<u>Old Warning</u>	<u>New/Modified Warning</u>
N	G11B5/674		<p><u>Insert</u> the following new warning.</p> <p>Group G11B 5/674 is incomplete pending reclassification of documents from groups G11B 5/64 and G11B 5/66 - G11B 5/667. All groups listed in this Warning should be considered in order to perform a complete search.</p>
N	G11B5/676		<p><u>Insert</u> the following new warning.</p> <p>Group G11B 5/676 is incomplete pending reclassification of documents from groups G11B 5/64 and G11B 5/66 - G11B 5/667. All groups listed in this Warning should be considered in order to perform a complete search.</p>
N	G11B5/678		<p><u>Insert</u> the following new warning.</p> <p>Group G11B 5/678 is incomplete pending reclassification of documents from groups G11B 5/64 and G11B 5/66 - G11B 5/667. All groups listed in this Warning should be considered in order to perform a complete search.</p>

*N = new warning, M = modified warning, D = deleted warning

NOTE: The "Location" column only requires the symbol PRIOR to the location of the warning. No further directions such as "before" or "after" are required.

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2. A. DEFINITIONS (new)

Insert the following new definitions.

G11B 5/62

Definition statement

This place covers:

Record carriers comprising a laminate of one or more layers deposited on a substrate. The record carrier consists of a layer of magnetisable material deposited on a substrate intended for information storage.

Relationships with other classification places

Aspects of magnetic recording media are classified as follows:

- G11B 5/64 concerns thin film-type media directed to the selection of magnetic material for the recording layers.
- G11B 5/68 concerns binder-type media directed to the selection of magnetic particles, binder composition, or binder additives to the recording layers.
- G11B 5/72 concerns protective layers used on magnetic recording media. This includes protective layers over both thin film-type and binder-type media.
- G11B 5/73 concerns underlayers (including substrates) used in magnetic recording media. This includes underlayers and substrates for both thin film-type and binder-type media.

References

Informative references

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

Magnetic recording elements for measuring arrangements not specifically adapted for a specific variable	G01D 15/12
Record carriers characterised by form	G11B 5/74
Manufacturing of record carriers	G11B 5/84
Optical media - material aspects, e.g. materials used in recording layers, protective layers, substrates	G11B 7/241- G11B 7/258
Optical media - manufacture, e.g. depositing a layer of recording material, pressing pits into substrate material, arrangements of multiple types of machinery in a production line	G11B 7/26

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Ferroelectric record carriers	G11B 9/02
Magnetic record carriers characterised by the selection of the material or by the structure or form	G11B 11/10582
Magnets or magnetic bodies characterised by the magnetic materials therefor; Selection of materials for their magnetic properties	H01F 1/00
Thin magnetic films, e.g. of one-domain structure	H01F 10/00

Special rules of classification

Documents directed to patterned media appropriate for G11B 5/74 that also contain a specific reference to layer structure, composition, etc. should be classified in G11B5/62 and in G11B 5/74.

Documents that also contain features relevant to the specific selection of magnetic materials in general should also be classified in H01F1/00 (bulk magnetic materials) or H01F10/00 (for thin films).

Glossary of terms

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

Antiferromagnetism	Antiferromagnetism occurs when the exchange interactions between neighboring atoms cancel each other, so the net magnetic moment is zero. Examples of antiferromagnetic materials are (Pt, Ir, Cr and Pd) Mn alloys, and select transition metal oxides.
Bonding agent	Secondary material that is usually an organic polymer holding a layer having magnetic particulate material together.
Continuous (magnetic) layer	Hard magnetic material formed as a grain (e.g. CoCr, L1 ₀ CoPt, or Co/Pt superlattices) wherein there is no distinct phase dielectric material separating the magnetic grains. Examples include CoCrPtB alloy layers and (Co/Pt) _n multilayers.
Exchange Spring Medium	A type of recording medium utilizing a high coercive force magnetic layer exchange coupled to low coercive force magnetic layer; whereby the lower coercive force magnetic layer switched orientation prior to the high coercive force layer, thereby generating a 'torque' that assists in the switching of the bits in the high coercive force layer.

