CPC COOPERATIVE PATENT CLASSIFICATION

G PHYSICS

(NOTES omitted)

INSTRUMENTS

G11 INFORMATION STORAGE

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)

NOTES

1. This subclass covers :
   - recording or playback of information by relative movement between a record track and a transducer, the transducer directly producing, or being directly actuated by, modulation in the track being recorded or played-back, and the extent of modulation corresponding to the signal being recorded or played-back;
   - apparatus and machines for recording or playback, and parts thereof such as heads;
   - record carriers for use with such apparatus and machines;
   - associated working of other apparatus with such apparatus and machines;
   - {relative positioning or movement of transducers and record carriers before, during or after transducing operation, e.g. for accessing record carriers or parts thereof, or for track change, selection or acquisition or for track following or for accessing parts of tracks;}
   - {driving or moving of heads or record carriers or both heads and record carriers for increasing, maintaining or decreasing the relative speed before, during or after transducing operation}
2. In this subclass, the following terms or expressions are used with the meanings indicated :
   - "head" includes any means for converting sinusoidal or non-sinusoidal electric wave-forms into variations of the physical condition of at least the adjacent surface of the record carrier, or vice versa;
   - "record carrier" means a body, such as a cylinder, disc, card, tape, or wire, capable of permanently holding information, which can be read-off by a sensing element movable relatively to the record carrier.
3. Documents concerning relative positioning or movement of transducers and record carriers are classified in groups G11B 3/00 - G11B 7/00 and G11B 21/00 when only the transducer is controlled and in groups G11B 15/00, G11B 17/00 and G11B 19/00 when only the record carrier is controlled. When both record carrier and head are controlled, the documents are classified in G11B 15/1808, G11B 15/1816, G11B 19/00 and G11B 27/002.

   When a plurality of record carriers are controlled, the documents are classified in G11B 15/68, G11B 17/08, G11B 17/22 and G11B 27/002.
4. By "access" is meant an operation including a relative movement for positioning between record carrier and head before, during or after transducing; this operation including "seek", "select", "change", "acquire" and "follow" functions for at least a part of a track on at least one record carrier. By "programmed access" is meant a sequence of access operations the result of the sequence being to acquire a wanted sequence of parts of tracks or a wanted sequence of tracks. Relative movement between head and record carrier also covers the movement of a coupling beam such as a light beam between the head and a stationary record carrier.
5. "Movement of the head" also covers any virtual movement or any physical movement such as obtained by switching between successive transducing parts of the head or by moving the transducing zone of the head, i.e. by "scanning". If different

G11B (continued)

transducing parts of the head are switchable, the number of transducing parts should be much smaller than the number of individual storage areas of the record carrier.

6. Attention is drawn to the notes of subclass G11C.

WARNING

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

G11B 5/65	covered by	G11B 5/64 - G11B 5/656
G11B 5/667	covered by	G11B 5/66
G11B 5/673	covered by	G11B 5/66
G11B7/16	covered by	G11B 7/135
G11B7/18	covered by	G11B 7/135
G11B 7/30	covered by	G11B 7/00
G11B 9/12 - G11B 9/14	covered by	G11B 9/00
G11B 11/24 - G11B 11/26	covered by	G11B 11/00
G11B 13/08	covered by	G11B

3/00 **Recording by mechanical cutting, deforming or pressing, e.g. of grooves or pits; Reproducing by mechanical sensing; Record carriers therefor** (G11B 11/00, {G11B 13/00} take precedence; {recording by cutting or deforming using laser beam G11B 7/00, using electron beam G11B 9/10})

3/001 . {with vibrating mechanical coupling means between pick-up element and sound producing element}

3/002 . . {element with stationary record carriers}

3/003 . {Devices for transmitting, directing, amplifying sound (in general G10K 11/18)}

3/005 . . {through hollow arms}

3/006 . . {using horns}

3/007 . {Devices for controlling sound, e.g. using acoustical impedances, using valves}

3/008 . {for digital information}

3/02 . Arrangements of heads (styli G11B 3/44)

3/04 . . Multiple, convertible, or alternative transducing arrangements {(contains no documents see G11B 3/42)}

3/06 . . Determining or indicating positions of head

3/08 . . Raising, lowering, traversing otherwise than for transducing, arresting, or holding-up heads against record carriers {(for transducing G11B 3/12, G11B 3/34)}

3/085 . . . using automatic means (G11B 3/095 takes precedence {; if particularly adapted for record-changers see G11B 17/16 and subgroups})

3/08503 . . . . {Control of drive of the head}

3/08506 . . . . . {for pivoting pick-up arms}

3/08509 . . . . . {using mechanical detecting means}

3/08512 . . . . . {using optical detecting means}

3/08516 . . . . . {using magnetic detecting means}

3/08519 . . . . . {for pick-up arms moving parallel to itself}

3/08522 . . . . . {using mechanical detecting means}

3/08525 . . . . . {using optical detecting means}

3/08529 . . . . . {using magnetic or electric detecting means}

3/08532 . . . . . {for fixed arms carrying a movable head}

3/08535 . . . . {Driving the head}

3/08538 . . . . . {the head being driven by the same means as the record can}

3/08541 . . . . . {for pivoting pick-up arms}

3/08545 . . . . . {driven by cams}

3/08548 . . . . . {using friction coupling}

3/08551 . . . . . {for the horizontal movement only}

3/08554 . . . . . {for pick-up arms moving parallel to itself}

3/08558 . . . . . {driven by belt or analogous element}

3/08561 . . . . . {driven by non-skip driving means, e.g. lead screw}

3/08564 . . . . . {the head being driven by means independent of the record carrier driving means}

3/08567 . . . . . {for pivoting pick-up arms}

3/0857 . . . . . {driven by means which support the pick-up arm}

3/08574 . . . . . {the supporting element being different from the rotation-axes}

3/08577 . . . . . {for the vertical movement only}

3/0858 . . . . . {using mechanical means}

3/08583 . . . . . {using electrical/magnetic means}

3/08587 . . . . . {for pick-up arm moving parallel to itself}

3/0859 . . . . . {driven by belt or analogous element}

3/08593 . . . . . {driven by non-skip driving means, e.g. lead screw}

3/08596 . . . . . {for fixed arms carrying a movable head}

3/09 . . . using manual means only (G11B 3/095 takes precedence)

3/091 . . . . {using magnetic means (G11B 3/093 takes precedence)}

3/092 . . . . {using mechanical means (G11B 3/093 takes precedence)}

3/093 . . . . {Means coupled to the cover}

3/095 . . . for repeating a part of the record; for beginning or stopping at a desired point of the record

3/0952 . . . . {using automatic means}

3/0955 . . . . . {using mechanical means for detecting the end of the recording}

3/0957 . . . . . {using optical means for detecting the end of the recording or the desired point thereof}

3/10 . . Arranging, supporting, or driving of heads or of transducers relatively to record carriers {(guiding record carriers G11B 17/00, driving record carriers G11B 19/00)}

3/12 . . . Supporting in balanced, counterbalanced or loaded operative position {during transducing}, e.g. loading in direction of traverse
3/121 . . . . {By using mechanical means not provided for in G11B 3/14, G11B 3/20, e.g. using cams}
3/122 . . . . . {Providing horizontal force, e.g. anti-skating (G11B 3/124 takes precedence)}
3/124 . . . . . {Damping means therefor}
3/125 . . . . {by using electric or magnetic means}
3/127 . . . . . {Providing horizontal force, e.g. anti-skating force (G11B 3/128 takes precedence)}
3/128 . . . . . {Damping means therefor}
3/14 . . . . by using effects of gravity or inertia, e.g. counterweight (G11B 3/28 takes precedence)
3/145 . . . . . {Providing horizontal force, e.g. anti-skating force (G11B 3/18 takes precedence)}
3/16 . . . . . adjustable
3/18 . . . . . Damping by using viscosity effect
3/20 . . . . by elastic means, e.g. spring (G11B 3/28 takes precedence)
3/22 . . . . . adjustable
3/24 . . . . . acting to decrease pressure on record
3/26 . . . . . acting to increase pressure on record
3/28 . . . . providing transverse bias parallel to record

NOTE

see provisionally also G11B 3/14, G11B 3/20)

3/30 . . . Supporting in an inoperative position
3/31 . . . . Construction of arms {(for transmitting, directing or amplifying sound G11B 3/003)}
3/32 . . . . Construction or arrangement of support pillars
3/34 . . . Driving or guiding during transducing operation
3/36 . . . . Automatic-feed mechanisms producing progressive transducing traverse across record carriers otherwise than by grooves, e.g. by lead-screw
3/38 . . . . Guiding, e.g. constructions or arrangements providing linear or other special tracking characteristics
3/40 . . . . Driving of heads relatively to stationary record carriers for transducing
3/42 . . . with provision for adaptation or interchange of heads
3/44 . Styli, e.g. sapphire, diamond
3/445 . . {Styli particularly adapted for sensing video discs}
3/46 . . Constructions or forms {Disposition or mounting}, e.g. attachment of point to shank {(attachment of stylus directly to transducer H04R 1/16)}
3/48 . . . Needles {contains no documents}
3/50 . . Anvils or other supports opposing stylus forces
3/52 . . Arrangements permitting styli to yield under excessive pressure
3/54 . . Storing; Manipulating, e.g. feeding styli to and from heads (needle boxes, receptacles for needles B65D 85/24)
3/56 . . Sharpening (grinding B24B 3/00, B24B 19/00)
3/58 . Cleaning record carriers or styli, e.g. removing shavings or dust {or electrostatic charges} (brushes A46B; cleaning in general B08B; {carrying-off electrostatic charges in general H05F 3/00})
3/5809 . . {during transducing operation}
3/5818 . . . {for record carriers}
3/5827 . . . . {using means contacting the record carrier}
3/5836 . . . . . {means connected to the pick-up arm or head}
3/5845 . . . . . {means connected to a separate arm}
3/5854 . . . . {using means not contacting the record carrier}
3/5863 . . . . . {connected to the pick-up arm or head}
3/5872 . . . . . {connected to a separate arm}
3/5881 . . . {for styli or needles only}
3/589 . . {before or after transducing operation}
3/60 . Turntables for record carriers (forming rotor of dynamo-electric motor H02K)

NOTE

contains no documents, see G11B 19/2009

3/61 . . Damping of vibrations of record carriers on turntables

NOTE

see provisionally also G11B 3/60, G11B 3/589 and G11B 17/02; contains no documents, see G11B 19/2018

3/64 . Re-recording, i.e. transcribing information from one grooved record carrier on to one or more similar or dissimilar record carriers {(by varying the order of the information G11B 27/029, G11B 27/036)}
3/66 . Erasing information, e.g. for reuse of record carrier
3/68 . Record carriers
3/682 . . {comprising protective coatings, e.g. anti static, anti-friction}
3/685 . . {Intermediate mediums}
3/687 . . {Testing thereof (investigating chemical or physical properties of materials G01N)}
3/70 . . characterised by the selection of material or structure; Processes or apparatus specially adapted for manufacturing record carriers (processes involving a single technical art and for which provision exists elsewhere, see the relevant places, e.g. B29D 17/00)
3/702 . . . {for video discs with grooves (G11B 3/705 takes precedence)}
3/705 . . . {characterised by the selection of the material only}
3/707 . . . . {for video discs with grooves}
3/72 . . Groove formations, e.g. run-in groove, run-out groove
3/74 . . . Multiple output tracks, e.g. binaural stereophonic
3/76 . . . forming part of cinematograph films
3/78 . . Multiple-track arrangements
3/80 . . incorporating subsidiary guide means for heads, other than modulated grooves; Part-formed unmodulated grooves for conversion into transducing grooves
3/90 . . with means indicating prior or unauthorised use

5/00 **Recording by magnetisation or demagnetisation of a record carrier; Reproducing by magnetic means; Record carriers therefor** (G11B 11/00 {and G11B 13/00} take precedence)

NOTE

Subgroups G11B 5/02 - G11B 5/86 take precedence over subgroups G11B 5/004 - G11B 5/016

2005/0002 . {Special dispositions or recording techniques}
2005/0005 . . {Arrangements, methods or circuits}
2005/0008 . . . {Magnetic conditionning of heads, e.g. biasing}
2005/001 . . . {Controlling recording characteristics of record carriers or transducing characteristics of transducers by means not being part of their structure}
2005/0013 . . . . {of transducers, e.g. linearisation, equalisation}
2005/0016 . . . . . {of magnetoresistive transducers}
2005/0018 . . . . . {by current biasing control or regulation}
2005/0021 . . . {Thermally assisted recording using an auxiliary energy source for heating the recording layer locally to assist the magnetization reversal}
2005/0024 . . . {Microwave assisted recording}
2005/0026 . . {Pulse recording}
2005/0029 . . . {using magnetisation components of the recording layer disposed mainly perpendicularly to the record carrier surface}
2005/0032 . . {Transducing means or record carriers including or interacting with each other through interposition of, a physically controllable magnetic flux masking or focusing element}
2005/0034 . . . {switchable at least locally between two different physical states, e.g. magnetic and non-magnetic}
2005/0037 . . . . {using superconductive elements}
5/004 . Recording on, or reproducing or erasing from, magnetic drums (G11B 19/00 takes precedence)
5/008 . Recording on, or reproducing or erasing from, magnetic tapes, {sheets, e.g. cards,} or wires (G11B 15/00 {G11B 19/00} take precedence; {bulk transferring of information magnetisation for re-recording G11B 5/865; marking record carriers in digital fashion G06K})
5/00804 . . {magnetic sheets (rotating sheets G11B 5/012)}
5/00808 . . . {magnetic cards}
5/00813 . . {magnetic tapes}
5/00817 . . . {on longitudinal tracks only, e.g. for serpentine format recording}
5/00821 . . . . {using stationary heads}
5/00826 . . . . . {comprising a plurality of single poles or gaps or groups thereof operative at the same time}
5/0083 . . . . . {for parallel information processing, e.g. PCM recording}
5/00834 . . . . . {using virtual scanning heads}
5/00839 . . . . {using cyclically driven heads providing segmented tracks}
2005/00843 . . . . {allowing digital compact cassette [DCC] format recording}
5/00847 . . . {on transverse tracks (G11B 5/00878 takes precedence)}
5/00852 . . . . {using stationary heads}
5/00856 . . . . . {comprising a plurality of single poles or gaps or groups thereof operative in time sequence}
5/0086 . . . . {using cyclically driven heads providing segmented tracks}
5/00865 . . . . . {for transducing on more than one segment simultaneously}
5/00869 . . . . . {the segments being disposed in different lateral zones of the tape}
5/00873 . . . . . {the segments being disposed in different longitudinal zones of the tape}
5/00878 . . . {transducing different track configurations or formats on the same tape}
5/00882 . . . . {configurations only, e.g. longitudinal and transverse}
5/00886 . . . . . {simultaneously}
5/00891 . . . . {formats only, e.g. analog and digital}
5/00895 . . . . . {simultaneously}
5/012 . Recording on, or reproducing or erasing from, magnetic disks (G11B 17/00, G11B 19/00 take precedence)
5/016 . . using magnetic foils
5/02 . Recording, reproducing, or erasing methods; Read, write or erase circuits therefor (timing or synchronising arrangements G11B 27/10)
5/022 . . {H-Bridge head driver circuit, the "H" configuration allowing to inverse the current direction in the head}
5/024 . . Erasing
5/0245 . . . {Bulk erasing}
5/027 . . Analogue recording
5/0275 . . . {Boundary displacement recording}
5/03 . . . Biasing
5/035 . . . Equalising
5/09 . . Digital recording
5/10 . Structure or manufacture of housings or shields for heads
5/102 . . {Manufacture of housing}
5/105 . . Mounting of head within housing {or assembling of head and housing (G11B 5/3103 takes precedence)}
5/11 . . Shielding of head against electric or magnetic fields
5/112 . . . {Manufacture of shielding device}
5/115 . . . Shielding devices arranged between heads or windings ({G11B 5/265} , G11B 5/29 take precedence)
5/127 . Structure or manufacture of heads, e.g. inductive
5/1272 . . {Assembling or shaping of elements (G11B 5/1278 takes precedence)}
5/1274 . . {with "composite" cores, i.e. cores composed in some parts of magnetic particles and in some other parts of magnetic metal layers}
5/1276 . . . {including at least one magnetic thin film}
5/1278 . . {specially adapted for magnetisations perpendicular to the surface of the record carrier}
5/133 . . with cores composed of particles, e.g. with dust cores, with ferrite cores {with cores composed of isolated magnetic particles (in thin films G11B 5/31)}
5/1335 . . . {Assembling or shaping of elements}

5/147 . . with cores being composed of metal sheets, i.e. laminated cores {with cores composed of isolated magnetic layers, e.g. sheets (in thin films G11B 5/31)}
5/1475 . . . {Assembling or shaping of elements (G11B 5/153 takes precedence)}
5/153 . . . with tape-wound cores
5/17 . . Construction or disposition of windings
5/187 . . Structure or manufacture of the surface of the head in physical contact with, or immediately adjacent to the recording medium; Pole pieces; Gap features (G11B 5/265, {G11B 5/29} , G11B 5/31 take precedence)
5/1871 . . . {Shaping or contouring of the transducing or guiding surface}
5/1872 . . . . {for improving the form of the electrical signal transduced, e.g. compensation of "contour effect"}
5/1874 . . . . . {specially adapted for composite pole pieces, e.g. for avoiding "pseudo-gap"}
5/1875 . . . {"Composite" pole pieces, i.e. poles composed in some parts of magnetic particles and in some other parts of magnetic metal layers}
5/1877 . . . . {including at least one magnetic thin film}
5/1878 . . . . . {disposed immediately adjacent to the transducing gap, e.g. "Metal-In-Gap" structure}
5/193 . . . the pole pieces being ferrite {or other magnetic particles (G11B 5/1871 takes precedence; in thin film G11B 5/31)}
5/21 . . . the pole pieces being of ferrous sheet metal {or other magnetic layers (G11B 5/1871 takes precedence; in thin film G11B 5/31)}
5/23 . . . Gap features {(G11B 5/1871, G11B 5/1875, G11B 5/265, G11B 5/29, G11B 5/488 and subgroups, G11B 5/4907 and subgroups, G11B 5/4969 and subgroups take precedence)}
5/232 . . . . {Manufacture of gap}
5/235 . . . . Selection of material for gap filler {(G11B 5/232 takes precedence)}
5/245 . . . comprising means for controlling the reluctance of the magnetic circuit {in a head with single gap, for co-operation with one track; (G11B 5/255 takes precedence; for plural gaps or plural tracks G11B 5/127, G11B 5/265, G11B 5/29, G11B 5/49 and subgroups)}
5/2452 . . . . {where the dimensions of the effective gap are controlled}
5/2455 . . . . . {the magnetic circuit including at least one magnetic thin film of controllable properties (for scanning G11B 5/4938)}
5/2457 . . . . . {disposed immediately adjacent to the gap ("composite" pole pieces G11B 5/1877)}
5/255 . . . comprising means for protection against wear {(in thin film structures G11B 5/3106)}
5/265 . . Structure or manufacture of a head with more than one gap for erasing, recording or reproducing on the same track (G11B 5/33 takes precedence {in thin film structures G11B 5/31})
5/2651 . . . {Manufacture}
5/2652 . . . {with more than one gap simultaneously operative (with controlled single gap G11B 5/245)}
5/2654 . . . . {for recording or erasing}
5/2655 . . . . . {with all the gaps disposed within the track or "guard band" between tracks, e.g. with erase gaps operative on track edges, with wide erase gap followed by narrow write gap}
5/2657 . . . . . {all the gaps having the same dimension in the direction transverse to the track direction}
5/2658 . . . . . {for recording with premagnetization or biasing of record carrier or head}
5/29 . . Structure or manufacture of unitary devices formed of plural heads for more than one track {(G11B 5/33, G11B 5/49 and subgroups take precedence; in thin film structure G11B 5/31)}
5/295 . . . {Manufacture}
5/31 . . using thin films {(G11B 5/1274, G11B 5/1278, G11B 5/1874, G11B 5/1875, G11B 5/33, G11B 5/49 take precedence; magnetic thin film structures H01F 10/00)}
5/3103 . . . {Structure or manufacture of integrated heads or heads mechanically assembled and electrically connected to a support or housing}
5/3106 . . . . {where the integrated or assembled structure comprises means for conditioning against physical detrimental influence, e.g. wear, contamination (G11B 5/3133 takes precedence)}
5/3109 . . . {Details (G11B 5/3103 takes precedence)}
5/3113 . . . . {for improving the magnetic domain structure or avoiding the formation or displacement of undesirable magnetic domains}
5/3116 . . . . {Shaping of layers, poles or gaps for improving the form of the electrical signal transduced, e.g. for shielding, contour effect, equalizing, side flux fringing, cross talk reduction between heads or between heads and information tracks (G11B 5/3113, G11B 5/245 take precedence)}
5/312 . . . . {for reducing flux leakage between the electrical coil layers and the magnetic cores or poles or between the magnetic cores or poles}
5/3123 . . . . . {by using special coil configurations or conductors}
5/3126 . . . . . {using superconductors}
5/313 . . . . {Disposition of layers}
5/3133 . . . . . {including layers not usually being a part of the electromagnetic transducer structure and providing additional features, e.g. for improving heat radiation, reduction of power dissipation, adaptations for measurement or indication of gap depth or other properties of the structure (G11B 5/3106 takes precedence)}
5/3136 . . . . . {for reducing the pole-tip-protrusion at the head transducing surface, e.g. caused by thermal expansion of dissimilar materials}
5/314 . . . . . {where the layers are extra layers normally not provided in the transducing structure, e.g. optical layers (G11B 5/3196 takes precedence)}

