

G11 INFORMATION STORAGE

G11B INFORMATION STORAGE BASED ON RELATIVE MOVEMENT BETWEEN RECORD CARRIER AND TRANSDUCER (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; details of scanning-probe apparatus, in general G12B 21/00; coding, decoding or code conversion, in general H03M; circuits for coupling output of reproducer to radio receiver H04B 1/20; television signal recording H04N 5/76, H04N 9/79; loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers or circuits therefor H04R)

- (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.
- (2) In this subclass, the following terms or expressions are used with the meanings indicated:
 - “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; [7]
 - “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;
 - “near-field interaction” means a very short distance interaction using scanning-probe techniques, e.g. quasi- contact or evanescent contact between head and record carrier. [7]
- (3) Attention is drawn to the Notes following the titles of class B81 and subclass B81B relating to “micro-structural devices” and “micro-structural systems”. [7]

RECORDING OF ONE TYPE ASSOCIATED WITH REPRODUCING MEANS OF THE SAME TYPE

Of mechanical type	3/00
Of magnetical type	5/00
Of optical type	7/00
Of another type	9/00

RECORDING OF ONE TYPE AND ASSOCIATED REPRODUCING MEANS OF DIFFERENT TYPE

SIMULTANEOUS OR SELECTIVE RECORDING OF DIFFERENT TYPES; ASSOCIATED SIMULTANEOUS OR SELECTIVE REPRODUCING MEANS.....	13/00
SIGNAL PROCESSING NOT SPECIFIC TO THE METHOD OF RECORDING OR REPRODUCING	20/00

APPARATUS CHARACTERISED BY THE

SHAPE OF THE RECORD CARRIER.....25/00

DETAILS; GENERAL FEATURES

Starting, stopping, driving.....	15/00, 19/00
Guiding.....	17/00

HEADS; RECORD CARRIERS.....21/00; 23/00

ASSOCIATED WORKING WITH OTHER

APPARATUS.....	31/00
EDITING, INDEXING, SYNCHRONISING, MONITORING.....	27/00
MANUFACTURING	3/70, 5/84, 7/26

OTHER CONSTRUCTIONAL PARTS,

DETAILS OR ACCESSORIES.....33/00

- 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 takes precedence; recording by cutting or deforming using laser beam G11B 7/00, using electron beam G11B 9/10)
- 3/02 . . Arrangements of heads (styli G11B 3/44)
- 3/04 . . Multiple, convertible, or alternative transducing arrangements
- 3/06 . . Determining or indicating position of head
- 3/08 . . Raising, lowering, traversing otherwise than for transducing, arresting, or holding-up heads against record carriers

- 3/085 . . . using automatic means (G11B 3/095 takes precedence) [4]
- 3/09 . . . using manual means only (G11B 3/095 takes precedence) [4]
- 3/095 . . . for repeating a part of the record; for beginning or stopping at a desired point of the record [4]
- 3/10 . . Arranging, supporting, or driving of heads or of transducers relatively to record carriers
- 3/12 . . . Supporting in balanced, counterbalanced, or loaded operative position, e.g. loading in direction of traverse

- 3/14 by using effects of gravity or inertia, e.g. counterweight (G11B 3/28 takes precedence) [4]
- 3/16 adjustable
- 3/18 Damping by using viscosity effect
- 3/20 by elastic means, e.g. spring (G11B 3/28 takes precedence) [4]
- 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
- 3/30 Supporting in inoperative position
- 3/31 Construction of arms [4]
- 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
- 3/46 Constructions or forms, e.g. attachment of point to shank
- 3/48 Needles
- 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 (by grinding B24B 19/16)
- 3/58 Cleaning record carriers or styli, e.g. removing shavings or dust (brushes A46B; cleaning in general B08B)
- 3/60 Turntables for record carriers (forming rotor of dynamo-electric motor H02K)
- 3/61 Damping of vibrations of record carriers on turntables [4]
- 3/64 Re-recording, i.e. transcribing information from one grooved record carrier on to one or more similar or dissimilar record carriers
- 3/66 Erasing information, e.g. for reuse of record carrier
- 3/68 Record carriers
- 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, in general, and for which provision exists elsewhere, see the relevant places, e.g. B29D 17/00) [4]
- 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 takes precedence) [4]