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Ferrimagnetic material	Ferrimagnetic materials exhibit exchange interaction between neighboring atoms leading to adjacent moments; however, the magnetic moments are unequal and opposite in direction. The magnetic properties of ferrimagnetic materials are strongly temperature dependent and are characterised by their Curie temperature. Examples of ferrimagnetic materials are rare earth-transition metal amorphous alloys, such as GdFeCo, TbFeCo, and select granular transition-metal alloys.
Ferromagnetic material	Ferromagnetic materials exhibit exchange interaction between neighboring atoms leading to adjacent moments. Ferromagnetism is temperature dependent and field strength dependent. Typical ferromagnetic materials include transition metals such as Fe, Ni, and Co and their alloys.
Granular (magnetic) layer	Hard magnetic material formed as a grain (e.g. CoCr or FePt) with a dielectric material segregated to the grain boundaries and separating the grains from each other. Examples include CoCrPt-SiO ₂ layers and FePt:C layers.
Hard magnetic material	Hard magnetic materials possess large coercive force, are difficult to demagnetize and retain their magnetization upon removal of an external applied magnetic field. Typical hard magnetic materials have coercive force values of several hundred Oe or higher (often reaching several kOe).
Longitudinal Anisotropy	Films possessing anisotropy or magnetization directed along/in the plane of the film (Figure 1).
Magnetic Recording Layer	Any magnetic layer that forms part of the lamina used in storing/recording a recorded bit. This does not include soft magnetic underlayer/keeper layers solely for assisting in the flux return from a magnetic head.
Paramagnetic material	Paramagnetic materials have magnetic moments not completely cancelled because of electronic configuration and exhibit a resultant moment. Paramagnetic susceptibility is strongly temperature dependent. Examples of paramagnetic materials are CoCr alloys at specific Cr concentrations and materials exhibiting specific size ranges of either the magnetic grains or particle dimensions.

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Soft magnetic material	Soft magnetic materials possess low coercive force, are easy to demagnetize and lose substantially all their magnetization upon removal of any external applied magnetic field. Typical soft magnetic materials have coercive force values under 100 Oe (often under 10 Oe).
Vertical Anisotropy	Films possessing anisotropy or magnetization directed out of the plane of the film (Figure 2).

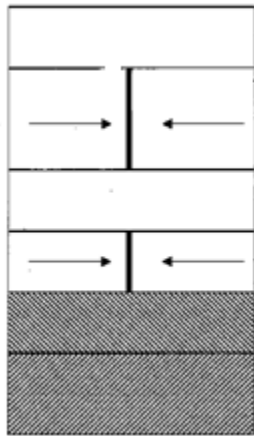


Figure 1. Example of Longitudinal Anisotropy.

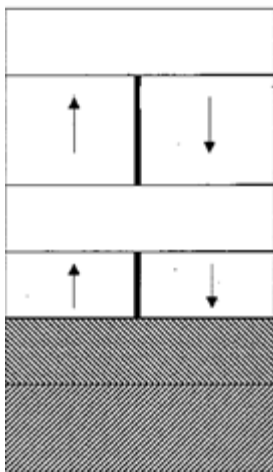


Figure 2. Example of Vertical Anisotropy.

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Synonyms and Keywords

In patent documents, the following abbreviations are often used:

AFC	Antiferromagnetically Coupled
BPM	Bit Patterned Media
DLC	Diamond-Like Carbon
DTM	Discrete Track Medium
EAMR	Energy Assisted Magnetic Recording
HAMR	Heat Assisted Magnetic Recording
MAMR	Microwave Assisted Magnetic Recording
MR	Magnetoresistive
PMA	Perpendicular Magnetic Anisotropy
SUL	Soft (magnetic) Under Layer
SyAF or SAF	Synthetic Antiferromagnet (refers to two magnetic layers exchange coupled across a spacer layer such that the magnetization directions are anti-parallel to each other).
TAMR	Thermally Assisted Magnetic Recording

In patent documents, the following words/expressions are often used as synonyms:

- “base layer”, “under layer”, “inter layer”, “seed layer”, “onset layer”, “intermediate layer”, “underlayer”, “crystallographic growth layer”, “adhesion layer”, “plating layer” and “orientation layer” for (usually) non-magnetic layers located between a substrate and a recording layer to establish proper crystal growth, orientation, magnetization and surface characteristics of the upper-lying magnetic layers. In many cases the exact intended use indicated by the nomenclature is not critical, nor uniform from one inventive entity to another (e.g. what one patent document might term a ‘seed layer’, another patent document might call an ‘onset layer’ or ‘intermediate layer’).
- “Heat Assisted” and “Thermally Assisted” for a system using heat energy to reduce the coercive force of the recording layer lamina during writing of the recording bit.
- “longitudinal anisotropy” and “in-plane anisotropy” and “horizontal anisotropy” and “longitudinal magnetization” and “in-plane magnetization” and “horizontal magnetization”
- “Microwave Assisted” uses microwaves to heat the recording lamina in a similar manner and “Energy Assisted” is generically used for either heat- or microwave-assistance.
- “Soft Magnetic Underlayer”, “Soft Underlayer”, and “Keeper layer” for a layer separated from the main recording layer lamina and comprising a soft magnetic material used to assist in the direction of the flux from the magnetic head to return to a write pole. These type of media are almost exclusively media exhibiting PMA.