5/3143 . . . . . {including additional layers for improving the electromagnetic transducing properties of the basic structure, e.g. for flux coupling, guiding or shielding (G11B 5/3116, G11B 5/312 take precedence)}
5/3146 . . . . . {magnetic layers}
5/315 . . . . . {Shield layers on both sides of the main pole, e.g. in perpendicular magnetic heads}
5/3153 . . . . . {including at least one magnetic thin film coupled by interfacing to the basic magnetic thin film structure}
5/3156 . . . . . {providing interaction by induced or exchange coupling}
5/3159 . . . . . {superconductive layers}
5/3163 . . . {Fabrication methods or processes specially adapted for a particular head structure, e.g. using base layers for electroplating, using functional layers for masking, using energy or particle beams for shaping the structure or modifying the properties of the basic layers}
5/3166 . . . . {Testing or indicating in relation thereto, e.g. before the fabrication is completed}
5/3169 . . . . {Working or finishing the interfacing surface of heads, e.g. lapping of heads}
5/3173 . . . . {Batch fabrication, i.e. producing a plurality of head structures in one batch}
5/3176 . . . {Structure of heads comprising at least in the transducing gap regions two magnetic thin films disposed respectively at both sides of the gaps (G11B 5/2455, G11B 5/265 take precedence; composite magnetic head structures, e.g. "Metal-In-Gap" heads are classified in G11B 5/127 or G11B 5/187 and subgroups)}
5/3179 . . . . {the films being mainly disposed in parallel planes}
5/3183 . . . . . {intersecting the gap plane, e.g. "horizontal head structure"}
5/3186 . . . . . {parallel to the gap plane, e.g. "vertical head structure"}
5/3189 . . . {Testing}
5/3193 . . . . {of films or layers, e.g. continuity test}
5/3196 . . . . . {of thin magnetic films, e.g. functional testing of the transducing properties (G11B 5/455 takes precedence)}
5/325 . . Erasing heads using permanent magnets (general details therefor G11B 5/133 - G11B 5/255)
5/33 . . Structure or manufacture of flux-sensitive heads, {i.e. for reproduction only; Combination of such heads with means for recording or erasing only} ({Single head using magnetic domains for scanning G11B 5/4946; multiple head for scanning G11B 5/4907 and subgroups } ; general details therefor G11B 5/133 - G11B 5/255)
5/332 . . . {using thin films (G11B 5/372, G11B 5/3903 take precedence)}
5/335 . . . with saturated jig, e.g. for detecting second harmonic; balanced flux head
5/35 . . . having vibrating elements
5/37 . . . using galvano-magnetic devices, e.g. Hall-effect devices (G11B 5/39 takes precedence) {using Hall or Hall-related effect, e.g. planar-Hall effect or pseudo-Hall effect}
5/372 . . . . {in magnetic thin films}
5/374 . . . . . {Integrated structures}
5/376 . . . . {in semi-conductors (G11B 5/372 takes precedence)}
5/378 . . . . . {Integrated structures}
5/39 . . . using magneto-resistive devices {or effects}
5/3903 . . . . {using magnetic thin film layers or their effects, the films being part of integrated structures}
5/3906 . . . . . {Details related to the use of magnetic thin film layers or to their effects}
5/3909 . . . . . {Arrangements using a magnetic tunnel junction}
5/3912 . . . . . {Arrangements in which the active read-out elements are transducing in association with active magnetic shields, e.g. magnetically coupled shields (G11B 5/3916 takes precedence)}
5/3916 . . . . . {Arrangements in which the active read-out elements are coupled to the magnetic flux of the track by at least one magnetic thin film flux guide}
5/3919 . . . . . {the guide being interposed in the flux path}
5/3922 . . . . . {the read-out elements being disposed in magnetic shunt relative to at least two parts of the flux guide structure}
5/3925 . . . . . {the two parts being thin films}
5/3929 . . . . . {Disposition of magnetic thin films not used for directly coupling magnetic flux from the track to the MR film or for shielding}
5/3932 . . . . . {Magnetic biasing films}
5/3935 . . . . . {Flux closure films not being part of the track flux guides}
5/3938 . . . . . {the flux closure films being used for absorbing or reducing demagnetisating or saturating fields}
5/3941 . . . . . {the flux closure films being used for providing a closed magnetic circuit to the MR film}
5/3945 . . . . . {Heads comprising more than one sensitive element}
5/3948 . . . . . {the sensitive elements being active read-out elements}
5/3951 . . . . . {the active elements being arranged on several parallel planes}
5/3954 . . . . . {the active elements transducing on a single track}
5/3958 . . . . . {the active elements being arranged in a single plane, e.g. "matrix" disposition}
5/3961 . . . . . {disposed at an angle to the direction of the track or relative movement}
5/3964 . . . . . {for transducing on a single track}
5/3967 . . . . . {Composite structural arrangements of transducers, e.g. inductive write and magnetoresistive read (G11B 5/3906 takes precedence)}

5/397 . . . . . {with a plurality of independent magnetoresistive active read-out elements for respectively transducing from selected components}
5/3974 . . . . . {from the same information track, e.g. frequency bands}
5/3977 . . . . . {from different information tracks}
5/398 . . . . {Specially shaped layers}
5/3983 . . . . . {with current confined paths in the spacer layer}
5/3987 . . . . . {with provision for closing the magnetic flux during operation}
5/399 . . . . {with intrinsic biasing, e.g. provided by equipotential strips}
5/3993 . . . . {in semi-conductors}
2005/3996 . . . {large or giant magnetoresistive effects [GMR], e.g. as generated in spin-valve [SV] devices}
5/40 . Protective measures on heads, e.g. against excessive temperature (G11B 5/31 takes precedence; protection against wear G11B 5/255 {protective structure of the head: see under structures, e.g. G11B 5/3106})
5/41 . Cleaning of heads {(of record carriers G11B 23/50)}
5/455 . Arrangements for functional testing of heads {(testing of the manufacturing process G11B 5/127)}; Measuring arrangements for heads (measuring electric or magnetic properties G01R; {measuring properties for shaping or assembling elements G11B 5/127})
5/4555 . . {by using a spin-stand, i.e. a spinning disc or simulator}
5/465 . Arrangements for demagnetisation of heads (demagnetisation in general H01F 13/00)
5/48 . Disposition or mounting of heads {or head supports} relative to record carriers {(mounting of head within housing G11B 5/105); arrangements of heads, e.g. for scanning the record carrier to increase the relative speed (driving of both record carriers and head G11B 15/18; guiding record carriers G11B 15/60; head selecting circuits G11B 15/12)}
5/4806 . . {specially adapted for disk drive assemblies, e.g. assembly prior to operation, hard or flexible disk drives (G11B 5/488 - G11B 5/54 take precedence)}
5/4813 . . . {Mounting or aligning of arm assemblies, e.g. actuator arm supported by bearings, multiple arm assemblies, arm stacks or multiple heads on single arm (G11B 5/484 takes precedence)}
5/4826 . . . {Mounting, aligning or attachment of the transducer head relative to the arm assembly, e.g. slider holding members, gimbals, adhesive (G11B 5/484 takes precedence; details of head housings or structures G11B 5/10, G11B 5/127; adjustment relative to the record carrier G11B 5/56)}
5/483 . . . . {Piezo-electric devices between head and arm, e.g. for fine adjustment}
5/4833 . . . {Structure of the arm assembly, e.g. load beams, flexures, parts of the arm adapted for controlling vertical force on the head (G11B 5/484 takes precedence)}
5/484 . . . {Integrated arm assemblies, e.g. formed by material deposition or by etching from single piece of metal or by lamination of materials forming a single arm/suspension/head unit}
5/4846 . . . {Constructional details of the electrical connection between arm and support}
5/4853 . . . {Constructional details of the electrical connection between head and arm}
5/486 . . . {with provision for mounting or arranging electrical conducting means or circuits on or along the arm assembly}
5/4866 . . . {the arm comprising an optical waveguide, e.g. for thermally-assisted recording}
5/4873 . . . {the arm comprising piezoelectric or other actuators for adjustment of the arm}
5/488 . . {Disposition of heads (G11B 5/49, G11B 5/52 take precedence)}
5/4886 . . . {relative to rotating disc}
5/4893 . . . {relative to moving tape}
5/49 . . Fixed mounting {or arrangements, e.g. one head per track}
5/4907 . . . {Details for scanning (G11B 5/4969 takes precedence)}
5/4915 . . . . {Structure of specially adapted heads (G11B 5/3906 takes precedence)}
5/4923 . . . . . {in which zones of the transducing part are being physically controllable}
5/493 . . . . . {Control of magnetic properties, e.g. saturation, anisotropy}
5/4938 . . . . . {of thin magnetic films}
5/4946 . . . . . {for formation or displacement of magnetic domains, e.g. walls, bubbles}
5/4953 . . . . . {part of the structure being mechanically or magnetically coupled to or decoupled from, the transducing part}
5/4961 . . . . {Circuits}
5/4969 . . . {Details for track selection or addressing}
5/4976 . . . . {Disposition of heads, e.g. matrix arrangement}
5/4984 . . . . {Structure of specially adapted switching heads (G11B 5/3958 takes precedence)}
5/4992 . . . . {Circuits}
5/50 . . Interchangeable mountings, e.g. for replacement of head without readjustment
5/52 . . with simultaneous movement of head and record carrier, e.g. rotation of head (G11B 5/588 takes precedence)
5/53 . . . Disposition or mounting of heads on rotating support
5/531 . . . . {Disposition of more than one recording or reproducing head on support rotating cyclically around an axis}
5/532 . . . . . {Parallel to the direction of movement of the tape, e.g. for transversal scanning}
5/534 . . . . . {inclined relative to the direction of movement of the tape, e.g. for helicoidal scanning}
5/535 . . . . . {perpendicular to the direction of movement of the tape, e.g. for longitudinal scanning}
5/537 . . . . . {with all the heads disposed in a plane substantially parallel to the plane of the tape, e.g. for circular scanning}

5/538 . . . . {Disposition or mounting of pole pieces on rotating support (magnetic switching of fixed head arrangements G11B 5/49)}

5/54 . . with provision for moving the head into or out of its operative position or across tracks (G11B 5/58 takes precedence)

5/55 . . . Track change, selection or acquisition by displacement of the head

5/5504 . . . . {across tape tracks}

5/5508 . . . . . {Control circuits therefor (G11B 5/5513 takes precedence)}

5/5513 . . . . {Specially adapted for transducing in both travelling directions of tape}

5/5517 . . . . . {Controlled by automatic tape drive reversing arrangement (reversing tape drive arrangements G11B 15/444)}

5/5521 . . . . {across disk tracks (spiral track following G11B 5/596)}

NOTE

For groups G11B 5/5526 - G11B 5/5582, see provisionally G11B 5/5521 and G11B 5/596

5/5526 . . . . . {Control therefor; circuits, track configurations or relative disposition of servo-information transducers and servo-information tracks for control thereof (G11B 5/556 takes precedence)}

5/553 . . . . . {Details}

5/5534 . . . . . {Initialisation, calibration, e.g. cylinder "set-up"}

5/5539 . . . . . {Skew adjustment, e.g. adjustment of the position of the first sector in each track with respect to the other tracks, for improving, e.g. access performance}

5/5543 . . . . . {servo-format therefor}

5/5547 . . . . . {"Seek" control and circuits therefor (G11B 5/5556 takes precedence)}

5/5552 . . . . . {using fine positioning means for track acquisition separate from the coarse (e.g. track changing) positioning means}

5/5556 . . . . . {with track following after a "seek"}

5/556 . . . . . {control circuits therefor}

5/5565 . . . . . {system adaptation for compensation of variations of physical parameters, e.g. temperature}

5/5569 . . . . . {details of specially adapted mobile parts, e.g. electromechanical control devices (motors in general H02K)}

5/5573 . . . . . {Details of the magnetic circuit, e.g. of actuators}

5/5578 . . . . . {Multiple actuators addressing the same disk, e.g. to improve data rate or access rate}

5/5582 . . . . . {system adaptation for working during or after external perturbation, e.g. in the presence of a mechanical oscillation caused by a shock}

5/5586 . . . . . {Minimising seek noise, e.g. actuator noise}

5/5591 . . . . {across drum tracks}

5/5595 . . . . . {Control circuits therefor}

5/56 . . with provision for moving the head {support} for the purpose of adjusting the position of the head relative to the record carrier, e.g. manual adjustment for azimuth correction or track centering (G11B 5/52, G11B 5/54, G11B 5/58 take precedence)

5/58 . . with provision for moving the head for the purpose of maintaining alignment of the head relative to the record carrier during transducing operation, e.g. to compensate for surface irregularities of the latter or for track following {(spacing means incorporated in the head structure G11B 5/187, G11B 5/255, G11B 5/3106)}

5/581 . . . {maintaining desired contact or spacing by direct interaction of forces generated between heads or supports thereof and record carriers or supports thereof, e.g. attraction-repulsion interactions}

5/582 . . . . {interactions in a magnetic field}

5/583 . . . . . {using repulsion generated by superconductors in a magnetic field, e.g. by "Meissner effect"}

5/584 . . . for track following on tapes

5/588 . . . . by controlling the position of the rotating heads (by controlling the speed of the record carrier G11B 15/467; by controlling speed of the heads G11B 15/473; {by moving the transducing part of the head relative to the headwheel, in the direction of the scanning movement G11B 15/1841})

5/592 . . . . . using bimorph elements supporting the heads {(see provisional also G11B 5/588)}

5/5921 . . . . . {using auxiliary signals, e.g. pilot signals}

5/5922 . . . . . {superimposed on the main signal}

5/5923 . . . . . {recorded in horizontal suppression internal of video frame}

5/5925 . . . . . {recorded in vertical suppression internal of video frame}

5/5926 . . . . . {recorded in separate tracks, e.g. servo tracks}

5/5927 . . . . . {Helicoidal tracks}

5/5928 . . . . . {Longitudinal tracks}

5/596 . . . for track following on disks {(G11B 5/5526, G11B 5/5552, G11B 5/5565, G11B 5/5582 take precedence)}

NOTE

For groups G11B 5/59605 - G11B 5/59633, see provisionally G11B 5/5521 and G11B 5/596

5/59605 . . . . {Circuits (G11B 5/59627 - G11B 5/59688 take precedence)}

5/59611 . . . . . {Detection or processing of peak/envelop signals}

5/59616 . . . . . {Synchronisation; Clocking (G11B 5/59622 takes precedence)}

5/59622 . . . . . {Gain control; Filters}

5/59627 . . . . {Aligning for runout, eccentricity or offset compensation (G11B 5/5534, G11B 5/59677, G11B 5/59688 take precedence)}

5/59633 . . . . {Servo formatting (G11B 5/59627, G11B 5/59677, G11B 5/59683, G11B 5/59688 take precedence)}
5/59638 . . . . . {Servo formatting apparatuses, e.g. servo-writers}
5/59644 . . . . . {Acquisition or selection of servo format from a system reference (after track seek G11B 5/5556)}
5/5965 . . . . . {Embedded servo format (G11B 5/59655 takes precedence)}
5/59655 . . . . . {Sector, sample or burst servo format}
5/59661 . . . . . {Spiral servo format}
5/59666 . . . . . {Self servo writing}
5/59672 . . . . . {Servo re-writing, e.g. for the correction of offsets or 'fading' of servo marks}
5/59677 . . . . {with optical servo tracking}
5/59683 . . . . {for magnetoresistive heads}
5/59688 . . . . {Servo signal format patterns or signal processing thereof, e.g. dual, tri, quad, burst signal patterns}
5/59694 . . . . {System adaptation for working during or after external perturbation, e.g. in the presence of a mechanical oscillation caused by a shock}
5/60 . . . Fluid-dynamic spacing of heads from record-carriers
5/6005 . . . . {Specially adapted for spacing from a rotating disc using a fluid cushion}
5/6011 . . . . . {Control of flying height}
5/6017 . . . . . {using capacitive measurement}
5/6023 . . . . . {using inductive measurement}
5/6029 . . . . . {Measurement using values derived from the data signal read from the disk}
5/6035 . . . . . {using electrostatic forces}
5/6041 . . . . . {using magnetic forces}
5/6047 . . . . . {using magnetostrictive means}
5/6052 . . . . . {using optical means}
5/6058 . . . . . {using piezoelectric means}
5/6064 . . . . . {using air pressure}
5/607 . . . . . {using thermal means}
5/6076 . . . . . {Detecting head-disk contact}
5/6082 . . . . . {Design of the air bearing surface}
5/6088 . . . . . {Optical waveguide in or on flying head}
5/6094 . . . . . {Preventing or discharging electrostatic charge build-up on the flying head}
5/62 . Record carriers characterised by the selection of the material (selection of magnetic materials in general H01F 1/00; thin magnetic films H01F 10/00)

NOTE

This group does not cover compositions, materials or processes, per se, which are covered by the relevant subclasses of section B or C.