Groups G11B 5/02 G11B 5/86 take precedence over groups G11B 5/004 G11B 5/012. [2]

- 5/004 Recording on, or reproducing or erasing from, magnetic drums (G11B 19/00 takes precedence) [2]
- 5/008 Recording on, or reproducing or erasing from, magnetic tapes or wires (G11B 15/00 takes precedence) [2]
- 5/012 Recording on, or reproducing or erasing from, magnetic discs (G11B 17/00, G11B 19/00 take precedence) [2]
- 5/016 using magnetic foils [2]
- 5/02 Recording, reproducing, or erasing methods; Read, write, or erase circuits therefor (timing or synchronising arrangements G11B 27/10) [2]
- 5/024 Erasing [4]
- 5/027 Analogue recording [2]
- 5/03 Biasing [4]
- 5/035 Equalising [4]
- 5/09 Digital recording [2]
- 5/10 Structure or manufacture of housings or shields for heads [4]
- 5/105 Mounting of head within housing [2]
- 5/11 Shielding of head against electric or magnetic fields [2]
- 5/115 Shielding device arranged between heads or windings (G11B 5/29 takes precedence) [2]
- 5/127 Structure or manufacture of heads, e.g. inductive [4]
- 5/133 with cores composed of particles, e.g. with dust cores, with ferrite cores [4]
- 5/147 with cores being composed of metal sheets, i.e. laminated cores [4]
- 5/153 with tape-wound cores [4]
- 5/17 Construction or disposition of windings [4]
- 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 5/31 take precedence) [4]
- 5/193 the pole pieces being ferrite [4]
- 5/21 the pole pieces being of ferrous sheet metal [4]
- 5/23 Gap features [4]
- 5/235 Selection of material for gap filler [4]
- 5/245 comprising means for controlling the reluctance of the magnetic circuit (G11B 5/255 takes precedence) [4]
- 5/255 comprising means for protection against wear [4]
- 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) [4]
- 5/29 Structure or manufacture of unitary devices formed of plural heads for more than one track [4]
- 5/31 using thin film (G11B 5/33 takes precedence) [4]

- 5/325 . . Erasing heads using permanent magnets (general details therefor G11B 5/133 G11B 5/255) [4]
- 5/33 . . Structure or manufacture of flux-sensitive heads (general details therefor G11B 5/133 G11B 5/255) [4]
- 5/335 . . . with saturated jig, e.g. for detecting second harmonic, balanced-flux head [4]
- 5/35 . . . having vibrating elements [4]
- 5/37 . . . using galvano-magnetic devices, e.g. Hall-effect devices (G11B 5/39 takes precedence) [4]
- 5/39 . . . using magneto-resistive devices [4]
- 5/40 . Protective measures on heads, e.g. against excessive temperature (G11B 5/31 takes precedence; protection against wear G11B 5/255) [4]
- 5/41 . Cleaning of heads [2]
- 5/455 . Arrangements for functional testing of heads; Measuring arrangements for heads (measuring electric or magnetic properties G01R) [4]
- 5/465 . Arrangements for demagnetisation of heads (demagnetisation in general H01F 13/00) [4]
- 5/48 . Disposition or mounting of heads relative to record carriers
- 5/49 . . Fixed mountings [2]
- 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) [4]
- 5/53 . . . Disposition or mounting of heads on rotating support [4]
- 5/54 . . with provision for moving the head into, or out of, its operative position or across tracks [2]
- 5/55 . . . Track change, selection, or acquisition by displacement of the head [2]
- 5/56 . . with provision for moving the head 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 5/54, G11B 5/58 take precedence) [2]
- 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 [2]
- 5/584 . . . for track following on tapes [4]
- 5/588 . . . by controlling the position of the rotating heads (by controlling the speed of the record carrier G11B 15/467; by controlling the speed of the rotating heads G11B 15/473) [4]
- 5/592 using bimorph elements supporting the heads [4]
- 5/596 . . . for track following on discs [4]
- 5/60 . . . Fluid-dynamic spacing of heads from record carriers
- 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)
- This group does not cover compositions, materials or processes, per se, which are covered by the relevant subclasses of section B or C. [4]
- 5/627 . . of leaders for magnetic tapes, e.g. non-magnetic strips on the tapes or for connection (constructional features G11B 23/26) [4]
- 5/633 . . of cinematographic films or slides with integral magnetic track [4]
- 5/64 . . comprising only the magnetic material without bonding agent
- 5/65 . . . characterised by its composition (G11B 5/66 takes precedence) [7]
- 5/66 . . . the record carriers consisting of several layers
- 5/667 including a soft magnetic layer [7]
- 5/673 comprising the repeated occurrence of two or more layers [7]
- 5/68 . . comprising one or more layers of magnetisable particles homogeneously mixed with a bonding agent (layered products in general B32B)
- 5/70 . . . on a base layer (base layers per se G11B 5/73) [1,7]
- 5/702 characterised by the bonding agent [4]
- 5/706 characterised by the composition of the magnetic material [4]
- 5/708 characterised by the addition of non-magnetic particles to the magnetic layer [4]
- 5/71 characterised by the lubricant [4]
- 5/712 characterised by the surface treatment or coating of magnetic particles [4]
- 5/714 characterised by the dimension of the magnetic particles [4]
- 5/716 characterised by two or more magnetic layers [4]
- 5/718 at least one on each side of the base layer [4]
- 5/72 . . Protective coatings, e.g. anti-static
- 5/725 . . . containing a lubricant [7]
- 5/73 . . Base layers [7]
- 5/733 . . . characterised by the addition of non-magnetic particles [7]
- 5/735 . . . characterised by the back layer [7]
- 5/738 . . . characterised by the intermediate layer [7]
- 5/74 . Record carriers characterised by the form, e.g. sheet shaped to wrap around a drum
- 5/76 . . Drum carriers
- 5/78 . . Tape carriers
- 5/80 . . Card carriers
- 5/82 . . Disc carriers
- 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)
- 5/842 . . Coating a support with a liquid magnetic dispersion [4]
- 5/845 . . . in a magnetic field [4]
- 5/848 . . Coating a support with a magnetic layer by extrusion [4]
- 5/85 . . Coating a support with a magnetic layer by vapour deposition [4]