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- “vertical anisotropy” and “perpendicular anisotropy” and “vertical magnetization” and “perpendicular magnetization”.

G11B 5/64

Definition statement

This place covers:

Media or magnetic material including a thin-film magnetic layer represented by a continuous layer free of polymeric binder having a thickness typically ranging from Angstrom level to several micrometres.

Media characterised by aspects of the magnetic layers other than the composition or the requirement that a plurality of magnetic layers exist in a specific interaction. For example, media where the orientation of a single magnetic layer is the inventive feature (tilted media), how the magnetic layer is utilized (servo tracking), etc.

References

Informative references

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

Layered products comprising a layer of metal, e.g. magnetic layered products	B32B 15/00
Alloys having magnetic physical properties	C22C 2202/02
Component parts for measuring arrangements not specifically adapted for a specific variable, e.g. nonmagnetic records	G01D 15/00
Sound recordings, including magnetic sound recordings combined with motion picture structures	G03B 31/00
Products or processes where magnetic force forms an image, i.e. radiation imagery	G03G 19/00
Structures of magnetic heads used with magnetic record carriers	G11B 5/127 - G11B 5/40
Magnetic media characterised by the base layers	G11B 5/73 - G11B 5/73937
Magnetic media characterised by the protective layers	G11B 5/72 - G11B 5/7268
Static memory systems, apparatus, or processes using thin films	G11C 11/14
Magnetic material resulting from metal treatment	H01F 1/00

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Special rules of classification

A soft magnetic layer or SUL is classified in this subgroup and its indents, not under G11B 5/73.

Each inventive embodiment in the document should be classified separately and if one embodiment is directed to two or more magnetic layers and another embodiment is directed to the magnetic compositions of the layers, classification is in G11B 5/66 – G11B 5/678 and also in G11B 5/65 – G11B 5/658.

G11B 5/65

Definition statement

This place covers:

Magnetic medium having a single magnetic layer that is characterised by its composition.

Example: A Mn-Al recording layer.

References

Limiting references

This place does not cover:

Record carriers consisting of several layers	G11B 5/66
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G11B 5/653

Definition statement

This place covers:

Magnetic medium in which the magnetic layer includes a majority component (by weight %, volume % or mole %) of iron or nickel, but does not also contain cobalt, oxygen or an inorganic, non-oxide compound of Si, N, P, B, H or C.

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References

Limiting references

This place does not cover:

Containing cobalt	G11B 5/656
Containing inorganic, non-oxide compounds of Si, N, P, B, H or C	G11B 5/657
Containing oxygen	G11B 5/658

G11B 5/656

Definition statement

This place covers:

Magnetic medium in which the magnetic layer includes a majority component (by weight %, volume % or mole %) of cobalt, but does not also contain oxygen or an inorganic, non-oxide compound of Si, N, P, B, H or C.

References

Limiting references

This place does not cover:

Containing inorganic, non-oxide compounds of Si, N, P, B, H or C	G11B 5/657
Containing oxygen	G11B 5/658

G11B 5/657

Definition statement

This place covers:

Magnetic medium in which the magnetic layer includes an inorganic, non-oxide compound of Si, N, P, B, H, or C. This compound can be part of the alloy (e.g. CoCrPtB) or as a segregant compound separating the magnetic grains in the layer (e.g. FePt grains separated by a carbon or boron-nitride segregant material).

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References

Limiting references

This place does not cover:

Containing oxygen	G11B 5/658
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Special rules of classification

Magnetic layers containing organic compounds should be classified in G11B 5/65 for a thin film-type magnetic layer or in the G11B 5/68 area for a binder-type magnetic layer.