5/627 . . of leaders for magnetic tapes, e.g. non-magnetic strips on the tapes or for connection (constructional features G11B 23/26)
5/633 . . of cinematographic films or slides with integral magnetic track
5/64 . . comprising only the magnetic material without bonding agent
5/642 . . . {self supporting magnetic material, e.g. magnetisable wires}
5/645 . . . {characterised by the film material}
5/647 . . . . {containing Fe or Ni (G11B 5/656 takes precedence)}
5/65 . . . characterised by its composition (G11B 5/66 takes precedence)
5/653 . . . . {containing Fe or Ni (G11B 5/656 takes precedence)}
5/656 . . . . {containing Co}
5/66 . . . consisting of several layers
5/667 . . . . including a soft magnetic layer
5/68 . . comprising one or more layers of magnetisable material homogeneously mixed with a bonding agent
5/70 . . . on a base layer
5/7006 . . . . {comprising a magnetic layer on both sides covered with non-magnetic material}
5/7013 . . . . {characterised by the dispersing agent}
5/702 . . . . characterised by the bonding agent
5/7021 . . . . . {containing a polyurethane or a polyisocyanate}
5/7022 . . . . . {containing mixtures of polyurethanes or polyisocyanates with other polymers}
5/7023 . . . . . {containing polyesters, polyethers, silicones, polyvinyl resins, polyacrylresins or epoxy resins (G11B 5/7022 takes precedence)}
5/7025 . . . . . {containing cellulosic derivates (G11B 5/7022 takes precedence)}
5/7026 . . . . . {Radiation curable polymers}
5/7027 . . . . . {Graft polymers}
5/7028 . . . . . {Additives, e.g. crosslinking agents}
5/706 . . . . characterised by the composition of the magnetic material
5/70605 . . . . . {metals or alloys}
5/7061 . . . . . {with a non-magnetic core}
5/70615 . . . . . {containing Fe metal or alloys (G11B 5/70621 takes precedence)}
5/70621 . . . . . {containing Co metal or alloys}
5/70626 . . . . . {containing non-metallic substances}
5/70631 . . . . . {with a non-magnetic core}
5/70636 . . . . . {CrO_2}
5/70642 . . . . . {iron oxides}
5/70647 . . . . . {with a skin (G11B 5/70657 takes precedence)}
5/70652 . . . . . {gamma - Fe_2O_3}
5/70657 . . . . . {with a skin}
5/70663 . . . . . {Preparation processes specially adapted therefor, e.g. using stabilising agents (G11B 5/70668 and G11B 5/70673 take precedence)}
5/70668 . . . . . {containing a dopant}
5/70673 . . . . . {containing Co}
5/70678 . . . . . {Ferrites}
5/70684 . . . . . {Ferro-ferrioxydes}
5/70689 . . . . . {Magnetite}
5/70694 . . . . . {Non-stoechiometric ferro-ferrioxydes, e.g. berthollide}
5/708 . . . . characterised by addition of non-magnetic particles to the layer
5/7085 . . . . . {non-magnetic abrasive particles}
5/71 . . . . characterised by the lubricant
5/712 . . . . characterised by the surface treatment or coating of magnetic particles

5/714 . . . . characterised by the dimension of the magnetic particles
5/716 . . . . characterised by two or more magnetic layers
5/718 . . . . . at least one on each side of the base layer
5/72 . . Protective coatings, e.g. antistatic, antifriction
5/722 . . . {containing an anticorrosive material}
5/725 . . . containing a lubricant
5/73 . . Base layers {, i.e. all layers lying under the first magnetic recording layer}
5/7305 . . . {with bonding agent in the material}
5/731 . . . {without bonding agent in the material}
5/7315 . . . . {substrates}
5/732 . . . . {seed layers}
5/7325 . . . . {layers between substrate and first magnetic recording layer other than soft magnetic layers and seed layers}
5/733 . . . characterised by the addition of non-magnetic particles
5/735 . . . characterised by the back layer
5/738 . . . characterised by the intermediate layer
5/74 . Record carriers characterised by the form, e.g. sheet shaped to wrap around a drum
5/743 . . {Patterned record carriers, wherein the magnetic recording layer is patterned into magnetic isolated data islands, e.g. discrete tracks}
5/746 . . . {Bit Patterned record carriers, wherein each magnetic isolated data island corresponds to a bit}
5/76 . . Drum carriers
5/78 . . Tape carriers
5/80 . . Card carriers
5/82 . . Disk carriers
5/825 . . . {flexible discs}
5/84 . Processes or apparatus specially adapted for manufacturing record carriers (processes involving a single technical art, in general, and for which provision exists elsewhere, see the relevant places, e.g. B29, C23, C25D; apparatus or processes for applying homogeneous magnetic films to substrates in general H01F 41/14)
5/8404 . . {manufacturing base layers}
5/8408 . . {protecting the magnetic layer}
5/8412 . . {treatment by ultrasonics}
5/8416 . . {coating a support with a magnetic layer by precipitation}
5/842 . . Coating a support with a liquid magnetic dispersion
5/845 . . . in a magnetic field
5/848 . . Coating a support with a magnetic layer by extrusion
5/85 . . Coating a support with a magnetic layer by vapour deposition
5/851 . . Coating a support with a magnetic layer by sputtering
5/852 . . Orientation in a magnetic field (G11B 5/845 takes precedence)
5/855 . . Coating only part of a support with a magnetic layer
5/858 . . Producing a magnetic layer by electro-plating or electroless plating
5/86 . Re-recording, i.e. transcribing information from one magnetisable record carrier on to one or more similar or dissimilar record carriers {(by varying the order of the information G11B 27/029, G11B 27/036)}
5/865 . . {by contact "printing"}

7/00 Recording or reproducing by optical means, e.g. recording using a thermal beam of optical radiation {by modifying optical properties or the physical structure}, reproducing using an optical beam at lower power {by sensing optical properties}; Record carriers therefor; (G11B 11/00, G11B 13/00 take precedence)

2007/0003 . {Recording, reproducing or erasing systems characterised by the structure or type of the carrier}
2007/0006 . . {adapted for scanning different types of carrier, e.g. CD & DVD}
2007/0009 . . {for carriers having data stored in three dimensions, e.g. volume storage}
2007/0013 . . . {for carriers having multiple discrete layers}
2007/0016 . . {for carriers adapted to have label information written on the non-data side by the optical head used for data recording, e.g. lightscribe, labelflash}
7/002 . Recording, reproducing or erasing systems characterised by the shape {or form} of the carrier
7/0025 . . with cylinders or cylinder-like carriers {or cylindrical sections or flat carriers loaded onto a cylindrical surface}, e.g. truncated cones
7/003 . . with webs {, filaments or wires}, e.g. belts, spooled tapes or films of quasi-infinite extent
7/0031 . . . {using a rotating head, e.g. helicoidal recording}
7/0032 . . . {for moving-picture soundtracks, i.e. cinema (cameras or projectors with sound recording or reproducing means G03B 31/02)}
7/0033 . . with cards {or other card-like flat carriers, e.g. flat sheets of optical film}
7/0037 . . with discs
7/00375 . . . {arrangements for detection of physical defects, e.g. of recording layer}
7/004 . Recording, reproducing or erasing methods; Read, write or erase circuits therefor {(magneto-optical systems G11B 11/105)}
7/0045 . . Recording (G11B 7/006, G11B 7/0065 take precedence)
7/00451 . . . {involving ablation of the recording layer}
7/00452 . . . {involving bubble or bump forming}
7/00453 . . . {involving spectral or photochemical hole burning}
7/00454 . . . {involving phase-change effects}
7/00455 . . . {involving reflectivity, absorption or colour changes}
7/00456 . . . {Recording strategies, e.g. pulse sequences (G11B 7/0062 takes precedence)}
2007/00457 . . . {Two photon recording}
7/00458 . . . {Verification, i.e. checking data during or after recording}
7/005 . . Reproducing (G11B 7/0065 takes precedence)
7/0051 . . . {involving phase depth effects}
7/0052 . . . {involving reflectivity, absorption or colour changes}
7/0053 . . . {Reproducing non-user data, e.g. wobbled address, prepits, BCA}

7/0055 . . Erasing (G11B 7/006, G11B 7/0065 take precedence)
7/00552 . . . {involving colour change media}
7/00555 . . . {involving liquid crystal media}
7/00557 . . . {involving phase-change media}
7/006 . . Overwriting (G11B 7/0065 takes precedence)
7/0062 . . . {Overwriting strategies, e.g. recording pulse sequences with erasing level used for phase-change media}
7/0065 . . Recording, reproducing or erasing by using optical interference patterns, e.g. holograms
2007/00653 . . . {Collinear holography}
2007/00656 . . . {Counterpropagating holography}
7/007 . Arrangement of the information on the record carrier, e.g. form of tracks {, actual track shape, e.g. wobbled, or cross-section, e.g. v-shaped; Sequential information structures, e.g. sectoring or header formats within a track}
2007/00709 . . {Dimensions of grooves or tracks, e.g. groove depth, track pitch}
7/00718 . . {Groove and land recording, i.e. user data recorded both in the grooves and on the lands}
2007/00727 . . {where the information is modified to form a visible pattern, e.g. forming a label by modifying the width of pits or grooves}
7/00736 . . {Auxiliary data, e.g. lead-in, lead-out, Power Calibration Area [PCA], Burst Cutting Area [BCA], control information (sector headers or adresses in prepits G11B 7/00745; address data in track wobble G11B 7/24082)}
7/00745 . . {Sectoring or header formats within a track (formats in general G11B 20/12)}
2007/00754 . . {Track shape, e.g. address or synchronisation information in wobbled track or sidewall}
2007/00763 . . {Track cross-section, e.g. V-shaped, trapezoidal}
7/00772 . . {on record carriers storing information in the form of optical interference patterns, e.g. holograms}
7/00781 . . . {Auxiliary information, e.g. index marks, address marks, pre-pits, gray codes}
7/0079 . . {Zoned data area, e.g. having different data structures or formats for the user data within data layer, Zone Constant Linear Velocity [ZCLV], Zone Constant Angular Velocity [ZCAV], carriers with RAM and ROM areas}
7/013 . . for discrete information, i.e. where each information unit is stored in a distinct discrete location {, e.g. digital information formats within a data block or sector}
2007/0133 . . . {Details of discrete information structures, e.g. shape or dimensions of pits, prepits}
2007/0136 . . . {where each location can have more than two values ('multivalue'), for data or prepits}
7/08 . Disposition or mounting of heads or light sources relatively to record carriers
7/081 . . {for time base error correction by moving the light beam}
7/082 . . {Aligning the head or the light source relative to the record carrier otherwise than during transducing, e.g. adjusting tilt set screw during assembly of head}
7/083 . . {relative to record carriers storing information in the form of optical interference patterns, e.g. holograms}
7/085 . . with provision for moving the light beam into, or out of, its operative position {or across tracks, otherwise than during the transducing operation, e.g. for adjustment or preliminary positioning or track change or selection} (modulating by information signals G11B 7/12; controlling the position or direction of light beams, i.e. deflection, G02F 1/29)
7/08505 . . . {Methods for track change, selection or preliminary positioning by moving the head}
7/08511 . . . . {with focus pull-in only}
7/08517 . . . . {with tracking pull-in only}
7/08523 . . . . {with both tracking and focusing pull-in}
7/08529 . . . . {Methods and circuits to control the velocity of the head as it traverses the tracks}
7/08535 . . . . . {to maintain constant velocity during the traverse}
7/08541 . . . . {involving track counting to determine position}
7/08547 . . . {Arrangements for positioning the light beam only without moving the head, e.g. using static electro-optical elements}
7/08552 . . . . {using electro-optical elements}
7/08558 . . . . {using acousto-optical elements}
7/08564 . . . . {using galvanomirrors}
7/0857 . . . {Arrangements for mechanically moving the whole head}
7/08576 . . . . {Swinging-arm positioners}
7/08582 . . . . {Sled-type positioners}
7/08588 . . . . . {with position sensing by means of an auxiliary system using an external scale}
7/08594 . . . . {to access both sides of the disc with the same head assembly}
7/09 . . with provision for moving the light beam or focus plane for the purpose of maintaining alignment of the light beam relative to the record carrier during transducing operation, e.g. to compensate for surface irregularities of the latter or for track following
7/0901 . . . {for track following only (G11B 7/0925, G11B 7/094, G11B 7/0941, G11B 7/0943, G11B 7/0945, G11B 7/0946, G11B 7/0948 take precedence)}
7/0903 . . . . {Multi-beam tracking systems}
7/0904 . . . . {Dithered tracking systems}
7/0906 . . . . {Differential phase difference systems}
7/0908 . . . {for focusing only (G11B 7/0925, G11B 7/094, G11B 7/0941, G11B 7/0943, G11B 7/0945, G11B 7/0946, G11B 7/0948 take precedence)}
7/0909 . . . . {by astigmatic methods}
7/0911 . . . . {by far-field method}
7/0912 . . . . {by push-pull method}
7/0914 . . . . {by non-optical methods, e.g. capacitive}
7/0916 . . . . {Foucault or knife-edge methods}
7/0917 . . . . {Focus-error methods other than those covered by G11B 7/0909 - G11B 7/0916}
2007/0919 . . . . . {Critical angle methods}
2007/092 . . . . . {Dither methods}
2007/0922 . . . . . {Far-field methods}
2007/0924 . . . . . {Skewed beams methods (using an angled beam, i.e. a beam which is reflected from the disc at an angle different from 90°)}
7/0925 . . . {Electromechanical actuators for lens positioning (G11B 7/0857 takes precedence)}

7/0927 . . . . {for focusing only (G11B 7/0937 takes precedence)}
7/0929 . . . . {for tracking only (G11B 7/0937 takes precedence)}
7/093 . . . . {for focusing and tracking (G11B 7/0932 - G11B 7/0937 take precedence)}
7/0932 . . . . {Details of sprung supports}
7/0933 . . . . {Details of stationary parts}
7/0935 . . . . {Details of the moving parts}
7/0937 . . . . {Piezo-electric actuators}
7/0938 . . . {servo format, e.g. guide tracks, pilot signals}
7/094 . . . {Methods and circuits for servo offset compensation}
7/0941 . . . {Methods and circuits for servo gain or phase compensation during operation (for initialising servos G11B 7/0945)}
7/0943 . . . {Methods and circuits for performing mathematical operations on individual detector segment outputs}
7/0945 . . . {Methods for initialising servos, start-up sequences}
7/0946 . . . {specially adapted for operation during external perturbations not related to the carrier or servo beam, e.g. vibration}
7/0948 . . . {specially adapted for detection and avoidance or compensation of imperfections on the carrier, e.g. dust, scratches, dropouts (G11B 7/095 takes precedence)}
7/095 . . . specially adapted for discs, e.g. for compensation of eccentricity or wobble
7/0953 . . . . {to compensate for eccentricity of the disc or disc tracks}
7/0956 . . . . {to compensate for tilt, skew, warp or inclination of the disc, i.e. maintain the optical axis at right angles to the disc}
7/10 . . Interchangeable mountings, e.g. for replacement of head without readjustment {including interchangeable electrical adjuster boards}
7/12 . Heads, e.g. forming of the optical beam spot or modulation of the optical beam (disposition or mounting of head elements within housing or with provision for moving of light source, optical beam or detector, irrelevant to the transducing method G11B 7/08 {; modulating lasers H01S 3/10; controlling the intensity, colour, phase, polarisation or direction of light beams arriving from an independent light source, e.g. switching gating or modulating G02F 1/00})
7/121 . . Protecting the head, e.g. against dust or impact with the record carrier
7/122 . . Flying-type heads, e.g. analogous to Winchester type in magnetic recording
7/123 . . Integrated head arrangements, e.g. with source and detectors mounted on the same substrate
7/124 . . . the integrated head arrangements including waveguides
7/1245 . . . . the waveguides including means for electro-optical or acousto-optical deflection {(electro- or acousto-optical deflection in general G02F 1/29, G02F 1/33)}
7/125 . . Optical beam sources therefor, e.g. laser control circuitry specially adapted for optical storage devices; Modulators, e.g. means for controlling the size or intensity of optical spots or optical traces {(electro-, magneto-, or acousto-optical modulators G02F 1/00; optical diaphragms G03B 9/02)}
7/126 . . . Circuits, methods or arrangements for laser control or stabilisation
7/1263 . . . . Power control during transducing, e.g. by monitoring
7/1267 . . . . Power calibration
7/127 . . . Lasers; Multiple laser arrays {(lasers per se H01S)}
7/1275 . . . . Two or more lasers having different wavelengths
7/128 . . . Modulators (G11B 7/1245 takes precedence)
7/13 . . Optical detectors therefor {(optical detectors per se G01J; demodulating light, transferring the modulation of modulated light, frequency changing of light G02F 2/00)}
7/131 . . . Arrangement of detectors in a multiple array
7/133 . . . Shape of individual detector elements
7/135 . . Means for guiding the beam from the source to the record carrier or from the record carrier to the detector
7/1353 . . . Diffractive elements, e.g. holograms or gratings {(diffraction gratings per se G02B 5/18; holograms per se G02B 5/32; grating systems G02B 27/44)}
7/1356 . . . Double or multiple prisms, i.e. having two or more prisms in cooperation
7/1359 . . . Single prisms
7/1362 . . . Mirrors
7/1365 . . . Separate or integrated refractive elements, e.g. wave plates

NOTE

In this group, integrated combinations of a refractive element, such as a coating element or phase plate, with another element, such as a lens, are classified in this group and in other appropriate groups for the other element.

7/1367 . . . . Stepped phase plates
7/1369 . . . . Active plates, e.g. liquid crystal panels or electrostrictive elements
7/1372 . . . Lenses
2007/13722 . . . . {Fresnel lenses}
2007/13725 . . . . {Catadioptric lenses, i.e. having at least one internal reflective surface}
2007/13727 . . . . {Compound lenses, i.e. two or more lenses co-operating to perform a function, e.g. compound objective lens including a solid immersion lens, positive and negative lenses either bonded together or with adjustable spacing}
7/1374 . . . . Objective lenses {(optical objectives per se G02B 9/00)}
7/1376 . . . . Collimator lenses {(collimators per se G02B 27/30)}
7/1378 . . . . Separate aberration correction lenses; Cylindrical lenses to generate astigmatism; Beam expanders

7/1381 . . . Non-lens elements for altering the properties of the beam, e.g. knife edges, slits, filters or stops (G11B 7/1353 - G11B 7/1369 take precedence)
7/1384 . . . Fibre optics
7/1387 . . . using the near-field effect
7/139 . . . Numerical aperture control means
7/1392 . . . Means for controlling the beam wavefront, e.g. for correction of aberration {(optical systems for aberration correction per se G02B 27/00)}
7/13922 . . . . {passive}
7/13925 . . . . {active, e.g. controlled by electrical or mechanical means}
7/13927 . . . . . {during transducing, e.g. to correct for variation of the spherical aberration due to disc tilt or irregularities in the cover layer thickness}
7/1395 . . . Beam splitters or combiners (G11B 7/1353, G11B 7/1356 take precedence {; beam splitting or combining per se G02B 27/10})
7/1398 . . . Means for shaping the cross-section of the beam, e.g. into circular or elliptical cross-section
7/14 . . specially adapted to record on, or to reproduce from, more than one track simultaneously
7/22 . . Apparatus or processes for the manufacture of optical heads, e.g. assembly
7/24 . Record carriers characterised by shape, structure or physical properties, or by the selection of the material (characterised by the arrangement of information on the carrier G11B 7/007)
2007/240004 . . {characterised by the form of the carrier}
2007/240008 . . . {Cards}
2007/240012 . . . . {intended for rotation}
2007/240017 . . . {Tapes}
2007/240021 . . . {Cylinders}
2007/240025 . . {for storing optical interference patterns, e.g. holograms}
7/24003 . . Shapes of record carriers other than disc shape
7/24006 . . . Cylindrical or shaft-shaped
7/24009 . . . Tapes, long films or long sheets
7/24012 . . . Optical cards
7/24015 . . Air-sandwiched discs

NOTE

When classifying in this group, classification is also made in group G11B 7/2403 if the subject matter disclosed in the context of an air-sandwiched disc is of more general application

7/24018 . . Laminated discs (G11B 7/24015 takes precedence)

NOTE

When classifying in this group, classification is also made in group G11B 7/2403 if the subject matter disclosed in the context of a laminated disc is of more general application