- 5/851 . . . Coating a support with a magnetic layer by sputtering [7]
- 5/852 . . . Orientation in a magnetic field (G11B 5/845 takes precedence) [4]
- 5/855 . . . Coating only part of a support with a magnetic layer [4]
- 5/858 . . . Producing a magnetic layer by electro-plating or electroless plating [4]
- 5/86 . . . Re-recording, i.e. transcribing information from one magnetisable record carrier on to one or more similar or dissimilar record carriers
- 7/00 Recording or reproducing by optical means, e.g. recording using a thermal beam of optical radiation, reproducing using an optical beam at lower power; Record carriers therefor** (G11B 11/00, G11B 13/00 take precedence) [4,7]
- 7/002 . . . Recording, reproducing or erasing systems characterised by the shape of the carrier [7]
- 7/0025 . . . with cylinders or cylinder-like carriers, e.g. truncated cones [7]
- 7/003 . . . with webs, e.g. belts, spooled tapes or films of quasi-infinite extent [7]
- 7/0033 . . . with cards [7]
- 7/0037 . . . with discs [7]
- 7/004 . . . Recording, reproducing or erasing methods; Read, write or erase circuits therefor [7]
- 7/0045 . . . Recording (G11B 7/006, G11B 7/0065 take precedence) [7]
- 7/005 . . . Reproducing (G11B 7/0065 takes precedence) [7]
- 7/0055 . . . Erasing (G11B 7/006, G11B 7/0065 take precedence) [7]
- 7/006 . . . Overwriting (G11B 7/0065 takes precedence) [7]
- 7/0065 . . . Recording, reproducing or erasing by using optical interference patterns, e.g. holograms [7]
- 7/007 . . . Arrangement of the information on the record carrier, e.g. form of tracks [4]
- 7/013 . . . for discrete information, i.e. where each information unit is stored in a distinct location [4]
- 7/08 . . . Disposition or mounting of heads or light sources relatively to record carriers
- 7/085 . . . with provision for moving the light beam into, or out of, its operative position (modulating by information signals G11B 7/12; controlling the position or direction of light beams, i.e. deflection, G02F 1/29) [4]
- 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 [4]
- 7/095 . . . specially adapted for discs, e.g. for compensation of eccentricity or wobble [4]
- 7/10 . . . Interchangeable mountings, e.g. for replacement of head without readjustment
- 7/12 . . . Heads
- 7/125 . . . Optical beam sources therefor (light-emitting diodes H01L 33/00; semiconductor lasers H01S 5/00); Modulators, e.g. means for controlling the size or intensity of the optical spot or of the optical trace (electro-, magneto-, or acousto-optical modulators G02F 1/00; optical diaphragms G03B 9/02) [4]
- 7/13 . . . Optical detectors therefor (optical detectors in general G01J; demodulating light, transferring the modulation of modulated light, frequency changing of light G02F 2/00) [4]
- 7/135 . . . Means for guiding the beam from source to record carrier or from record carrier to detector [4]
- 7/14 . . . adapted to record on, or to reproduce from, more than one track simultaneously (G11B 7/20 takes precedence)
- 7/16 . . . using filters, e.g. colour filter
- 7/18 . . . using optical slits
- 7/20 . . . Dual-recording arrangements, i.e. in which the information is recorded in two different forms simultaneously on the same or related tracks, e.g. recording instantaneous and mean values (sound-recording combined with cinematography G03C)
- 7/22 . . . Apparatus or processes specially adapted for the manufacture of heads, e.g. assembly
- 7/24 . . . Record carriers characterised by the selection of the material or by the structure or form (characterised by the arrangement of information on the carrier G11B 7/007; photosensitive materials per se G03C) [4]
- 7/241 . . . characterised by the selection of the material [8]
- 7/242 . . . of recording layers [8]
- 7/243 . . . comprising inorganic material only, e.g. ablative layers [8]
- 7/244 . . . comprising organic material only [8]
- 7/245 . . . containing a polymeric component [8]
- 7/246 . . . containing dyes [8]
- 7/247 . . . Methine or polymethine dyes [8]
- 7/248 . . . Porphines; Azaporphines, e.g. phthalocyanines [8]
- 7/249 . . . containing organo-metallic compounds (G11B 7/246 takes precedence) [8]
- 7/25 . . . containing liquid crystals [8]
- 7/251 . . . comprising inorganic material dispersed in an organic matrix [8]
- 7/252 . . . of layers other than recording layers [8]
- 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. [8]
- 7/253 . . . Base layers [8]
- 7/254 . . . Protective topcoat layers [8]
- 7/256 . . . Layers improving adhesion between layers [8]
- 7/257 . . . Layers having properties involved in recording or reproduction, e.g. optical interference layers or sensitising layers [8]
- 7/258 . . . Reflective layers [8]
- 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)
- 7/28 . . . Re-recording, i.e. transcribing information from one optical record carrier on to one or more similar or dissimilar record carriers using optical sensing means
- 7/30 . . . Rewritable carriers (G11B 7/24 takes precedence) [7]
- 9/00 Recording or reproducing using a method or means not covered by one of the main groups G11B 3/00 G11B 7/00; Record carriers therefor** (G11B 11/00 takes precedence) [4]