G11B 5/658

Definition statement

This place covers:

Magnetic medium in which the magnetic layer includes magnetic metal oxide or a magnetic layer with uncombined oxygen present within the magnetic elemental metal or the alloy lattice structure, e.g. CoO_x or CoCrPt-SiO₂ magnetic layers.

G11B 5/66

Definition statement

This place covers:

Magnetic medium that contains more than one magnetic layer on the same side of the substrate. This includes soft, hard or paramagnetic layers, but excludes antiferromagnetic layers.

Multiple magnetic layers separated by non-magnetic or antiferromagnetic layers are classified in G11B5/676.

References

Informative references

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

Material and compositional limitations directed to spin-exchange coupled multilayers independent of use	H01F10/32- H01F10/3295
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Special rules of classification

In this subgroup, a record carrier must include a plurality of magnetic layers and not a single magnetic layer with two or more non-magnetic layers.

A classification symbol is given related to the composition and structural arrangements of a spin-exchange coupled multilayer in the corresponding subgroups H01F10/32 - H01F10/3295.

G11B 5/667

Definition statement

This place covers:

Magnetic medium including two or more magnetic layers, in which at least one of the magnetic layers is a soft magnetic layer.

G11B 5/672

Definition statement

This place covers:

Magnetic medium including two or more magnetic layers, and in which each layer has a different composition.

Example:

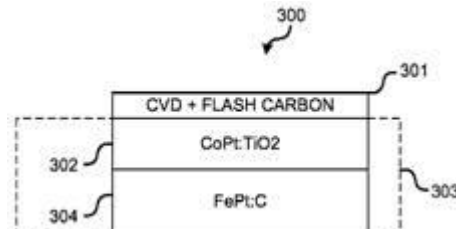


Figure 1. A FePt:C / CoPt:TiO₂ layer structure or a laminate magnetic layer structure of FePt:C / FePt:SiO₂ / FePt:C.

G11B 5/674

Definition statement

This place covers:

Magnetic medium including two or more magnetic layers, each having the same chemical constituents, but differing in crystal lattice or molecular arrangement.

Examples:

Figure 2:

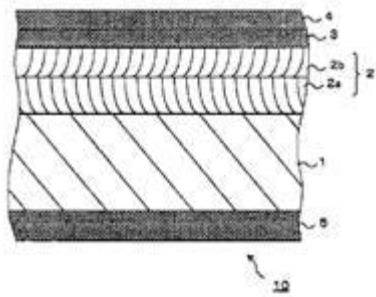
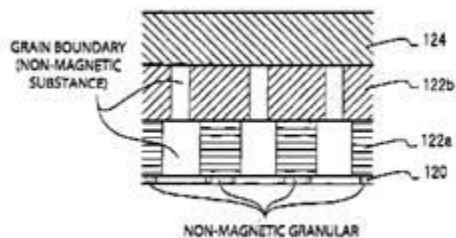


Figure 3:



Figures 2 and 3. Unique magnetic layers with distinct oblique inclination angles (Figure 2) and unique magnetic layers with distinct grain size requirements (Figure 3).

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G11B 5/676

Definition statement

This place covers:

Magnetic medium including two or more magnetic layers, wherein at least one intervening nonmagnetic or antiferromagnetic layer is between the magnetic layers.

Informative references

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

Recording media characterised by the selection of the non-magnetic material of an underlayer between a soft magnetic layer and the lowermost hard magnetic layer	G11B 5/7368 - G11B 5/7379
Recording media characterised by the selection of the non-magnetic material of an underlayer under the lowermost magnetic layer in media with no soft magnetic layer	G11B 5/7368 - G11B 5/7379
Recording media characterised by the selection of the non-magnetic material of an underlayer between a soft magnetic layer and a substrate (i.e. under the soft magnetic layer)	G11B 5/736 - G11B 5/7367
Material and compositional limitations directed to spin-exchange coupled multilayers independent of use	H01F 10/32 - H01F 10/3295

Special rules of classification

A classification symbol is given related to the composition and structural arrangements of a spin-exchange coupled multilayer in the corresponding subgroups H01F10/32 - H01F10/3295.

If a document discloses an inventive embodiment having exactly two magnetic layers separated by at least one intervening nonmagnetic or antiferromagnetic layer and another different inventive embodiment having three or more magnetic layers separated by intervening nonmagnetic or antiferromagnetic layers, an Inventive classification is given in G11B 5/676 and an Inventive classification is also given in G11B 5/678.