7/24021 . . . provided with a special shape or structure for centering or eccentricity prevention, e.g. alignment
7/24024 . . . Adhesion or bonding, e.g. specific adhesive layers
7/24027 . . . Layers; Shape, structure or physical properties thereof (G11B 7/24021, G11B 7/24024 take precedence)
7/2403 . . Layers; Shape, structure or physical properties thereof
7/24033 . . . Electrode layers
7/24035 . . . Recording layers (substrates also used as recording layers G11B 7/24047)
7/24038 . . . . Multiple laminated recording layers
7/24041 . . . . . with different recording characteristics
7/24044 . . . . for storing optical interference patterns, e.g. holograms; for storing data in three dimensions, e.g. volume storage (G11B 7/24038 takes precedence)
7/24047 . . . Substrates
7/2405 . . . . being also used as track layers of pre-formatted layers (tracks or pits G11B 7/2407)
7/24053 . . . Protective topcoat layers lying opposite to the light entrance side, e.g. layers for preventing electrostatic charging
7/24056 . . . Light transmission layers lying on the light entrance side and being thinner than the substrate, e.g. specially adapted for Blu-ray® discs
7/24059 . . . . specially adapted for near-field recording or reproduction
7/24062 . . . Reflective layers
7/24065 . . . Layers assisting in recording or reproduction below the optical diffraction limit, e.g. non-linear optical layers or structures (cover layers for near-field media G11B 7/24059)
7/24067 . . . Combinations of two or more layers with specific interrelation
7/2407 . . Tracks or pits; Shape, structure or physical properties thereof (layout of tracks or pits used as the identification information G11B 7/007)
7/24073 . . . Tracks
7/24076 . . . . Cross sectional shape in the radial direction of a disc, e.g. asymmetrical cross sectional shape
7/24079 . . . . Width or depth (G11B 7/24076 takes precedence)
7/24082 . . . . Meandering
7/24085 . . . Pits
7/24088 . . . . for storing more than two values, i.e. multi-valued recording for data or prepits
7/24091 . . . Combinations of pits and tracks with specific interrelation
7/24094 . . Indication parts or information parts for identification
7/24097 . . Structures for detection, control, recording operation or replay operation; Special shapes or structures for centering or eccentricity prevention (within laminated discs G11B 7/24021); Arrangements for testing, inspecting or evaluating; Containers, cartridges or cassettes

NOTE

When classifying in this group, classification is also made in group G11B 23/00 if the subject matter disclosed in the context of an optical record carrier is of more general application

7/241 . . characterised by the selection of the material
7/242 . . . of recording layers
7/243 . . . . comprising inorganic materials only, e.g. ablative layers
2007/24302 . . . . . {Metals or metalloids}
2007/24304 . . . . . {group 2 or 12 elements (e.g. Be, Ca, Mg, Zn, Cd)}
2007/24306 . . . . . {transition metal elements of groups 3-10}
2007/24308 . . . . . {transition metal elements of group 11 (Cu, Ag, Au)}
2007/2431 . . . . . {group 13 elements (B, Al, Ga, In)}
2007/24312 . . . . . {group 14 elements (e.g. Si, Ge, Sn)}
2007/24314 . . . . . {group 15 elements (e.g. Sb, Bi)}
2007/24316 . . . . . {group 16 elements (i.e. chalcogenides, Se, Te)}
2007/24318 . . . . . {Non-metallic elements}
2007/2432 . . . . . {Oxygen}
2007/24322 . . . . . {Nitrogen}
2007/24324 . . . . . {Sulfur}
2007/24326 . . . . . {Halides (F, CI, Br...)}
2007/24328 . . . . . {Carbon}
7/2433 . . . . . Metals or elements of groups 13, 14, 15 or 16 of the Periodic System, e.g. B, Si, Ge, As, Sb, Bi, Se or Te
7/2437 . . . . . Non-metallic elements
7/244 . . . . comprising organic materials only
2007/2445 . . . . . {containing an azulene compound}
7/245 . . . . . containing a polymeric component
7/246 . . . . . containing dyes
2007/24606 . . . . . {Azo- dyes}
2007/24612 . . . . . {two or more dyes in one layer}
2007/24618 . . . . . {two or more dyes in two or more different layers, e.g. one dye absorbing at 405 nm in layer one and a different dye absorbing at 650 nm in layer two}
2007/24624 . . . . . {fluorescent dyes}
7/2463 . . . . . azulene
7/2467 . . . . . azo-dyes
7/247 . . . . . methine or polymethine dyes
2007/24705 . . . . . {Cyanine}
2007/2471 . . . . . {Merocyanine}
2007/24715 . . . . . {Oxonol}
7/2472 . . . . . cyanine
7/2475 . . . . . merocyanine
7/2478 . . . . . oxonol
7/248 . . . . . porphines; azaporphines, e.g. phthalocyanines
7/249 . . . . . containing organometallic compounds (G11B 7/246 takes precedence)
2007/24905 . . . . . {neutral}
2007/2491 . . . . . {as anion}
2007/24915 . . . . . {as cation}
7/2492 . . . . . neutral compounds
7/2495 . . . . . as anions
7/2498 . . . . . as cations
7/25 . . . . . containing liquid crystals
7/251 . . . . comprising inorganic materials dispersed in an organic matrix
7/252 . . . of layers other than recording layers

NOTE

In group G11B 7/252, multi-aspect classification is applied, so that if subject matter is characterised by aspects covered by more than one of its subgroups, the subject matter should be classified in each of those subgroups.

7/253 . . . . of substrates
2007/25301 . . . . . {comprising glass}
2007/25302 . . . . . {comprising metals}
2007/25303 . . . . . {comprising resins}
2007/25304 . . . . . {Polycarbonate [PC]}
2007/25305 . . . . . {Polyester, e.g. PET, PETG, PEN}
2007/25306 . . . . . {Polystyrene [PS]}
2007/25307 . . . . . {Polycycloolefines [COCs]}
2007/25308 . . . . . {Biodegradable polymers, cellulose included}
7/2531 . . . . . comprising glass
7/2532 . . . . . comprising metals
7/2533 . . . . . comprising resins
7/2534 . . . . . polycarbonates [PC]
7/2535 . . . . . polyesters, e.g. PET, PETG or PEN
7/2536 . . . . . polystyrene [PS]
7/2537 . . . . . epoxy resins
7/2538 . . . . . polycycloolefins [PCO]
7/2539 . . . . . biodegradable polymers, e.g. cellulose
7/254 . . . . of protective topcoat layers
2007/25402 . . . . . {consisting essentially of organic resins}
2007/25405 . . . . . {comprising inorganic filler, e.g. particles, fibres}
2007/25408 . . . . . {consisting essentially of inorganic materials}
2007/25411 . . . . . {containing transition metal elements (Zn, Fe, Co, Ni, Pt)}
2007/25414 . . . . . {containing Group 13 elements (B, Al, Ga)}
2007/25417 . . . . . {containing Group 14 elements (C, Si, Ge, Sn)}
7/2542 . . . . . consisting essentially of organic resins
7/2545 . . . . . containing inorganic fillers, e.g. particles or fibres
7/2548 . . . . . consisting essentially of inorganic materials
7/256 . . . . of layers improving adhesion between layers
7/257 . . . . of layers having properties involved in recording or reproduction, e.g. optical interference layers or sensitising layers or dielectric layers, which are protecting the recording layers
2007/25701 . . . . . {consisting essentially of organic materials}
2007/25703 . . . . . {Resins}
2007/25705 . . . . . {consisting essentially of inorganic materials}
2007/25706 . . . . . {containing transition metal elements (Zn, Fe, Co, Ni, Pt)}
2007/25708 . . . . . {containing group 13 elements (B, Al, Ga)}
2007/2571 . . . . . {containing group 14 elements except carbon (Si, Ge, Sn, Pb)}
2007/25711 . . . . . {containing carbon}

2007/25713 . . . . . {containing nitrogen}
2007/25715 . . . . . {containing oxygen}
2007/25716 . . . . . {containing sulfur}
2007/25718 . . . . . {containing halides (F, Cl, Br, I)}
7/2572 . . . . consisting essentially of organic materials
7/2575 . . . . . resins
7/2578 . . . . consisting essentially of inorganic materials
7/258 . . . of reflective layers
2007/2581 . . . . {based on aluminium}
2007/2582 . . . . {based on silver}
2007/2583 . . . . {based on gold}
7/2585 . . . . based on aluminium
7/259 . . . . based on silver
7/2595 . . . . based on gold
7/26 . . Apparatus or processes specially adapted for the manufacture of record carriers (processes involving a single technical art and for which provision exists elsewhere, see the relevant class, e.g. B29, G03 {manufacture of intermediate mediums, e.g. matrixes for processing G11B 23/0057})
7/261 . . . {Preparing a master, e.g. exposing photoresist, electroforming}
7/263 . . . {Preparing and using a stamper, e.g. pressing or injection molding substrates (production of optical record carriers, e.g. optical discs B29D 17/005)}
7/265 . . . {Apparatus for the mass production of optical record carriers, e.g. complete production stations, transport systems}
7/266 . . . {Sputtering or spin-coating layers (sputtering in general C23C 14/24; spin-coating in general B05D 1/005)}
7/268 . . . {Post-production operations, e.g. initialising phase-change recording layers, checking for defects (investigating the presence of flaws or contamination in optical discs G01N 21/9506)}
7/28 . Re-recording, i.e. transcribing information from one optical record carrier on to one or more similar or dissimilar record carriers

9/00 Recording or reproducing using a method not covered by one of the main groups G11B 3/00 - G11B 7/00; Record carriers therefor (G11B 11/00 takes precedence {driving or moving of heads G11B 21/02})

9/02 . using ferroelectric record carriers; Record carriers therefor
9/04 . using record carriers having variable electric resistance; Record carriers therefor
9/06 . using record carriers having variable electrical capacitance; Record carriers therefor (G11B 9/02 takes precedence)
9/061 . . {Record carriers characterised by their structure or form or by the selection of the material; Apparatus or processes specially adapted for the manufacture of record carriers (processes involving a single technical art and for which provision exists elsewhere, see the relevant class, e.g. B05D, F16N, C08L)}
9/062 . . . {characterised by the form, e.g. comprising mechanical protection elements}
9/063 . . . {characterised by the selection of the material}
9/065 . . . . {Additional layers for lubrication, wear protection or elimination of electrostatic charges of the interface between record carrier and head (G11B 9/066, G11B 9/067 and G11B 9/068 take precedence)}
9/066 . . . . {Electrically conductive layers (G11B 9/068 takes precedence)}
9/067 . . . . {Dielectric layers; Processes for providing electrical conductivity to them (G11B 9/068 takes precedence)}
9/068 . . . . {Moulding resin compositions}
9/07 . . Heads for reproducing capacitive information
9/075 . . . {using mechanical contact with record carrier, e.g. by stylus}
9/08 . using electrostatic charge injection; Record carriers therefor
9/10 . using electron beam; Record carriers therefor (G11B 9/08 takes precedence {see provisional also G11B 11/03})
9/12 . using near-field interactions; Record carriers therefor
9/14 . . using microscopic probe means {, i.e. recording or reproducing by means directly associated with the tip of a microscopic electrical probe as used in Scanning Tunneling Microscopy [STM] or Atomic Force Microscopy [AFM] for inducing physical or electrical perturbations in a recording medium; Record carriers or media specially adapted for such transducing of information (marking using electrical current B41M 5/20; measuring roughness or irregularity of surfaces G01B 7/34; details of scanning-probe microscopes G01Q)}
9/1409 . . . {Heads}
9/1418 . . . {Disposition or mounting of heads or record carriers (G11B 17/00 and G11B 19/00 take precedence)}
9/1427 . . . . {with provision for moving the heads or record carriers relatively to each other or for access to indexed parts without effectively imparting a relative movement}
9/1436 . . . . . {with provision for moving the heads or record carriers relatively to each other}
9/1445 . . . . . {switching at least one head in operating function; Controlling the relative spacing to keep the head operative, e.g. for allowing a tunnel current flow}
9/1454 . . . . . {Positioning the head or record carrier into or out of operative position or across information tracks; Alignment of the head relative to the surface of the record carrier (G11B 9/1445 takes precedence)}
9/1463 . . . {Record carriers for recording or reproduction involving the use of microscopic probe means}
9/1472 . . . . {characterised by the form}
9/1481 . . . . . {Auxiliary features, e.g. reference or indexing surfaces}
9/149 . . . . {characterised by the memorising material or structure}

11/00 **Recording on or reproducing from the same record carrier wherein for these two operations the methods are covered by different main groups of groups G11B 3/00 - G11B 7/00 or by different subgroups of group G11B 9/00; Record carriers therefor {(driving or moving of heads G11B 3/02, G11B 5/48, G11B 7/08, G11B 21/02)}**

NOTES

1. Groups G11B 11/00 - G11B 11/14 mainly cover:
   - combined systems or apparatus comprising both recording and reproducing using different methods;
   - record carriers therefor.
2. Reading only or recording only using mechanical, magnetic, optical or other methods is covered by groups G11B 3/00 - G11B 9/08

11/002 . {using recording by perturbation of the physical or electrical structure}

11/005 . . {with reproducing by using non-optical beam of radiation or particles, e.g. electrons, directly interacting with the memorised information (G11B 11/007 takes precedence)}

11/007 . . {with reproducing by means directly associated with the tip of a microscopic electrical probe as defined in G11B 9/14 (details of heads G11B 9/1409; disposition or mounting of heads G11B 9/1418)}

11/03 . using recording by deforming with non-mechanical means, e.g. laser, beam of particles {(G11B 11/002 takes precedence; see proviosional also G11B 3/68 - G11B 3/72)}

11/05 . . with reproducing by capacitive means {(G11B 9/07 takes precedence)}

11/06 . . with reproducing by mechanical sensing

11/08 . using recording by electric charge or by variation of electric resistance or capacitance {(G11B 11/002, G11B 11/10 take precedence)}

11/10 . using recording by magnetic means {or other means for magnetisation or demagnetisation of a record carrier, e.g. light induced spin magnetisation; Demagnetisation by thermal or stress means in the presence or not of an orienting magnetic field}

11/105 . . using a beam of light or a magnetic field for recording {by change of magnetisation} and a beam of light for reproducing, {i.e. magneto-optical,} e.g. light-induced thermo-magnetic recording, {spin magnetisation recording,} Kerr {or Faraday} effect reproducing

11/10502 . . . {characterised by the transducing operation to be executed}

11/10504 . . . . {Recording (for shaping of magnetic domains G11B 11/10528, for compensation of shift G11B 11/1053)}

11/10506 . . . . . {by modulating only the light beam of the transducer}

11/10508 . . . . . {by modulating only the magnetic field at the transducer}

11/1051 . . . . . {by modulating both the magnetic field and the light beam at the transducers}

11/10513 . . . . . {one of the light beam or the magnetic field being modulated by data and the other by a clock or frequency generator}

11/10515 . . . . {Reproducing (compensating pit shift G11B 11/1053)}

11/10517 . . . . {Overwriting or erasing (G11B 11/10526 takes precedence)}

11/10519 . . . . . {Direct overwriting, i.e. performing erasing and recording using the same transducing means}

11/10521 . . . . . {using a single light spot}

11/10523 . . . . {Initialising}

11/10526 . . . . {Bulk initialisation or erasing, e.g. at least one whole information track with a single action}

11/10528 . . . . {Shaping of magnetic domains, e.g. form, dimensions}

11/1053 . . . . {to compensate for the magnetic domain drift or time shift}

11/10532 . . . {Heads}

11/10534 . . . . {for recording by magnetising, demagnetising or transfer of magnetisation, by radiation, e.g. for thermomagnetic recording}

11/10536 . . . . . {using thermic beams, e.g. lasers}

11/10539 . . . . . {using electromagnetic beams, e.g. polarised light}

11/10541 . . . . {for reproducing}

11/10543 . . . . . {using optical beam of radiation}

11/10545 . . . . . {interacting directly with the magnetisation on the record carrier}

11/10547 . . . . . {interacting with the magnetisation of an intermediate transfer element, e.g. magnetic film, included in the head}

11/1055 . . . {Disposition or mounting of transducers relative to record carriers}

11/10552 . . . . {Arrangements of transducers relative to each other, e.g. coupled heads, optical and magnetic head on the same base (for relative movement of transducers G11B 11/10573)}

11/10554 . . . . . {the transducers being disposed on the same side of the carrier (flying heads G11B 11/1058)}

11/10556 . . . . {with provision for moving or switching or masking the transducers in or out of their operative position}

11/10558 . . . . . {in view of the loading or unloading of the carrier}

11/1056 . . . . . {Switching or mechanically reversing the magnetic field generator}

11/10563 . . . . . {Access of indexed parts}

11/10565 . . . . . {Marks for track change, e.g. prepits, gray codes}

11/10567 . . . . . {Mechanically moving the transducers}

11/10569 . . . . . {Swing arm positioners}

11/10571 . . . . . {Sled type positioners}

11/10573 . . . . . {Control of relative positioning of the magnetic and optical transducers, e.g. to move simultaneously}

11/10576 . . . . {with provision for moving the transducers for maintaining alignment or spacing relative to the carrier}

11/10578 . . . . . {Servo format, e.g. prepits, guide tracks, pilot signals}

11/1058 . . . . {Flying heads}

11/10582 . . . {Record carriers characterised by the selection of the material or by the structure or form}

11/10584 . . . . {characterised by the form, e.g. comprising mechanical protection elements}

11/10586 . . . . {characterised by the selection of the material}
11/10589 . . . . . {Details}
11/10591 . . . . . {for improving write-in properties, e.g. Curie-point temperature}
11/10593 . . . . . {for improving read-out properties, e.g. polarisation of light}
11/10595 . . . {Control of operating function}
11/10597 . . . . {Adaptations for transducing various formats on the same or different carriers}
11/11 . . using a beam, {e.g. of electrons or X-rays} other than a beam of light {or a magnetic field} for recording
11/115 . . {using a beam,}{e.g. of electrons or X-rays} other than a beam of light for reproducing
11/12 . using recording by optical means (G11B 11/03 takes precedence {G11B 11/10 takes precedence})
11/14 . . with reproducing by magnetic means
11/16 . using recording by mechanical cutting, deforming or pressing {(G11B 11/002 takes precedence)}
11/18 . . with reproducing by optical means
11/20 . . with reproducing by magnetic means
11/22 . . with reproducing by capacitive means

NOTE

see provisionally G11B 9/06, G11B 9/07; G11B 11/05

11/24 . using recording by near-field interactions
11/26 . . using microscopic probe means {, i.e. recording by means directly associated with the tip of a microscopic electrical probe as used in scanning tunneling microscopy [STM] or atomic force microscopy [AFM] for inducing physical or electrical perturbations in a recording medium (marking using electrical current B41M 5/20; measuring roughness or irregularity of surfaces G01B 7/34; details of scanning-probe microscopes G01Q)}

13/00 Recording simultaneously or selectively by methods covered by different main groups {among G11B 3/00, G11B 5/00, G11B 7/00 and G11B 9/00}; Record carriers therefor {not otherwise provided for}; Reproducing therefrom {not otherwise provided for (G11B 9/14, G11B 11/002 take precedence; driving or moving of heads G11B 3/02, G11B 5/48, G11B 7/08, G11B 21/02)**}**

NOTE

This group is limited to the combination of recording and reproducing on the same record carrier by more than one of the different method covered by groups G11B 3/00, G11B 5/00, G11B 7/00 and G11B 9/00

13/02 . magnetically and by styli
13/04 . magnetically {or by magnetisation} and optically {or by radiation, for changing or sensing optical properties}
13/045 . . {combined recording by magnetic and optic means}
13/06 . optically and by styli
13/08 . using near-field interactions or transducing means and at least one other method or means for recording or reproducing

15/00 Driving, starting or stopping record carriers of filamentary or web form; Driving both such record carriers and heads; Guiding such record carriers or containers therefor; Control thereof; Control of operating function (driving or guiding heads G11B 3/00 - G11B 7/00, G11B 21/00)

15/005 . {Programmed access in sequence to indexed parts of tracks of operating tapes, by driving or guiding the tape (access by driving of both record carrier and head G11B 15/1816; see prov. also G11B 15/602)}
15/02 . Control of operating function, e.g. switching from recording to reproducing
15/023 . . {remotely controlled}
15/026 . . {by using processor, e.g. microcomputer}

NOTE

see provisional also G11B 15/005

15/03 . . by using counters

NOTE

see prov. also G11B 15/00, G11B 27/00

15/04 . . Preventing, inhibiting, or warning against accidental erasing or double recording (G11B 15/05 takes precedence)
15/05 . . by sensing features present on or derived from record carrier or container (G11B 15/16 takes precedence)

NOTE

see provisional also G11B 15/02

15/06 . . . by sensing auxiliary features on record carriers or containers, e.g. to stop machine near the end of a tape
15/07 . . . . on containers