- Group G11B 9/12 takes precedence over groups G11B 9/02 G11B 9/10 [7]
- 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)
 - 9/07 . . Heads for reproducing capacitive information [4]
 - 9/08 . using electrostatic charge injection; Record carriers therefor
 - 9/10 . using electron beam; Record carriers therefor (G11B 9/08 takes precedence) [4]
 - 9/12 . using near-field interactions; Record carriers therefor [7]
 - 9/14 . . using microscopic probe means [7]
- 11/00 Recording on, or reproducing from, the same record carrier wherein for these two operations the methods or means 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**
- Group G11B 11/24 takes precedence over groups G11B 11/03 G11B 11/16. [7]
- 11/03 . using recording by deforming with non-mechanical means, e.g. laser, beam of particles [4]
 - 11/05 . . with reproducing by capacitive means [4]
 - 11/06 . . with reproducing by mechanical sensing [4]
 - 11/08 . using recording by electric charge or by variation of electric resistance or capacitance
 - 11/10 . using recording by magnetisation or demagnetisation [4]
 - 11/105 . . using a beam of light or a magnetic field for recording and a beam of light for reproducing, e.g. light-induced thermo-magnetic recording, Kerr effect reproducing [7]
 - 11/11 . . using a beam other than a beam of light for recording [7]
 - 11/115 . . using a beam other than a beam of light for reproducing [7]
 - 11/12 . using recording by optical means (G11B 11/03 takes precedence) [4]
 - 11/14 . . with reproducing by magnetic means
 - 11/16 . using recording by mechanical cutting, deforming or pressing
 - 11/18 . . with reproducing by optical means
 - 11/20 . . with reproducing by magnetic means
 - 11/22 . . with reproducing by capacitive means [4]
 - 11/24 . using recording by near-field interactions [7]
 - 11/26 . . using microscopic probe means [7]
- 13/00 Recording simultaneously or selectively by methods or means covered by different main groups; Record carriers therefor; Reproducing simultaneously or selectively therefrom [1,7]**
- (1) This group covers arrangements in which there are at least two recordings of information involving two different methods or means or two different physical properties, at the same or different locations, on the same record carrier, the recordings being made or reproduced simultaneously or selectively. [7]
 - (2) Where such combinations of means are used for changing only one main property, classification is only made in one of the relevant main groups G11B 3/00, G11B 5/00, G11B 7/00, G11B 9/00 or G11B 11/00. [7]
 - 13/02 . magnetically and by styli (G11B 13/08 takes precedence) [1,7]
 - 13/04 . magnetically and optically (G11B 13/08 takes precedence) [1,7]
 - 13/06 . optically and by styli (G11B 13/08 takes precedence) [1,7]
 - 13/08 . using near-field interactions or transducing means and at least one other method or means for recording or reproducing [7]
 - 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) [2]**
 - 15/02 . Control of operating function, e.g. switching from recording to reproducing
 - 15/03 . . by using counters [4]
 - 15/04 . . Preventing, inhibiting, or warning against accidental erasing or double recording (G11B 15/05 takes precedence) [4]
 - 15/05 . . by sensing features present on, or derived from, record carrier or container (G11B 15/16 takes precedence) [4]
 - 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 [4]
 - 15/08 by photoelectric sensing (G11B 15/07 takes precedence) [4]
 - 15/087 . . . by sensing recorded signals [4]
 - 15/093 . . . by sensing driving condition of record carrier, e.g. travel, tape tension [4]
 - 15/10 . . Manually-operated control; Solenoid-operated control
 - 15/12 . . Masking of heads; Selecting or switching of heads between operative and inoperative functions; Masking of beams, e.g. of light beams
 - 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 [4]
 - 15/18 . Driving; Starting; Stopping; Arrangements for control or regulation thereof
 - 15/20 . . Moving record carrier backwards or forwards by finite amounts, i.e. back-spacing, 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)
 - 15/24 . . Drive-disengaging means
 - 15/26 . . Driving record carriers by members acting directly or indirectly thereon