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G11B 5/678

Definition statement

This place covers:

Magnetic medium in which the medium has at least three magnetic layers on a single side of the substrate, with at least one intervening non-magnetic or antiferromagnetic layer.

Examples: (Co/Pt)_n or (Co/Pd)_n superlattice-type media layers.

Special rules of classification

If a document discloses an inventive embodiment having exactly two magnetic layers separated by at least one intervening nonmagnetic or antiferromagnetic layer and another different inventive embodiment having three or more magnetic layers separated by intervening nonmagnetic or antiferromagnetic layers, an Inventive classification is given in G11B 5/676 and an Inventive classification is also given in G11B 5/678.

CPC NOTICE OF CHANGES 1075

DATE: MAY 1, 2021

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3. REVISION CONCORDANCE LIST (RCL)

Type*	From CPC Symbol (existing)	To CPC Symbol(s)
C	G11B 5/64	G11B 5/64, G11B 5/657, G11B 5/658, G11B 5/672, G11B 5/674, G11B 5/676, G11B 5/678
D	G11B 5/645	< administrative transfer to G11B 5/65>
D	G11B 5/647	< administrative transfer to G11B 5/653>
C	G11B 5/65	G11B 5/65, G11B 5/657, G11B 5/658
C	G11B 5/653	G11B 5/653, G11B 5/657, G11B 5/658
C	G11B 5/656	G11B 5/656, G11B 5/657, G11B 5/658
C	G11B 5/66	G11B 5/66, G11B 5/672, G11B 5/674, G11B 5/676, G11B 5/678
C	G11B 5/667	G11B 5/667, G11B 5/672, G11B 5/674, G11B 5/676, G11B 5/678

* C = entries with modified file scope where reclassification of documents from the entries is involved; Q = new entries which are firstly populated with documents via administrative transfers from deleted (D) entries. Afterwards, the transferred documents into the Q entry will either stay or be moved to more appropriate entries, as determined by intellectual reclassification; D = deleted entries; F = frozen entries will be deleted once reclassification of documents from the entries is completed.

NOTES:

- Only C, D, F, and Q type entries are included in the table above.
- When multiple symbols are included in the “To” column, do not use ranges of symbols.
- For administrative transfer of documents, the following text should be used: “< administrative transfer to XX>”, “<administrative transfer to XX and YY simultaneously>”, or “<administrative transfer to XX, YY, ...and ZZ simultaneously>” when administrative transfer of the same documents is to more than one place.
- Administrative transfer to main trunk groups is assumed to be the source allocation type, unless otherwise indicated.
- Administrative transfer to 2000/Y series groups is assumed to be “additional information”.
- If needed, instructions for allocation type should be indicated within the angle brackets using the abbreviations “ADD” or “INV”: <administrative transfer to XX ADD>, <administrative transfer to XX INV>, or < administrative transfer to XX ADD, YY INV, ... and ZZ ADD simultaneously>.
- In certain situations, the “D” entries of 2000-series or Y-series groups may not require a destination (“To”) symbol, however it is required to specify “<no transfer>” in the “To” column for such cases.
- RCL is not needed for finalisation projects.

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

<u>CPC</u>	<u>IPC</u>	<u>Action*</u>
G11B 5/645		DELETE
G11B 5/647		DELETE
G11B 5/657	G11B 5/65	NEW
G11B 5/658	G11B 5/65	NEW
G11B 5/672	G11B 5/66	NEW
G11B 5/674	G11B 5/66	NEW
G11B 5/676	G11B 5/66	NEW
G11B 5/678	G11B 5/66	NEW

*Action column:

- For an (N) or (Q) entry, provide an IPC symbol and complete the Action column with “NEW.”
- For an existing CPC main trunk entry or indexing entry where the existing IPC symbol needs to be changed, provide an updated IPC symbol and complete the Action column with “UPDATED.”
- For a (D) CPC entry or indexing entry complete the Action column with “DELETE.” IPC symbol does not need to be included in the IPC column.
- For an (N) 2000 series CPC entry which is positioned within the main trunk scheme (breakdown code) provide an IPC symbol and complete the action column with “NEW”.
- For an (N) 2000 series CPC entry positioned at the end of the CPC scheme (orthogonal code), with no IPC equivalent, complete the IPC column with “CPCONLY” and complete the action column with “NEW”.

NOTES:

- F symbols are not included in the CICL table above.
- T and M symbols are not included in the CICL table above unless a change to the existing IPC is desired.