NOTE

see provisional also G11B 15/06

15/08 . . . . by photoelectric sensing (G11B 15/07 takes precedence)
15/087 . . . by sensing recorded signals

NOTE

see provisional also G11B 15/06, G11B 15/02, G11B 27/00

15/093 . . . by sensing driving condition of record carrier, e.g. travel, tape tension

NOTE

see provisional also G11B 15/16, G11B 15/22, G11B 15/46

15/10 . . Manually-operated control; Solenoid-operated control {(G11B 15/44 takes precedence)}
15/103 . . . {electrically operated}
15/106 . . . {mechanically operated}
15/12 . . Masking of heads; {circuits for} Selecting or switching of heads between operative and inoperative functions {or between different operative functions or for selection between operative heads}; Masking of beams, e.g. of light beams {(track selection by moving the magnetic head G11B 5/54)}

15/125 . . . {conditioned by the operating function of the apparatus}
15/14 . . . Masking or switching periodically, e.g. of rotating heads
15/16 . . by sensing presence, absence or position of record carrier or container
15/17 . . . of container

NOTE

see prov. also G11B 15/16

15/18 . Driving; Starting; Stopping; Arrangements for control or regulation thereof {(G11B 15/56 takes precedence; handling tapes or filamentary material in general B65H 23/00)}
15/1808 . . {Driving of both record carrier and head (G11B 15/467 takes precedence; mounting of head G11B 5/52)}
15/1816 . . . {Programmed access in sequence to indexed parts of operating tapes cooperating with rotating heads (see provisional also G11B 15/005)}
15/1825 . . . {driving or moving the head in a direction which cuts across the direction of travel of the tape, e.g. for helicoïdal scanning}
15/1833 . . . . {with head driven in a plane, cyclically around an axis, e.g. on headwheel (construction of headwheel G11B 5/53, G11B 21/16; disposition of heads on headwheel G11B 5/531, G11B 21/02)}
15/1841 . . . . . {with provision for information tracking by moving the transducing part of the head relative to the headwheel, in the direction of the scanning movement, e.g. for skew or time base correction (in the direction which cuts across tracks, i.e. for track following G11B 3/38, G11B 5/588, G11B 7/085, G11B 21/08, G11B 21/10; by controlling headwheel rotation G11B 15/4733, by guiding the tape G11B 15/602)}
15/185 . . . . . {using signals recorded in tracks disposed in parallel with the scanning direction}
15/1858 . . . . . {using auxiliary signals, i.e. pilot signals}
15/1866 . . . . . {superimposed on the main signal track}
15/1875 . . . {adaptations for special effects or editing (signal processing or indexing therefor G11B 27/00)}
15/1883 . . {for record carriers inside containers}
15/1891 . . . {the record carrier being endless}
15/20 . . Moving record carrier backwards or forwards by finite amounts, i.e. backspacing, forward spacing
15/22 . . Stopping means (slowing-down preparatory to stopping or speed-changing G11B 15/48; speed-controlling by mechanical linkage G11B 15/50; brake constructions in general F16D {G11B 15/06 takes precedence; inside container G11B 23/04})
15/24 . . Drive disengaging means
15/26 . . Driving record carriers by members acting directly or indirectly thereon {(G11B 15/44 takes precedence; driving features inside container, see G11B 23/04 and subgroups)}
15/28 . . . through rollers driving by frictional contact with the record carrier, e.g. capstan; Multiple arrangements of capstans or drums coupled to means for controlling the speed of the drive; Multiple capstan systems alternately engageable with record carrier to provide reversal
15/285 . . . . {through pneumatic means}
15/29 . . . . through pinch-rollers {or tape rolls} (G11B 15/295 takes precedence)
15/295 . . . . with single capstan or drum simultaneously driving the record carrier at two separate points of an isolated part thereof, e.g. the capstan acting directly on the tape rollers
15/30 . . . through the means for supporting the record carrier, e.g. mandrel, turntable
15/32 . . . through the reels or cores on to which the record carrier is wound
15/34 . . . through non-skip drive means, e.g. sprocket
15/38 . . Driving record carriers by pneumatic means {(pneumatic control for capstans driving the record carrier by frictional contact G11B 15/285)}
15/385 . . . {directly, e.g. by rotating drum (guiding record carrier on rotating drum G11B 15/61)}
15/40 . . Driving record carriers otherwise than by electric motor
15/42 . . . manually
15/43 . . Control or regulation of mechanical tension of record carrier, e.g. tape tension (controlling tension in filamentary material in general B65H 59/00 {by speed regulation G11B 15/46; by using reserve loops G11B 15/56})
15/44 . . Speed-changing arrangements; Reversing arrangements; Drive transfer means therefor
15/442 . . . {Control thereof}
15/444 . . . {reversing arrangements (G11B 15/442 takes precedence)}
15/446 . . . . {by driving the reels only}
15/448 . . . . . {automatic reverse drive transfer therefor}
15/46 . . Controlling, regulating, or indicating speed {(dependent on position of tape in reserve, loop G11B 15/56, G11B 15/58)}
15/463 . . . {by using pilot tracking tones embedded in binary coded signals, e.g. using DSV/CDS values of coded signals}
15/467 . . . in arrangements for recording or reproducing wherein both record carriers and heads are driven {(see provisional also G11B 15/1808)}
15/4671 . . . . {by controlling simultaneously the speed of the tape and the speed of the rotating head}
15/4672 . . . . . {with provision for information tracking}
15/4673 . . . . {by controlling the speed of the tape while the head is rotating}
15/4675 . . . . . {with provision for information tracking}
15/4676 . . . . . {using signals recorded in tracks disposed in parallel with the scanning direction}
15/4677 . . . . . {using auxiliary signals, i.e. pilot signals}
15/4678 . . . . . {superimposed on the main signal track}

15/473 . . . . by controlling the speed of the heads

NOTE

see prov. also G11B 5/588

15/4731 . . . . . {control of headwheel rotation (disposition or construction of headwheel motor G11B 5/53, G11B 21/02)}

15/4733 . . . . . {with provision for information tracking, e.g. for time base correction}

15/4735 . . . . . {using signals recorded in tracks disposed parallel with the scanning direction}

15/4736 . . . . . {using auxiliary signals, i.e. pilot signals}

15/4738 . . . . . {superimposed on the main signal track}

15/48 . . . Starting; Accelerating; Decelerating; Arrangements preventing malfunction during drive change

15/50 . . . by mechanical linkage, e.g. clutch

15/52 . . . by using signals recorded on, or derived from, record carrier

15/54 . . . by stroboscope; by tachometer (speedometers or tachometers G01P)

15/56 . the record carrier having reserve loop, e.g. to minimise inertia during acceleration {measuring or control in connection therewith}

15/58 . . with vacuum column

15/60 . Guiding record carrier (guiding devices structurally associated with magazines or cassettes G11B 23/04)

15/602 . . {for track selection, acquisition or following}

15/605 . . {without displacing the guiding means}

15/607 . . . {Pneumatic guiding}

15/61 . . on drum, e.g. drum containing rotating heads {(G11B 15/66 takes precedence)}

15/615 . . . {inside container}

15/62 . . Maintaining desired spacing between record carrier and head

15/64 . . . by fluid-dynamic spacing

15/66 . . Threading; Loading; Automatic self-loading

15/662 . . . {Positioning or locking of spool or reel}

15/665 . . . by extracting loop of record carrier from container

15/6651 . . . . {to pull the record carrier against non rotating heads}

15/6653 . . . . {to pull the record carrier against drum}

15/6655 . . . . . {using one loading ring, i.e. "C-type" (G11B 15/6658 takes precedence)}

15/6656 . . . . . {using two-sided extraction, i.e. "M-type"}

15/6658 . . . . . {with two loading rings rotating in opposite directions}

15/67 . . . by extracting end of record carrier from container or spool

15/671 . . . . {using pneumatic means}

15/672 . . . . {Extracting end of record carrier from container or single reel (G11B 15/671 takes precedence)}

15/673 . . . . {Threading end of record carrier externally to single reel (G11B 15/671 takes precedence)}

15/674 . . . . {Threading or attaching end of record carrier on or to single reel (G11B 15/671 takes precedence)}

15/675 . Guiding containers {, e.g. loading, ejecting cassettes}

15/67502 . . {Details}

15/67505 . . . {Servo control}

15/67507 . . . {Ejection damping means}

15/6751 . . {with movement of the cassette parallel to its main side, i.e. front loading (G11B 15/67544 takes precedence)}

15/67513 . . . {and movement of driving elements perpendicular thereto}

15/67515 . . . . {with servo control}

15/67518 . . . . {with ejection damping means}

15/67521 . . . {of cassette with internal belt drive}

15/67523 . . . . {with servo control}

15/67526 . . . . {with ejection damping means}

15/67528 . . . {of endless tape cassette}

15/67531 . . . . {with servo control}

15/67534 . . . . {with ejection damping means}

15/67536 . . . {of cassette inside drawer}

15/67539 . . . . {with servo control}

15/67542 . . . . {with ejection damping means}

15/67544 . . {with movement of the cassette parallel to its main side and subsequent movement perpendicular thereto, i.e. front loading}

15/67547 . . . {the two movements being made by the cassette holder}

15/67549 . . . . {with servo control}

15/67552 . . . . {with ejection damping means}

15/67555 . . . {the second movement only being made by the cassette holder}

15/67557 . . . . {with servo control}

15/6756 . . . . {with ejection damping means}

15/67563 . . {with movement of the cassette perpendicular to its main side, i.e. top loading}

15/67565 . . . {of the cassette with holder}

15/67568 . . . . {with servo control}

15/67571 . . . . {with ejection damping means}

15/67573 . . . {of the cassette without holder}

15/67576 . . . . {with servo control}

15/67578 . . . . {with ejection damping means}

15/67581 . . {with pivoting movement of the cassette holder}

15/67584 . . . {outside the apparatus}

15/67586 . . . . {with servo control}

15/67589 . . . . {with ejection damping means}

15/67592 . . . {inside the apparatus}

15/67594 . . . . {with servo control}

15/67597 . . . . {with ejection damping means}

15/68 . . Automatic cassette changing arrangements; {automatic tape changing arrangements}

15/6805 . . . {with linearly moving rectangular box shaped magazines}

15/681 . . . . {in vertical direction}

15/6815 . . . . {in horizontal direction}

15/682 . . . {with fixed magazines having fixed cassette storage cells, e.g. in racks}

15/6825 . . . . {Details of magazines, e.g. removable, adapted for cassettes of different sizes}

15/683 . . . . {wherein the recorder or player is moved according to the location of a selected cassette (G11B 15/684 takes precedence)}

15/6835 . . . . {the cassettes being transferred to a fixed recorder or player using a moving carriage}

15/684 . . . . {the cassettes having a storage position inside the magazine and a slightly shifted active position, e.g. by solenoid}
15/6845 . . . {with rotatable magazine}
15/685 . . . . {the cassettes being arranged in a single level}
15/6855 . . . . . {wherein the recorder or player is moved towards a selected cassette in the magazine}
15/686 . . . . . {with a fixed recorder or player in the centre or at the periphery of the magazine}
15/6865 . . . . . {with a fixed recorder or player under the magazine}
15/687 . . . . {the cassettes being arranged in multiple levels}
15/6875 . . . . . {wherein the recorder or player is moved towards a selected cassette in the magazine}
15/688 . . . . . {the cassettes being transferred to a fixed recorder or player using a moving carriage}
15/6885 . . . {the cassettes being conveyed within a cassette storage location, e.g. within a storage bin or conveying by belt}
15/689 . . . {Control of the cassette changing arrangement}
15/6895 . . . {Automatic tape changing arrangements}
15/70 . the record carrier being an endless loop record carrier {(inside container G11B 15/1891)}

17/00 Guiding record carriers not specifically of filamentary or web form, or of supports therefor (guiding cards or sheets G06K 13/00)

17/005 . {Programmed access to indexed parts of tracks of operating discs, by guiding the disc}
17/02 . Details
17/021 . . {Selecting or spacing of record carriers for introducing the heads}
17/022 . . Positioning or locking of single discs
17/025 . . . of discs which are stationary during transducing operation
17/0255 . . . . {flexible discs}
17/028 . . . of discs rotating during transducing operation
17/0281 . . . . {by an adapter enabling the centre-pin to receive carriers with large centre hole}
17/0282 . . . . {by means provided on the turntable}
17/0283 . . . . . {Two or more turntables}
17/0284 . . . . {by clampers}
17/0285 . . . . . {mounted on a bridge}
17/0286 . . . . . {mounted on a pivotal lever}
17/0287 . . . . {by permanent connections, e.g. screws, rivets}
17/0288 . . . . {by means for moving the turntable or the clamper towards the disk}
17/03 . . . . in containers or trays {(G11B 17/032, G11B 17/035 take precedence)}
17/032 . . . . Positioning by moving the door or the cover {(G11B 17/035 takes precedence)}
17/035 . . . . Positioning by moving the loading station
17/038 . . Centering or locking of a plurality of discs in a single cartridge
17/04 . . Feeding or guiding single record carrier to or from transducer unit {(guiding during transducing operation G11B 17/34)}
17/0401 . . . {Details}
17/0402 . . . . {Servo control}
17/0404 . . . . . {with parallel drive rollers}
17/0405 . . . . {Closing mechanism, e.g. door}
17/0407 . . . . . {controlling the loading of the record carrier}
17/0408 . . . {of non-disc record carrier, e.g. card}
17/041 . . . specially adapted for discs contained within cartridges
17/043 . . . . Direct insertion, i.e. without external loading means
17/0432 . . . . . {adapted for discs of different sizes}
17/0434 . . . . . {with mechanism for subsequent vertical movement of the disc (G11B 17/0438 takes precedence)}
17/0436 . . . . . {with opening mechanism of the cartridge shutter (G11B 17/0438 takes precedence)}
17/0438 . . . . . {with mechanism for subsequent vertical movement of the disc and opening mechanism of the cartridge shutter}
17/044 . . . . Indirect insertion, i.e. with external loading means
17/046 . . . . . with pivoting loading means
17/0463 . . . . . {adapted for discs of different sizes}
17/0466 . . . . . {with opening mechanism of the cartridge shutter}
17/047 . . . . . with sliding loading means
17/0473 . . . . . {adapted for discs of different sizes}
17/0476 . . . . . {with opening mechanism of the cartridge shutter}
17/049 . . . . Insertion of discs having to be extracted from the cartridge prior to recording or reproducing
17/05 . . . specially adapted for discs not contained within cartridges
17/051 . . . . Direct insertion, i.e. without external loading means
17/0515 . . . . . {adapted for discs of different sizes}
17/053 . . . . Indirect insertion, i.e. with external loading means
17/054 . . . . . with pivoting loading means
17/0545 . . . . . {adapted for discs of different sizes}
17/056 . . . . . with sliding loading means
17/0565 . . . . . {adapted for discs of different sizes}
17/057 . . . specially adapted for handling both discs contained within cartridges and discs not contained within cartridges
17/08 . from consecutive-access magazine of disc records
17/10 . . with horizontal transfer to the turntable from a stack arranged with a vertical axis
17/12 . . with axial transfer to the turntable from a stack with a vertical axis
17/14 . . . by mechanism in rotating centre post, e.g. permitting the playing of both sides of a record
17/16 . . . by mechanism in stationary centre post, e.g. with stepped post, using fingers on post
17/162 . . . . {with means for detecting the diameter of the record}
17/165 . . . . . {with mechanical detecting means}
17/167 . . . . . {with optical detecting means}
17/18 . . . by mechanism operating on the edge of the disc record
17/20 . . with transfer away from stack on turntable after playing

17/22 . from random access magazine of disc records
17/221 . . {with movable magazine (G11B 17/24 - G11B 17/28 take precedence)}
17/223 . . . {in a vertical direction}
17/225 . . {wherein the disks are transferred from a fixed magazine to a fixed playing unit using a moving carriage}
17/226 . . {the magazine consisting of a single rotatable tray carrying the disks}
17/228 . . {Control systems for magazines (G11B 17/225 takes precedence)}
17/24 . . the magazine having a toroidal or part-toroidal shape

NOTE

Group G11B 17/30 takes precedence over groups G11B 17/24 - G11B 17/28.

17/26 . . the magazine having a cylindrical shape with vertical axis
17/28 . . the magazine having a cylindrical shape with horizontal axis
17/30 . . wherein the playing unit is moved according to the location of the selected record
17/32 . Maintaining desired spacing between record carrier and head, e.g. by fluid-dynamic spacing {(damping of vibrations of record carriers on turntables by fluid-dynamic means G11B 19/2018)}
17/34 . Guiding record carriers during transducing operation, e.g. for track following (G11B 17/32 takes precedence)

19/00 Driving, starting, stopping record carriers not specifically of filamentary or web form, or of supports therefor; Control thereof; Control of operating function (guiding such record carriers G11B 17/00)**; {Driving both disc and head}**

19/02 . Control of operating function, e.g. switching from recording to reproducing
19/022 . . {Control panels}
19/025 . . . {'Virtual' control panels, e.g. Graphical User Interface [GUI]}
19/027 . . {Remotely controlled (remote control systems in general G08C)}
19/04 . . Arrangements for preventing, inhibiting, or warning against double recording on the same blank or against other recording or reproducing malfunctions
19/041 . . . {Detection or prevention of read or write errors}
19/042 . . . . {due to external shock or vibration}
19/043 . . . . {by detecting a free-fall condition}
19/044 . . . . {by using a data buffer}
19/045 . . . . {by detecting mistracking}
19/046 . . . {Detection or prevention or problems due to temperature}
19/047 . . . {Recovery from power failure}
19/048 . . . {Testing of disk drives, e.g. to detect defects or prevent sudden failure}
19/06 . . by counting or timing of machine operations
19/08 . . by using devices external to the driving mechanisms, e.g. coin-freed switch (coin actuated mechanisms G07F 5/00)
19/10 . . by sensing presence or absence of record in accessible stored position or on turntable
19/12 . . by sensing distinguishing features of {or on} records, e.g. diameter {end mark}
2019/121 . . . {by photo-electric sensing}
19/122 . . . {involving the detection of an identification or authentication mark (record carriers indicating unauthorised or prior use G11B 23/28)}
19/124 . . . {involving the detection of diameter of disks (feeding or guiding of a single record carrier G11B 17/04 and subgroups)}
19/125 . . . {involving the detection of carrier data format}
19/127 . . . {involving detection of the number of sides, e.g. single or double, or layers, e.g. for multiple recording or reproducing layers}
19/128 . . . {involving the detection of track pitch or recording density}
19/14 . . by sensing movement or position of head, e.g. means moving in correspondence with head movements
19/16 . . Manual control
19/165 . . . {by closing the cover}
19/18 . . . Manual action on one element producing control effect indirectly by consequent action of driving mechanism
19/20 . Driving; Starting; Stopping; Control thereof
19/2009 . . {Turntables, hubs and motors for disk drives; Mounting of motors in the drive (means for clamping of disk to turntable G11B 17/022 and subgroups)}
19/2018 . . . {Incorporating means for passive damping of vibration, either in the turntable, motor or mounting}
19/2027 . . . {Turntables or rotors incorporating balancing means; Means for detecting imbalance}
19/2036 . . . {Motors characterized by fluid-dynamic bearings}
19/2045 . . . {Hubs}
19/2054 . . {Spindle motor power-up sequences}
19/2063 . . {Spindle motor power-down sequences}
19/2072 . . . {for the reduction of power consumption during idle time}
19/2081 . . . {emergency power-down}
19/209 . . {in multiple disk arrays, e.g. spindle synchronisation in RAID systems}
19/22 . . Brakes other than speed-regulating brakes (brake constructions in general F16D)
19/24 . . Arrangements for providing constant relative speed between record carrier and head
19/247 . . . using electrical means
19/253 . . . using mechanical means
19/26 . . Speed-changing arrangements; Reversing arrangements; Drive-transfer means therefor
19/265 . . . Friction wheel drive
19/27 . . . Belt drive
19/275 . . . Gear wheel drive
19/28 . . Speed controlling, regulating, or indicating (G11B 19/24 takes precedence; speedometers or tachometers G01P)

20/00 Signal processing not specific to the method of recording or reproducing; Circuits therefor

20/00007 . {Time or data compression or expansion (audio compression based on psychoacoustics G10L 19/00; data processing for reproducing audio data at different playback speeds G10L 21/04; video compression H04N 19/00; data compression per se H03M 7/30)}
2020/00014 . . {the compressed signal being an audio signal}
2020/00021 . . . {lossless audio compression}
2020/00028 . . . {Advanced audio coding [AAC]}
2020/00036 . . . {AC-3, i.e. ATSC digital audio compression standard}
2020/00043 . . . {Adaptive transform acoustic coding [ATRAC]}
2020/0005 . . . {DTS audio codecs}
2020/00057 . . . {MPEG-1 or MPEG-2 audio layer III [MP3]}
2020/00065 . . . {Sigma-delta audio encoding}
2020/00072 . . {the compressed signal including a video signal}
2020/00079 . . {the compression ratio or quality level being adapted to circumstances, e.g. to the available recording space}
20/00086 . {Circuits for prevention of unauthorised reproduction or copying, e.g. piracy (indicating unauthorised use of record carriers in general G11B 23/28; scrambling for television signal recording H04N 5/913; network architectures or network protocols for network security H04L 63/00; cryptographic mechanisms or cryptographic arrangements for secret or secure communication H04L 9/00)}
20/00094 . . {involving measures which result in a restriction to authorised record carriers}
20/00101 . . . {the original record carrier having a larger recording capacity than the potential target medium}
20/00108 . . . {wherein original, non-rewritable record carriers are recognised by trying to erase recorded data}
20/00115 . . . {wherein the record carrier stores a unique medium identifier}
20/00123 . . . {the record carrier being identified by recognising some of its unique characteristics, e.g. a unique defect pattern serving as a physical signature of the record carrier}
20/0013 . . . {wherein the measure concerns not the entire record carrier, but a specific physical or logical area of one or more record carriers}
20/00137 . . {involving measures which result in a restriction to contents recorded on or reproduced from a record carrier to authorised users}
20/00144 . . . {involving a user identifier, e.g. a unique customer ID}
20/00152 . . . {involving a password}
20/00159 . . . {Parental control systems}
20/00166 . . {involving measures which result in a restriction to authorised contents recorded on or reproduced from a record carrier, e.g. music or software}
20/00173 . . . {wherein the origin of the content is checked, e.g. determining whether the content has originally been retrieved from a legal disc copy or another trusted source}
20/00181 . . . {using a content identifier, e.g. an international standard recording code [ISRC] or a digital object identifier [DOI]}
20/00188 . . {involving measures which result in a restriction to authorised devices recording or reproducing contents to/from a record carrier}
20/00195 . . . {using a device identifier associated with the player or recorder, e.g. serial numbers of playback apparatuses or MAC addresses}
20/00202 . . . {wherein the copy protection scheme builds on multi-session recording, e.g. defective table of contents [TOC] in the 2nd session}
20/0021 . . {involving encryption or decryption of contents recorded on or reproduced from a record carrier}
20/00217 . . . {the cryptographic key used for encryption and/or decryption of contents recorded on or reproduced from the record carrier being read from a specific source (key distribution or management H04L 9/08)}
20/00224 . . . . {wherein the key is obtained from a remote server}
20/00231 . . . . {wherein the key is obtained from a local external medium, e.g. a card}
20/00239 . . . . {wherein the key is provided by a software application accessing the medium}
20/00246 . . . . {wherein the key is obtained from a local device, e.g. device key initially stored by the player or by the recorder}
20/00253 . . . . {wherein the key is stored on the record carrier}
20/0026 . . . . . {the key being stored as a barcode}
20/00268 . . . . . {said barcode being recorded in a burst cutting area [BCA]}
20/00275 . . . . . {the key being stored on a chip attached to the record carrier}
20/00282 . . . . . {the key being stored in the content area, e.g. program area, data area or user area (key stored in a management area G11B 20/00297)}
20/00289 . . . . . {wherein the key is stored as a watermark}
20/00297 . . . . . {the key being stored in a management area, e.g. the video manager [VMG] of a DVD}
20/00304 . . . . . {the key being stored in the lead-in area [LIA]}
20/00311 . . . . . {the key being stored in the lead-out area [LOA]}
20/00318 . . . . . {the key being stored in the TOC}
20/00326 . . . . . {the key being embossed on the record carrier}
20/00333 . . . . . {the key being stored in header data, e.g. in sector headers}
20/0034 . . . . . {the key being stored as a hologram}
20/00347 . . . . . {wherein the medium identifier is used as a key}
20/00355 . . . . . {the record carrier having a label that provides the key}
20/00362 . . . . . {the key being obtained from a media key block [MKB]}
20/00369 . . . . . {wherein a first key, which is usually stored on a hidden channel, e.g. in the lead-in of a BD-R, unlocks a key locker containing a second}
20/00376 . . . . . {the key being stored by varying the pit format, e.g. depth, width, length or edge positions}

20/00384 . . . . . {the key being derived from a physical signature of the record carrier, e.g. unique feature set}
20/00391 . . . . . {the key being stored in subcodes, e.g. in the Q subcode of a CD}
20/00398 . . . . . {the key being stored in sync patterns}
20/00405 . . . . . {the key being stored by varying characteristics of the recording track, e.g. by altering the track pitch or by modulating the wobble track}
20/00413 . . . . {wherein the key is input by a user}
20/0042 . . . {the copy protection scheme being related to a specific access protection standard}
20/00427 . . . . {advanced access content system [AACS]}
20/00434 . . . . {content protection for pre-recorded media [CPPM]}
20/00442 . . . . {content protection for recordable media [CPRM]}
20/00449 . . . . {content scrambling system [CSS]}
20/00456 . . . . {digital transmission content protection [DTCP]}
20/00463 . . . . {high-bandwidth digital content protection [HDCP]}
20/00471 . . . . {video content protection system [VCPS]}
20/00478 . . . {wherein contents are decrypted and re-encrypted with a different key when being copied from/to a record carrier}
20/00485 . . . {characterised by a specific kind of data which is encrypted and recorded on and/or reproduced from the record carrier}
20/00492 . . . . {wherein content or user data is encrypted}
20/005 . . . . . {wherein only some specific parts of the content are encrypted, e.g. encryption limited to I-frames}
20/00507 . . . . . {wherein consecutive physical data units of the record carrier are encrypted with separate encryption keys, e.g. the key changes on a cluster or sector basis}
20/00514 . . . . . {wherein the entire content is encrypted with the same key, e.g. disc key or master key}
20/00521 . . . . . {wherein each session of a multisession recording medium is encrypted with a separate encryption key}
20/00528 . . . . . {wherein each title is encrypted with a separate encryption key for each title, e.g. title key for movie, song or data file}
20/00536 . . . . . {wherein encrypted content data is subjected to a further, iterated encryption, e.g. interwoven encryption}
20/00543 . . . . {wherein external data is encrypted, e.g. for secure communication with an external device or for encrypting content on a separate record carrier}
20/0055 . . . . {wherein license data is encrypted}
20/00557 . . . . {wherein further management data is encrypted, e.g. sector headers, TOC or the lead-in or lead-out areas}
20/00565 . . . . {wherein parity data is encrypted}
20/00572 . . {involving measures which change the format of the recording medium}
20/00579 . . . {said format change concerning the data encoding, e.g., modulation schemes violating run-length constraints, causing excessive DC content, or involving uncommon codewords or sync patterns}
20/00586 . . . {said format change concerning the physical format of the recording medium}
20/00594 . . . . {wherein the shape of recording marks is altered, e.g. the depth, width, or length of pits}
20/00601 . . . . {wherein properties of tracks are altered, e.g., by changing the wobble pattern or the track pitch, or by adding interruptions or eccentricity}
20/00608 . . . . {wherein the material that the record carrier is made of is altered, e.g. adding reactive dyes that alter the optical properties of a disc after prolonged exposure to light or air}
20/00615 . . . {said format change concerning the logical format of the recording medium, e.g. the structure of sectors, blocks, or frames}
20/00623 . . . . {wherein the modification to the logical format directly concerns user data}
20/0063 . . . . {wherein the modification to the logical format mainly concerns management data, e.g., by changing the format of the TOC or the subcode}
20/00637 . . . . . {said management data being address data}
20/00644 . . . . . {the address data format being such that there are overlapping address ranges}
20/00652 . . . . . {the address data being scrambled so that ascending address values do not reflect the physical order of data blocks}
20/00659 . . {involving a control step which is implemented as an executable file stored on the record carrier}
20/00666 . . {involving a step of erasing or nullifying data, e.g. data being overwritten with a random string}
20/00673 . . . {wherein the erased or nullified data include a cryptographic key}
20/00681 . . {involving measures which prevent a specific kind of data access}
20/00688 . . . {said measures preventing that a usable copy of recorded data can be made on another medium}
20/00695 . . . {said measures preventing that data are read from the recording medium}
20/00702 . . . {said measures preventing that data are recorded on the recording medium}
20/0071 . . {involving a purchase action}
20/00717 . . . {wherein accounting and payment are postponed, e.g. until the player can establish a network connection to the service provider}
20/00724 . . . {wherein a prepaid credit balance is registered on the recording medium}
20/00731 . . {involving a digital rights management system for enforcing a usage restriction}
20/00739 . . . {wherein the usage restriction is associated with a specific geographical region}
20/00746 . . . {wherein the usage restriction can be expressed as a specific number}
20/00753 . . . . {wherein the usage restriction limits the number of copies that can be made, e.g. CGMS, SCMS, or CCI flags}

20/0076 . . . . . {wherein the copy frequency, i.e. the number of copies in a given time period, is limited}
20/00768 . . . . . {wherein copy control information is used, e.g. for indicating whether a content may be copied freely, no more, once, or never, by setting CGMS, SCMS, or CCI flags}
20/00775 . . . . . {wherein said copy control information is encoded in an encryption mode indicator [EMI]}
20/00782 . . . . {wherein the usage restriction limits the number of times a program can be installed}
20/00789 . . . . {wherein the usage restriction limits the number of functional copies, which can be accessed at a time, e.g. electronic bookshelf concept, virtual library, video rentals or check-in/check out}
20/00797 . . . . {wherein the usage restriction limits the number of times a content can be reproduced, e.g. using playback counters}
20/00804 . . . . {wherein the usage restriction limits the number of users or devices that are allowed to access a given content}
20/00811 . . . . {wherein said number is encoded as a cryptographic token or ticket}
20/00818 . . . {wherein the usage restriction limits the signal quality, e.g. by low-pass filtering of audio signals or by reducing the resolution of video signals}
20/00826 . . . . {wherein a spoiler signal is added to degrade the signal quality}
20/00833 . . . {wherein the usage restriction limits the data access speed, e.g. by defining a maximum bit rate of the I/O interface}
20/0084 . . . {wherein the usage restriction can be expressed as a specific time or date}
20/00847 . . . {wherein the usage restriction is defined by a licence file}
20/00855 . . {involving a step of exchanging information with a remote server}
20/00862 . . . {wherein the remote server can grant the permission to use a content}
20/00869 . . . {wherein the remote server can deliver the content to a receiving device}
20/00876 . . {wherein physical copy protection means are attached to the medium, e.g. holograms, sensors, or additional semiconductor circuitry}
20/00884 . . {involving a watermark, i.e. a barely perceptible transformation of the original data which can nevertheless be recognised by an algorithm}
20/00891 . . . {embedded in audio data}
20/00898 . . . {based on a hash function}
20/00905 . . . {multiple watermarks used in combination}
20/00913 . . . {based on a spread spectrum technique}
20/0092 . . {involving measures which are linked to media defects or read/write errors}
20/00927 . . . {wherein said defects or errors are generated on purpose, e.g. intended scratches}
20/00934 . . . . {said intentional errors occurring because of corrupted address information}
20/00942 . . . . {said intentional errors occurring due to an invalid playback path or program chain}
20/00949 . . . . {said intentional errors occurring due to bad sectors, which are either physically destroyed or which are declared defective in the defect management information}
20/00956 . . . . {said intentional errors occurring due to an invalid TOC}
20/00963 . . . {wherein said defects or errors are not generated on purpose, e.g. random defect patterns occurring during the normal manufacture}
20/00971 . . {involving measures for monitoring the industrial media production and distribution channels, e.g. for controlling content providers or the official manufacturers or replicators of recording media}
20/00978 . . {wherein the record carrier stores a trial version of a content}
20/00985 . . . {the trial version being of lower quality than the original version}
20/00992 . {Circuits for stereophonic or quadraphonic recording or reproducing}
20/02 . Analogue recording or reproducing
20/025 . . {Error detection or correction}
20/04 . . Direct recording or reproducing
20/06 . . Angle-modulation recording (angle modulation H03C; demodulation of angle modulated oscillations H03D)
20/08 . . Pulse-modulation recording or reproducing (pulse-code-modulation recording G11B 20/10; pulse modulation or pulse demodulation H03K)
20/10 . Digital recording or reproducing (digital computers in which at least part of the computation is effected electrically, arrangements for handling digital data G06F; transmission of digital information H04L)
20/10009 . . {Improvement or modification of read or write signals}
20/10018 . . . {analog processing for digital recording or reproduction (G11B 20/10037 - G11B 20/10481 take precedence)}
20/10027 . . . . {adjusting the signal strength during recording or reproduction, e.g. variable gain amplifiers (optimum power control for optical discs G11B 7/125)}
20/10037 . . . {A/D conversion, D/A conversion, sampling, slicing and digital quantisation or adjusting parameters thereof}
20/10046 . . . {filtering or equalising, e.g. setting the tap weights of an FIR filter}
20/10055 . . . . {using partial response filtering when writing the signal to the medium or reading it therefrom}
20/10064 . . . . . {EEPR4 or E2PR4, i.e. extended partial response class 4, polynomial (1-D)*(1+D)^3}
20/10074 . . . . . {EPR4, i.e. extended partial response class 4, polynomial (1-D) *(1+D)^2}
20/10083 . . . . . {PR1 or PR(1,1,), i.e. partial response class 1, polynomial 1+D}
20/10092 . . . . . {partial response PR(1,1,1,1)}
20/10101 . . . . . {PR2 or PR(1,2,1), i.e. partial response class 2, polynomial (1+D)2=1+2D+D2}
20/10111 . . . . . {partial response PR(1,2,2,1)}
20/1012 . . . . . {partial response PR(1,2,2,2,1)}
20/10129 . . . . . {partial response PR(1,2,3,3,2,1)}

20/10138 . . . . . {partial response PR (2,3,3,2)}
20/10148 . . . . . {partial response PR(1,3,3,1)}
20/10157 . . . . . {PR3 or PR(2,1,-1), i.e. partial response class 3, polynomial (1+D)(2-D)=2+D-D2}
20/10166 . . . . . {partial response PR(3,4,4,3)}
20/10175 . . . . . {PR4, PR(1,0,-1), i.e. partial response class 4, polynomial (1+D)(1-D)=(1-D2)}
20/10185 . . . . . {PR5 or PR(-1,0,2,0,-1), i.e. partial response class 5, polynomial -((1+D)2) *((1-D)2) =-1+2D2-D4}
20/10194 . . . . {using predistortion during writing (G11B 20/10055 takes precedence)}
20/10203 . . . . {baseline correction (DC correction by choosing codewords of the modulation code G11B 20/1426)}
20/10212 . . . . {compensation for data shift (e.g. pulse crowding effects)}
20/10222 . . . {clock-related aspects, e.g. phase or frequency adjustment or bit synchronisation (dedicated sync patterns in the modulation code G11B 20/1403)}
20/10231 . . . . {wherein an asynchronous, free-running clock is used; Interpolation of sampled signals}
20/1024 . . . . {wherein a phase-locked loop [PLL] is used}
20/1025 . . . . . {the PLL being discrete time or digital PLL}
20/10259 . . . . {simultaneous timing recovery for multiple parallel tracks}
20/10268 . . . {bit detection or demodulation methods}
20/10277 . . . . {the demodulation process being specifically adapted to partial response channels, e.g. PRML decoding}
20/10287 . . . . {using probabilistic methods, e.g. maximum likelihood detectors (G11B 20/10277 takes precedence)}
20/10296 . . . . . {using the Viterbi algorithm}
20/10305 . . . {signal quality assessment}
20/10314 . . . . {amplitude of the recorded or reproduced signal}
20/10324 . . . . {asymmetry of the recorded or reproduced waveform}
20/10333 . . . . . {wherein the asymmetry is linked to domain bloom}
20/10342 . . . . {sub-information or auxiliary signals different from the normal recording marks, e.g. signals reproduced from wobble tracks}
20/10351 . . . . {baseline shift, DC content, bias}
20/10361 . . . . {digital demodulation process}
20/1037 . . . . . {based on hard decisions, e.g. by evaluating bit error rates before or after ECC decoding}
20/10379 . . . . . {based on soft decisions, e.g. confidence values, probability estimates, likelihoods values or path metrics of a statistical decoding algorithm}
20/10388 . . . . {control of the read or write heads, e.g. tracking errors, defocus or tilt compensation}
20/10398 . . . . {jitter, timing deviations or phase and frequency errors}
20/10407 . . . . . {by verifying the timing of signal transitions, e.g. rising or falling edges, or by analysing signal slopes}
20/10416 . . . . . {by verifying the timing of peak values}
20/10425 . . . . . {by counting out-of-lock events of a PLL}
20/10435 . . . . . {by verifying the timing of predetermined signal patterns, e.g. sync patterns}
20/10444 . . . . . {by verifying the timing of zero crossings}
20/10453 . . . . {physical shape of recording marks, e.g. their length, width, depth or contour}
20/10462 . . . . {consistency with a reference waveform in a given time period, e.g. by calculating correlations or mean square errors}
20/10472 . . . . {derived from statistics of other quality measures, e.g. their mean, variance or skew}
20/10481 . . . {optimisation methods}
20/1049 . . . . {using closed-form solutions}
20/105 . . . . {selecting parameter values from a plurality of predetermined settings}
20/10509 . . . . {iterative methods, e.g. trial-and-error, interval search, gradient descent or feedback loops (G11B 20/10518 takes precedence)}
20/10518 . . . . {using neural networks}
20/10527 . . {Audio or video recording; Data buffering arrangements (G11B 20/12 - G11B 20/18 take precedence)}
2020/10537 . . . {Audio or video recording}
2020/10546 . . . . {specifically adapted for audio data}
2020/10555 . . . . . {wherein the frequency, the amplitude, or other characteristics of the audio signal is taken into account}
2020/10564 . . . . . {frequency}
2020/10574 . . . . . {volume or amplitude}
2020/10583 . . . . . {parameters controlling audio interpolation processes}
2020/10592 . . . . {specifically adapted for recording or reproducing multichannel signals}
2020/10601 . . . . . {surround sound signal}
2020/10611 . . . . . {3D video data}
2020/1062 . . . {Data buffering arrangements, e.g. recording or playback buffers}
2020/10629 . . . . {the buffer having a specific structure}
2020/10638 . . . . . {First-in-first-out memories [FIFO] buffers}
2020/10648 . . . . . {First-in-last-out memories [LIFO] buffers}
2020/10657 . . . . . {Cache memories for random data access, e.g. buffers wherein the data output is controlled by a priority parameter other than retention time}
2020/10666 . . . . . {Ring buffers, e.g. buffers wherein an iteratively progressing read or write pointer moves back to the beginning of the buffer when reaching the last storage cell}
2020/10675 . . . . {aspects of buffer control}
2020/10685 . . . . . {input interface, i.e. the way data enter the buffer, e.g. by informing the sender that the buffer is busy}
2020/10694 . . . . . {output interface, i.e. the way data leave the buffer, e.g. by adjusting the clock rate}
2020/10703 . . . . . {processing rate of the buffer, e.g. by accelerating the data output}
2020/10712 . . . . . {buffer capacity, e.g. when the buffer capacity is exhausted, buffered data are overwritten with more recent data, accepting that the old data are lost}

2020/10722 . . . . . {wherein the size of the buffer is variable, e.g. by adding additional memory cells for coping with input streams that have high bit rates}
2020/10731 . . . . . {wherein the buffer I/O can be temporarily suspended, e.g. by refusing to accept further data to be buffered}
2020/1074 . . . . . {involving a specific threshold value}
2020/1075 . . . . {the usage of the buffer being restricted to a specific kind of data}
2020/10759 . . . . . {content data}
2020/10768 . . . . . {by pre-caching the initial portion of songs or other recorded or downloaded data for starting playback instantly}
2020/10777 . . . . . {instructions or commands}
2020/10787 . . . . . {parameters, e.g. for decoding or encoding}
2020/10796 . . . . . {address data}
2020/10805 . . . . {involving specific measures to prevent a buffer overflow}
2020/10814 . . . . {involving specific measures to prevent a buffer underrun}
2020/10824 . . . . {the buffer being used to prevent vibrations or shocks from causing delays}
2020/10833 . . {Copying or moving data from one record carrier to another}
2020/10842 . . . {wherein not all recorded data are copied or moved}
2020/10851 . . {Erasing data on the record carrier}
2020/10861 . . {Finalising a record carrier after a recording operation, e.g. to ensure compatibility with a ROM medium}
2020/1087 . . {wherein a selection is made among at least two alternative ways of processing}
2020/10879 . . . {the kind of record carrier being the selection criterion}
2020/10888 . . . {the kind of data being the selection criterion}
2020/10898 . . {Overwriting or replacing recorded data}
2020/10907 . . . {using pseudo-overwriting, i.e. virtually or logically overwriting data on WORM media by remapping recorded blocks to alternate areas}
2020/10916 . . {Seeking data on the record carrier for preparing an access to a specific address}
2020/10925 . . . {involving an inter-layer jump, i.e. changing from one recording layer to another}
2020/10935 . . {wherein a time constraint must be met}
2020/10944 . . . {Real-time recording or reproducing, e.g. for ensuring seamless playback of AV data}
2020/10953 . . . {Concurrent recording or playback of different streams or files}
2020/10962 . . . . {wherein both recording and playback take place simultaneously}
2020/10972 . . . {Management of interruptions, e.g. due to editing}
2020/10981 . . . {Recording or reproducing data when the data rate or the relative speed between record carrier and transducer is variable}
2020/1099 . . . . {wherein a disc is spun at a variable speed}
20/12 . . Formatting, e.g. arrangement of data block or words on the record carriers {(within interface between computers and data recorders G06F 3/06)}
20/1201 . . . {on tapes}
20/1202 . . . . {with longitudinal tracks only}
20/1204 . . . . . {for continuous data, e.g. digitised analog information signals, pulse code modulated [PCM] data}
20/1205 . . . . . {for discontinuous data, e.g. digital information signals, computer programme data}
20/1207 . . . . {with transverse tracks only}
20/1208 . . . . . {for continuous data, e.g. digitised analog information signals, pulse code modulated [PCM] data}
20/1209 . . . . . {for discontinuous data, e.g. digital information signals, computer programme data}
20/1211 . . . . {with different data track configurations (longitudinal control tracks with transverse user data tracks G11B 20/1207)}
20/1212 . . . . . {for continuous data, e.g. digitised analog information signals, pulse code modulated [PCM] data}
20/1214 . . . . . {for discontinuous data, e.g. digital information signals, computer programme data}
20/1215 . . . {on cards (optical aspect of optical cards G11B 7/0033)}
20/1217 . . . {on discs}
2020/1218 . . . . {wherein the formatting concerns a specific area of the disc}
2020/122 . . . . . {Burst cutting area [BCA]}
2020/1221 . . . . . {cluster, i.e. a data structure which consists of a fixed number of sectors or ECC blocks}
2020/1222 . . . . . {ECC block, i.e. a block of error correction encoded symbols which includes all parity data needed for decoding (pure error correction aspects G11B 20/18)}
2020/1224 . . . . . {extent, i.e. a set of sectors which numbers form a continuous ascending sequence}
2020/1225 . . . . . {frame, i.e. a subunit of a sector containing user data, e.g. a sync frame}
2020/1227 . . . . . {one layer of multilayer disc}
2020/1228 . . . . . {middle zone or outer guard area of a multilayer disc}
2020/1229 . . . . . {lead-in area}
2020/1231 . . . . . {lead-out area}
2020/1232 . . . . . {sector, i.e. the minimal addressable physical data unit}
2020/1234 . . . . . {wherein the sector is a headerless sector, i.e. it does not comprise an ID field}
2020/1235 . . . . . {session, i.e. a contiguous area having its own lead-in area, program area and lead-out area}
2020/1237 . . . . . {recording side of a single layer medium}
2020/1238 . . . . . {track, i.e. the entire a spirally or concentrically arranged path on which the recording marks are located}
2020/1239 . . . . . {the track being a pregroove, e.g. the wobbled track of a recordable optical disc}
2020/1241 . . . . . {user area, i.e. the area of a disc where user data are to be recorded}

2020/1242 . . . . . {the area forming one or more zones, wherein each zone is shaped like an annulus or a circular sector}
2020/1244 . . . . . {CAV zone, in which a constant angular velocity is used}
2020/1245 . . . . . {CLV zone, in which a constant linear velocity is used}
2020/1247 . . . . . {rewritable zone, e.g. a RAM zone of a hybrid disc having ROM and RAM areas}
2020/1248 . . . . . {ROM zone, i.e. an unrewritable zone}
2020/1249 . . . . {wherein the bits are arranged on a two-dimensional hexagonal lattice}
20/1251 . . . . {for continuous data, e.g. digitised analog information signals, pulse code modulated [PCM] data}
20/1252 . . . . {for discontinuous data, e.g. digital information signals, computer programme data}
20/1254 . . . . {for mixed data, i.e. continuous and discontinuous data}
2020/1255 . . . . {Fixed Block Architecture [FBA] format}
2020/1257 . . . . {Count Key Data [CKD] format}
20/1258 . . . . {where blocks are arranged within multiple radial zones, e.g. Zone Bit Recording or Constant Density Recording discs, MCAV discs, MCLV discs}
2020/1259 . . . . {with ROM/RAM areas}
20/1261 . . . {on films, e.g. for optical moving-picture soundtracks (optical aspect G11B 7/0032)}
20/1262 . . . {with more than one format/standard, e.g. conversion from CD-audio format to R-DAT format}
2020/1264 . . . {wherein the formatting concerns a specific kind of data}
2020/1265 . . . . {Control data, system data or management information, i.e. data used to access or process user data}
2020/1267 . . . . . {Address data}
2020/1268 . . . . . {Address in pregroove [ADIP] information}
2020/1269 . . . . . {Absolute time in pregroove [ATIP] information}
2020/1271 . . . . . {the address data being stored in a subcode, e.g. in the Q channel of a CD}
2020/1272 . . . . . {Burst indicator subcode [BIS]}
2020/1274 . . . . . {stored in pre-pits, i.e. in embossed pits, ROM marks or prepits}
2020/1275 . . . . . {Calibration data, e.g. specific training patterns for adjusting equalizer settings or other recording or playback parameters}
2020/1277 . . . . . {for managing gaps between two recordings, e.g. control data in linking areas, run-in or run-out fields, guard or buffer zones}
2020/1278 . . . . . {Physical format specifications of the record carrier, e.g. compliance with a specific standard, recording density, number of layers, start of data zone or lead-out}
2020/1279 . . . . . {Permanent information and control data stored in the PIC zone of a Blu-Ray disc}
2020/1281 . . . . . {Servo information}
2020/1282 . . . . . {in embedded servo fields}
2020/1284 . . . . . {in servo fields which split data fields}
2020/1285 . . . . . {Status of the record carrier, e.g. space bit maps, flags indicating a formatting status or a write permission}
2020/1287 . . . . . {Synchronisation pattern, e.g. VCO fields (specific bit sequences of sync patterns G11B 20/1403; A/V synchronisation G11B 27/00)}
2020/1288 . . . . {Formatting by padding empty spaces with dummy data, e.g. writing zeroes or random data when de-icing optical discs}
2020/1289 . . . . {Formatting of user data}
2020/1291 . . . {wherein the formatting serves a specific purpose}
2020/1292 . . . . {Enhancement of the total storage capacity}
2020/1294 . . . . {Increase of the access speed}
2020/1295 . . . . . {wherein the focus is on the read access speed}
2020/1297 . . . . . {wherein the focus is on the write access speed}
2020/1298 . . . . {Enhancement of the signal quality}
20/14 . . using self-clocking codes
20/1403 . . . {characterised by the use of two levels}
20/1407 . . . . {code representation depending on a single bit, i.e. where a one is always represented by a first code symbol while a zero is always represented by a second code symbol}
20/1411 . . . . . {conversion to or from pulse width coding}
20/1415 . . . . . {conversion to or from pulse frequency coding}
20/1419 . . . . . {to or from biphase level coding, i.e. to or from codes where a one is coded as a transition from a high to a low level during the middle of a bit cell and a zero is encoded as a transition from a low to a high level during the middle of a bit cell or vice versa, e.g. split phase code, Manchester code conversion to or from biphase space or mark coding, i.e. to or from codes where there is a transition at the beginning of every bit cell and a one has no second transition and a zero has a second transition one half of a bit period later or vice versa, e.g. double frequency code, FM code}
20/1423 . . . . {Code representation depending on subsequent bits, e.g. delay modulation, double density code, Miller code}
20/1426 . . . . . {conversion to or from block codes or representations thereof}
2020/143 . . . . . {4 to 6 modulation}
2020/1434 . . . . . {8 to 9 modulation}
2020/1438 . . . . . {8 to 10 modulation}
2020/1442 . . . . . {8 to 12 modulation}
2020/1446 . . . . . {16 to 17 modulation}
2020/1449 . . . . . {24 to 25 modulation}
2020/1453 . . . . . {17PP modulation, i.e. the parity preserving RLL(1,7) code with rate 2/3 used on Blu-Ray discs}
2020/1457 . . . . . {wherein DC control is performed by calculating a digital sum value [DSV]}

2020/1461 . . . . . {8 to 14 modulation, e.g. the EFM code used on CDs or mini-discs}
2020/1465 . . . . . {8 to 16 modulation, e.g. the EFM+ code used on DVDs}
2020/1469 . . . . . {modulation code with one or more merging bits between consecutive codewords}
2020/1473 . . . . . {modulation code without any merging bits}
2020/1476 . . . . {Synchronisation patterns; Coping with defects thereof}
2020/148 . . . . . {using error detecting or error correcting codes}
2020/1484 . . . . {Codewords used in servo patterns}
20/1488 . . . {characterised by the use of three levels}
20/1492 . . . . {two levels are symmetric, in respect of the sign to the third level which is "zero"}
20/1496 . . . {characterised by the use of more than three levels}
20/16 . . using non self-clocking codes, i.e. the clock signals are either recorded in a separate clocking track or in a combination of several information tracks
20/18 . . Error detection or correction; Testing {, e.g. of drop-outs}
20/1803 . . . {by redundancy in data representation}
20/1806 . . . {Pulse code modulation systems for audio signals (G11B 20/1803 takes precedence)}
20/1809 . . . . {by interleaving}
20/1813 . . . . {by adding special bits or symbols to the coded information (G11B 20/1809 takes precedence)}
20/1816 . . . {Testing}
20/182 . . . . {using test patterns}
2020/1823 . . . . {wherein a flag is set when errors are detected or qualified}
2020/1826 . . . . {wherein a defect list or error map is generated}
2020/183 . . . . {wherein at least one additional attempt is made to read or write the data when a first attempt is unsuccessful}
20/1833 . . . {by adding special lists or symbols to the coded information (G11B 20/1806, G11B 20/1866 take precedence)}
2020/1836 . . . . {using a Reed Solomon [RS] code}
2020/184 . . . . . {using a cross-interleaved Reed Solomon [CIRC]}
2020/1843 . . . . {using a cyclic redundancy check [CRC]}
2020/1846 . . . . {using a picket code, i.e. a code in which a long distance code [LDC] is arranged as an array and columns containing burst indicator subcode [BIS] are multiplexed for erasure decoding}
2020/185 . . . . {using an low density parity check [LDPC] code}
2020/1853 . . . . {using a product code which has inner and outer parity symbols}
2020/1856 . . . . {using a turbo code}
2020/1859 . . . . {wherein a trellis is used for decoding the error correcting code}
2020/1863 . . . . {wherein the Viterbi algorithm is used for decoding the error correcting code}
20/1866 . . . {by interleaving (G11B 20/1809 takes precedence)}
2020/1869 . . . {Preventing ageing phenomena from causing data loss, e.g. by monitoring the age of record carriers or by recognising wear, and by copying information elsewhere when a record carrier becomes unreliable}
2020/1873 . . . {Temporary defect structures for write-once discs, e.g. TDDS, TDMA or TDFL}
20/1876 . . . {Interpolating methods}
20/1879 . . . {Direct read-after-write methods}
20/1883 . . . {Methods for assignment of alternate areas for defective areas}
20/1886 . . . . {with tapes}
20/1889 . . . . {with discs}
2020/1893 . . . . {using linear replacement to relocate data from a defective block to a non-contiguous spare area, e.g. with a secondary defect list [SDL]}
2020/1896 . . . . {using skip or slip replacement to relocate data from a defective block to the next usable block, e.g. with a primary defect list [PDL]}
20/20 . for correction of skew for multitrack recording
20/22 . for reducing distortions
20/225 . . {for reducing wow or flutter (by controlling the speed of the record carrier G11B 15/46, G11B 19/28)}
20/24 . for reducing noise {(control of amplification in general, e.g. dependent upon noise level H03G)}

21/00 Head arrangements not specific to the method of recording or reproducing

21/003 . {Disposition of fixed heads, e.g. for scanning, selecting or following of tracks}
21/006 . . {for track following}
21/02 . Driving or moving of heads
21/022 . . {Programmed access in sequence to indexed parts of operating record carriers}
21/025 . . . {of rotating discs}
21/027 . . . {of tapes}
21/03 . . for correcting time base error {during transducing operation, by driving or moving the head in a direction more or less parallel to the direction of travel of the recording medium, e.g. tangential direction on a rotating disc (by driving or moving the head in a direction which cuts across the direction of travel of the recording medium G11B 15/1808, G11B 15/467)}
21/04 . . Automatic feed mechanism producing a {progressive} transducing traverse of the head in a direction which cuts across the direction of travel of the recording medium, e.g. helical scan {, e.g. by lead-screw (G11B 19/20, G11B 21/08 and G11B 21/10 take precedence)}
21/043 . . . {for stationary discs}
21/046 . . . {details of the feed mechanism}
21/06 . . . the record carrier having {mechanical} means to ensure traverse movement of the head {, e.g. grooves}
21/08 . . Track changing or selecting (G11B 21/12 takes precedence) {during transducing operation}
21/081 . . . {Access to indexed tracks or parts of continuous track}
21/083 . . . . {on discs}
21/085 . . . . . {with track following of accessed part}
21/086 . . . . {on tapes}
21/088 . . . . . {with track following of accessed part}

21/10 . . Track finding or aligning by moving the head {Provisions for maintaining alignment of the head relative to the track during transducing operation, i.e. track following (characterised by the track access method G11B 21/08)}

21/103 . . . {on tapes}

21/106 . . . {on disks}

21/12 . . Raising and lowering; Back-spacing or forward-spacing along track; Returning to starting position {otherwise than during transducing operation}

21/14 . . . manually

21/16 . Supporting the heads; Supporting the sockets for plug-in heads

21/18 . . while the head is moving

21/20 . . while the head is in operative position but stationary or permitting minor movements to follow irregularities in surface of record carrier

21/21 . . . with provision for maintaining desired spacing of head from record carrier, e.g. fluid-dynamic spacing, slider

21/22 . . while the head is out of operative position

21/24 . . Head support adjustments

21/26 . . Means for interchange or replacement of head or head element

23/00 Record carriers not specific to the method of recording or reproducing; Accessories, e.g. containers, specially adapted for co-operation with the recording or reproducing apparatus {Intermediate mediums; Apparatus or processes specially adapted for their manufacture (processes involving a single technical art and for which provision exists elsewhere, see the relevant class, e.g. B29, B41M, B05D, C08L, F16N)**}**

NOTE

In group G11B 23/00, recording or reproducing apparatus does not include the record carriers.

23/0007 . {Circuits or methods for reducing noise, for correction of distortion, or for changing density of recorded information, (volume compression or expansion circuits per se H03G 7/00)}

NOTE

This group is closed down and will in due course be transferred to G11B 20/22 and G11B 20/24 and subgroups

23/0014 . {record carriers not specifically of filamentary or web form (G11B 23/0057 takes precedence)}

23/0021 . . {discs}

23/0028 . . . {Details}

23/0035 . . . . {means incorporated in the disc, e.g. hub, to enable its guiding, loading or driving (means for driving the head G11B 21/06; guiding the disc for centering or locking G11B 17/022; turntables or spindles for driving G11B 19/2009)}

23/0042 . . . . . {with provision for auxiliary features (sensing such features G11B 17/00, G11B 19/02)}

23/005 . . . {flexible discs (G11B 23/0035 takes precedence)}

23/0057 . {Intermediate mediums, i.e. mediums provided with an information structure not specific to the method of reproducing or duplication such as matrixes for mechanical pressing of an information structure (for record carriers with directly readable mechanical information G11B 3/685); record carriers having a relief information structure provided with or included in layers not specific for a single reproducing method; apparatus or processes specially adapted for their manufacture}

23/0064 . . {mediums or carriers characterised by the selection of the material}

23/0071 . . . {additional layers for lubrication or wear protection (lubricating means not integrated in the record carrier structure G11B 23/50)}

23/0078 . . . {information structure layers using metallic or dielectric coatings}

23/0085 . . . {intermediate mediums using a photosensitive material, e.g. photo-resist}

23/0092 . . . {molding resin compositions}

23/02 . Containers; Storing means {both adapted to cooperate with the recording or reproducing means} (cabinets, cases, stands, modified to store record carriers G11B 33/04; storing webs, tapes, or filamentary material in general B65H 75/00)

23/021 . . {comprising means for reducing influence of physical parameters, e.g. temperature change, moisture (combined with means for reconditioning or cleaning G11B 23/507)}

23/023 . . Containers for magazines or cassettes

23/0233 . . . {Containers for a single cassette}

23/0236 . . . {Containers for several cassettes}

23/027 . . Containers for single reels or spools

23/03 . . Containers for flat record carriers

23/0301 . . . {Details}

23/0302 . . . . {Auxiliary features}

23/0303 . . . . . {Write protect features with a sliding part}

23/0305 . . . . . {Semiconductor memories}

23/0306 . . . . {Means for locking the record carriers}

23/0307 . . . . {Positioning or centering features}

23/0308 . . . . {Shutters (G11B 23/0317 takes precedence)}

23/031 . . . . {Indicating means, e.g. sticker, bar code}

23/0311 . . . . {Wrong insertion preventing means}

23/0312 . . . . {Driving features}

23/0313 . . . . {Container cases}

23/0315 . . . . . {Materials}

23/0316 . . . . . {Constructional details, e.g. shape}

23/0317 . . . . {Containers with interchangeable record carriers}

23/0318 . . . . {Containers with incorporated transducing heads}

23/032 . . . {for rigid discs}

23/0321 . . . . {rigid cartridges for single discs}

23/0322 . . . . . {comprising latching or movable handling devices (G11B 17/032 takes precedence)}

23/0323 . . . . {for disc-packs}

23/0325 . . . . . {comprising latching or movable handling devices (G11B 17/038 takes precedence)}

23/0326 . . . {Assembling of containers}

23/0327 . . . {for special applications not otherwise provided for}

23/0328 . . . {the disc having to be extracted from the cartridge for recording reproducing, e.g. cooperating with an extractable tray}

23/033 . . . for flexible discs
23/0332 . . . . {for single discs, e.g. envelopes}
23/0335 . . . . {for disc packs}
23/0337 . . . . . {comprising latching or movable handling devices (G11B 23/0325 and G11B 17/038 take precedence)}
23/037 . . Single reels or spools
23/04 . . Magazines; Cassettes {for webs or filaments} (G11B 23/12 takes precedence {; cassettes with sealing or locking means G11B 23/28; dummy cassettes for locking in the drive G11B 33/005})
23/041 . . . {Details}
23/042 . . . . {Auxiliary features (sensing such features G11B 15/06)}
23/043 . . . . {Brakes for tapes or tape reels}
23/044 . . . . {Reels or cores; positioning of the reels in the cassette}
23/045 . . . . {Covers}
23/046 . . . . {Indicating means, e.g. quantity of tape}
23/047 . . . . {Guiding means}
23/048 . . . . {Driving features}
23/049 . . . {Cassettes for special applications not otherwise provided for}
23/06 . . . for housing endless webs or filaments
23/07 . . . . using a single reel or core
23/08 . . . for housing webs or filaments having two distinct ends
23/087 . . . . using two different reels or cores
23/08707 . . . . . {Details}
23/08714 . . . . . {Auxiliary features (sensing such features G11B 15/06)}
23/08721 . . . . . {Brakes for tapes or tape reels (G11B 23/08707 takes precedence)}
23/08728 . . . . . {Reels or cores; positioning of the reels in the cassette}
23/08735 . . . . . {Covers}
23/08742 . . . . . {in combination with brake means}
23/0875 . . . . . {Indicating means, e.g. quantity of tape}
23/08757 . . . . . {Guiding means}
23/08764 . . . . . {Liner sheets}
23/08771 . . . . . {Pressure pads}
23/08778 . . . . . {Driving features, e.g. belt}
23/08785 . . . . . {Envelopes}
23/08792 . . . . . {Shielding devices}
23/093 . . . . . the reels or cores being coaxial
23/107 . . . . using one reel or core, one end of the record carrier coming out of the magazine or cassette
23/113 . . Apparatus or processes specially adapted for the manufacture of magazines or cassettes {, e.g. initial loading into container (processes involving a single technical art and for which provision exists elsewhere, see the relevant class, e.g. B21, B29, B65)}
23/12 . . Bins for random storage of webs or filaments
23/14 . providing ability to repeat location, e.g. using sprocket holes
23/16 . Record carriers with single-track for recording at spaced intervals along the track thereof, e.g. for speech or language training {contains no documents}
23/18 . Record carriers with multiple tracks, e.g. with complementary and partial tracks such as paired "stereo" tracks {contains no documents}
23/20 . with provision for splicing to provide permanent or temporary connections
23/22 . . of endless belts; of tapes forming Moebius loops
23/24 . . of tapes having multiple tracks parallel to edge of record carrier by offset splicing to form endless loop with one or more helical tracks
23/26 . . of leaders for loading or threading, e.g. to form a temporary connection
23/28 . Indicating {or preventing} prior or unauthorised use, {e.g. cassettes with sealing or locking means, write-protect devices for discs (write-protect devices for tapes G11B 23/042, G11B 23/08714; dummy cassettes for locking in the drive G11B 33/005)}
23/281 . . {by changing the physical properties of the record carrier}
23/282 . . . {Limited play}
23/283 . . {Security features, e.g. digital codes}
23/284 . . . {on the record carrier}
23/285 . . . {on the container or cartridge}
23/286 . . {Antitheft arrangements, e.g. Electronic Article Surveillance [EAS] tags}
23/287 . . {by mechanical lock}
23/288 . . {Protecting disks from being written or overwritten}
23/30 . with provision for auxiliary signals (sensing such signals G11B 15/06)
23/32 . . Electrical or mechanical contacting means; Tape stop foils
23/34 . . Signal means additional to the main recording track, e.g. photoelectric sensing of sprocket holes for timing
23/36 . . Signals on record carriers or on containers and recorded by the same method as the main recording
23/38 . Visual features other than those contained in record tracks or represented by sprocket holes {the visual signals being auxiliary signals}
23/40 . . Identifying or analogous means applied to or incorporated in the record carrier and not intended for visual display simultaneously with the playing-back of the record carrier, e.g. label, leader, photograph
23/42 . . Marks for indexing, speed-controlling, synchronising, or timing
23/44 . . Information for display simultaneously with playback of the record, e.g. photographic matter (associated working of cameras or projectors with sound recording or reproducing means G03B 31/00)
23/50 . Reconditioning of record carriers; Cleaning of record carriers; {Carrying-off electrostatic charges} (G11B 3/58 takes precedence; {carrying off electrostatic charges in general H05F 3/00})
23/502 . . {of tape carriers}
23/505 . . {of disk carriers}
23/507 . . . {combined with means for reducing influence of physical parameters, e.g. temperature change, moisture}

25/00 **Apparatus characterised by the shape of record carrier employed but not specific to the method of recording or reproducing** (individual parts of apparatus G11B 3/00 - G11B 23/00, G11B 33/00)**, {e.g. dictating apparatus; Combinations of such apparatus}**

25/02 . using cylindrical record carriers

25/04 . using flat record carriers, e.g. disc, card

25/043 . . {using rotating discs}

25/046 . . {using stationary discs, or cards provided with a circular recording area (driving heads relatively to stationary record carriers for mechanical transducing G11B 3/40; automatic feed mechanism producing a transducing traverse of the head across stationary disk tracks G11B 21/043)}

25/06 . using web-form record carriers, e.g. tape

25/063 . . {using tape inside container}

25/066 . . {adapted for use with containers of different sizes or configurations; adaptor devices therefor}

25/08 . using filamentary record carriers, e.g. wire

25/10 . Apparatus capable of using record carriers defined in more than one of the sub-groups G11B 25/02 - G11B 25/08; {Adaptor devices therefor}

27/00 **Editing; Indexing; Addressing; Timing or synchronising; Monitoring; Measuring tape travel**

27/002 . {Programmed access in sequence to a plurality of record carriers or indexed parts, e.g. tracks, thereof, e.g. for editing; (transfer of record carriers from magazine G11B 15/68, G11B 17/10; G11B 17/22)}

27/005 . {Reproducing at a different information rate from the information rate of recording (for television signals H04N 5/783)}

27/007 . . {reproducing continuously a part of the information, i.e. repeating}

27/02 . Editing, e.g. varying the order of information signals recorded on, or reproduced from, record carriers (arrangements for sorting or merging computer data on continuous record carriers G06F 7/22; mixing of video signals H04N 5/265)

27/022 . . Electronic editing of analogue information signals, e.g. audio or video signals

27/024 . . . on tapes (G11B 27/028, G11B 27/029 take precedence)

27/026 . . . on discs (G11B 27/028, G11B 27/029 take precedence)

27/028 . . . with computer assistance

27/029 . . . Insert-editing

27/031 . . Electronic editing of digitised analogue information signals, e.g. audio or video signals

27/032 . . . on tapes (G11B 27/036, G11B 27/038 take precedence)

27/034 . . . on discs (G11B 27/036, G11B 27/038 take precedence)

27/036 . . . Insert-editing

27/038 . . . Cross-faders therefor

27/04 . . using differential drive of record carrier and head {(transferred to G11B 15/1875)}

27/06 . . Cutting and rejoining; Notching, or perforating record carriers otherwise than by recording styli (record carriers with provision for splicing G11B 23/20)

27/10 . Indexing; Addressing; Timing or synchronising; Measuring tape travel

27/102 . . {Programmed access in sequence to addressed parts of tracks of operating record carriers (access by moving the head G11B 3/08, G11B 5/54, G11B 7/085, G11B 21/022; by moving the record carrier G11B 15/005, G11B 17/005, by driving of both record carrier and head G11B 15/1816)}

27/105 . . . {of operating discs}

27/107 . . . {of operating tapes}

27/11 . . by using information not detectable on the record carrier

27/13 . . . the information being derived from movement of the record carrier, e.g. using tachometer

27/15 . . . . using mechanical sensing means {(see provisionally also G11B 27/13)}

27/17 . . . . using electrical sensing means {(see provisionally also G11B 27/13)}

27/19 . . by using information detectable on the record carrier

27/22 . . . Means responsive to presence or absence of recorded information signals

27/24 . . . by sensing features on the record carrier other than the transducing track (for controlling purposes G11B 15/00, G11B 17/00); {sensing signals or marks recorded by another method than the main recording}

27/26 . . . . by photoelectric detection, e.g. of sprocket holes

27/28 . . . by using information signals recorded by the same method as the main recording {(G11B 27/22 takes precedence)}

27/30 . . . . on the same track as the main recording

27/3009 . . . . . {used signal is a pilot signal inside the frequency band of the recorded main information signal}

27/3018 . . . . . {used signal is a pilot signal outside the frequency band of the recorded main information signal}

27/3027 . . . . . {used signal is digitally coded}

27/3036 . . . . . {Time code signal}

27/3045 . . . . . {superimposed on the recorded main signal, e.g. burn-in-time code}

27/3054 . . . . . {Vertical Interval Time code [VITC]}

27/3063 . . . . . {Subcodes}

27/3072 . . . . . {Coded signal uses a correlation function for detection}

27/3081 . . . . . {used signal is a video-frame or a video-field (P.I.P)}

27/309 . . . . . {Table of contents}

27/32 . . . . on separate auxiliary tracks of the same or an auxiliary record carrier

27/321 . . . . . {used signal consists of two 180-degr. phase shifted signals of the same frequency}

27/322 . . . . . {used signal is digitally coded}

27/323 . . . . . {Time code signal, e.g. on a cue track as SMPTE- or EBU-time code}

27/324 . . . . . {Duty cycle modulation of control pulses, e.g. VHS-CTL-coding systems, RAPID-time code, VASS- or VISS-cue signals}

27/325 . . . . . {Subcodes}

27/326 . . . . . {used signal is a video-frame or a video-field (P.I.P.)}
27/327 . . . . . {Table of contents}
27/328 . . . . . {on a tape [TTOC]}
27/329 . . . . . {on a disc [VTOC]}
27/34 . . Indicating arrangements (indicating measured values in general G01D {indicating means incorporated in magazine or cassette G11B 23/046 and G11B 23/0875})
27/36 . Monitoring, i.e. supervising the progress of recording or reproducing {(for digital recording G11B 20/00 and s.gr.; for monitoring, testing or measuring of TV recorders of the type covered by H04N 5/76 and subgroups, see H04N 17/06)}

31/00 Arrangements for the associated working of recording or reproducing apparatus with related apparatus (with cameras or projectors G03B 31/00 {; recording/reproducing of music for electrophonic musical instruments G10H 1/0033; automatic arrangements for answering calls or for recording messages for absent subscribers H04M 1/64; telephonic communication systems adapted for combination with dictation recording and playback systems H04M 11/10; connection of TV recorder with other related apparatus, e.g. TV camera or receiver, in which the TV signal is significantly involved H04N, e.g. H04N 5/225, H04N 5/765; combination of radio or TV with other apparatus, e.g. with vehicles H05K 11/00})
31/003 . {with radio receiver}
31/006 . {with video camera or receiver}
31/02 . with automatic musical instruments

33/00 Constructional parts, details or accessories not provided for in the preceding groups (containers, packaging elements or packages specially adapted for record carriers B65D 85/00)
33/005 . {Means for locking the disc or cassette receiving slot, e.g. dummy cassettes locked in the slot}
33/02 . Cabinets; Cases; Stands; Disposition of apparatus therein or thereon (furniture aspects A47B, e.g. A47B 81/06; {showing stands, hangers or shelves adapted for particular articles A47F 7/00; albums for record carriers, e.g. discs B42F 5/005; suspended filing appliances for record carriers, e.g. discs B42F 15/0005; fastening devices for wings, e.g. covers E05C; for holding wings in one or more opened positions E05C 17/00; hinges E05D; closers or openers of wings, e.g. with braking or counter-balancing devices E05F})
33/022 . . {Cases}
33/025 . . . {Portable cases}
33/027 . . {Covers (G11B 33/022 takes precedence; with means for guiding the record carrier G11B 17/34)}
33/04 . . modified to store record carriers {(containers, storing means adapted for cooperation with the recording or reproducing apparatus G11B 23/02)}
33/0405 . . . {for storing discs (anti-theft cases with locking means E05B 73/0023)}
33/0411 . . . . {Single disc boxes (G11B 33/0461 takes precedence)}
33/0416 . . . . . {for disc cartridges}
33/0422 . . . . . {for discs without cartridge}
33/0427 . . . . . {comprising centre hole locking means}
33/0433 . . . . {Multiple disc containers (G11B 33/0461 takes precedence)}
33/0438 . . . . . {for disc cartridges}
33/0444 . . . . . {for discs without cartridge}
33/045 . . . . . {comprising centre hole locking means}
33/0455 . . . . . {for single disc boxes}
33/0461 . . . . {Disc storage racks}
33/0466 . . . . . {for disc cartridges}
33/0472 . . . . . {for discs without cartridge}
33/0477 . . . . . {comprising centre hole locking means}
33/0483 . . . . . {for single disc boxes}
33/0488 . . . . {in boxes or containers comprising additional sound reproducing or activating means}
33/0494 . . . . {packages made by folding}
33/06 . . combined with other apparatus having a different main function
33/08 . . Insulation or absorption of undesired vibrations or sounds
33/10 . Indicating arrangements; Warning arrangements {(G11B 15/04, G11B 19/04, G11B 27/34, G11B 27/36 take precedence)}
33/12 . Disposition of constructional parts in the apparatus, e.g. of power supply, of modules
33/121 . . {the apparatus comprising a single recording/reproducing device}
33/122 . . . {Arrangements for providing electrical connections, e.g. connectors, cables, switches}
33/123 . . . {Mounting arrangements of constructional parts onto a chassis}
33/124 . . . . {of the single recording/reproducing device, e.g. disk drive, onto a chassis}
33/125 . . {the apparatus comprising a plurality of recording/reproducing devices, e.g. modular arrangements, arrays of disc drives}
33/126 . . . {Arrangements for providing electrical connections, e.g. connectors, cables, switches}
33/127 . . . {Mounting arrangements of constructional parts onto a chassis}
33/128 . . . . {of the plurality of recording/reproducing devices, e.g. disk drives, onto a chassis}
33/14 . Reducing influence of physical parameters, e.g. temperature change, moisture, dust
33/1406 . . {Reducing the influence of the temperature}
33/1413 . . . {by fluid cooling}
33/142 . . . . {by air cooling}
33/1426 . . . {by cooling plates, e.g. fins}
33/1433 . . . {by reducing the effects of the thermal expansion}
33/144 . . . {by detection, control, regulation of the temperature}
33/1446 . . {Reducing contamination, e.g. by dust, debris}
33/1453 . . . {by moisture}
33/146 . . . {constructional details of filters}
33/1466 . . . {sealing gaskets, (gasket in general F16J)}
33/1473 . . . {of/from bearings}
33/148 . . {Reducing friction, adhesion, drag}
33/1486 . . {Control/regulation of the pressure, e.g. the pressure inside the housing of a drive}
33/1493 . . {Electro-Magnetic Interference [EMI] or Radio Frequency Interference [RFI] shielding; grounding of static charges}

2209/00 **Recording or reproducing using a method not covered elsewhere in this subclass**

2209/02 . transducing on or investigating record carriers or information recording transducers or systems by using near-field interactions

2220/00 **Record carriers by type**

2220/17 . Card-like record carriers

2220/20 . Disc-shaped record carriers

2220/21 . . characterised in that the disc is of read-only, rewritable, or recordable type

2220/211 . . . Discs having both read-only and rewritable or recordable areas containing application data; Partial ROM [PROM] media

2220/213 . . . Read-only discs

2220/215 . . . Recordable discs

2220/216 . . . . Rewritable discs

2220/218 . . . . Write-once discs

2220/23 . . characterised in that the disc has a specific layer structure

2220/232 . . . Double-sided discs, i.e. two recording layers accessed from opposite sides

2220/235 . . . Multilayer discs, i.e. multiple recording layers accessed from the same side

2220/237 . . . . having exactly two recording layers

2220/25 . . characterised in that the disc is based on a specific recording technology

2220/2504 . . . Holographic discs; Holographic digital data storage [HDDS]

2220/2508 . . . Magnetic discs

2220/2512 . . . . Floppy disks

2220/2516 . . . . Hard disks

2220/252 . . . . Patterned or quantised magnetic media, i.e. bits are stored in predefined single domain elements

2220/2525 . . . Magneto-optical [MO] discs

2220/2529 . . . . Mini-discs

2220/2533 . . . . MO disc using magnetic super resolution, i.e., the magnetic mark is smaller than the laser spot size

2220/2537 . . . Optical discs

2220/2541 . . . . Blu-ray discs; Blue laser DVR discs

2220/2545 . . . . CDs

2220/255 . . . . . CD-I, i.e. CD-interactive

2220/2554 . . . . . CD-V [CD-Video], CDV, or CD+V, as defined in IEC 61104

2220/2558 . . . . . CD-XA format, i.e. eXtended architecture extension of the CD-ROM standard

2220/2562 . . . . DVDs [digital versatile discs]; Digital video discs; MMCDs; HDCDs

2220/2566 . . . . . DVDs belonging to the minus family, i.e. -R, -RW, -VR

2220/257 . . . . . DVDs belonging to the plus family, i.e. +R, +RW, +VR

2220/2575 . . . . . DVD-RAMs

2220/2579 . . . . HD-DVDs [high definition DVDs]; AODs [advanced optical discs]

2220/2583 . . . . wherein two standards are used on a single disc, e.g. one DVD section and one CD section

2220/2587 . . . . Laser Discs; Optical disc using analog recording

2220/2591 . . . . SFFO discs, i.e. small form factor optical discs; Portable blue

2220/2595 . . . . Super-resolution optical discs, i.e. optical discs wherein the size of marks is below the optical diffraction limit

2220/40 . Combinations of multiple record carriers

2220/41 . . Flat as opposed to hierarchical combination, e.g. library of tapes or discs, CD changer, or groups of record carriers that together store one title

2220/412 . . . Distributed storage methods, i.e. the system may autonomously determine for a storage device that provides enough storage capacity for recording

2220/415 . . . Redundant array of inexpensive disks [RAID] systems

2220/417 . . . Redundant array of inexpensive tapes [RAIT] systems

2220/45 . . Hierarchical combination of record carriers, e.g. HDD for fast access, optical discs for long term storage or tapes for backup

2220/455 . . . said record carriers being in one device and being used as primary and secondary/backup media, e.g. HDD-DVD combo device, or as source and target media, e.g. PC and portable player

2220/60 . Solid state media (details of solid state memory devices G11C)

2220/61 . . wherein solid state memory is used for storing A/V content (storing computer data in solid state memories G06F)

2220/63 . . wherein solid state memory is used as a supplementary storage medium to store auxiliary data for detecting or correcting errors on a main storage medium

2220/65 . . wherein solid state memory is used for storing indexing information or metadata

2220/652 . . . said memory being attached to the recording medium

2220/655 . . . . Memory in cassette [MIC]

2220/657 . . . . Memory in disc [MID]

2220/80 . Indexing information stored in optical or magnetic or other strip attached to cassette or disc, e.g. barcodes attached to a recording medium

2220/90 . Tape-like record carriers

2220/91 . . Helical scan format, wherein tracks are slightly tilted with respect to tape direction, e.g. VHS, DAT, DVC, AIT or exabyte

2220/913 . . . Digital audio tape [DAT] format

2220/916 . . . Digital data storage [DDS] format

2220/93 . . Longitudinal format, wherein tracks are in the direction of the tape, read with a static head, e.g. DCC

2220/95 . . Serpentine format, wherein a single track or group of tracks traverses the tape plural times from one end to the other

2220/953 . . . Digital linear tape [DLT] format

2220/956 . . . Linear tape open [LTO] format