- 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
- 15/29 through pinch-rollers (G11B 15/295 takes precedence) [4]
- 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 [4]
- 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-slip drive means, e.g. sprocket
- 15/38 . . Driving record carriers by pneumatic means
- 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
- 15/44 . . Speed-changing arrangements; Reversing arrangements; Drive-transfer means therefor
- 15/46 . . Controlling, regulating, or indicating speed
- 15/467 . . . in arrangements for recording or reproducing wherein both record carriers and heads are driven [4]
- 15/473 by controlling the speed of the heads [4]
- 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
- 15/58 . . with vacuum column
- 15/60 . Guiding record carriers (guiding devices structurally associated with magazines or cassettes G11B 23/04) [4]
- 15/61 . . on drum, e.g. on drum containing rotating heads [4]
- 15/62 . . Maintaining desired spacing between record carrier and head
- 15/64 . . . by fluid-dynamic spacing
- 15/66 . . Threading; Loading; Automatic self-loading
- 15/665 . . . by extracting loop of record carrier from container [4]
- 15/67 . . . by extracting end of record carrier from container or spool [4]
- 15/675 . Guiding containers [4]
- 15/68 . . Automatic cassette-changing arrangements [2]
- 15/70 . the record carrier being an endless-loop record-carrier [2]
- 17/00 Guiding record carriers not specifically of filamentary or web form, or of supports therefor (guiding cards or sheets G06K 13/00)**
- 17/02 . Details
- 17/022 . . Positioning or locking of single discs [4]
- 17/025 . . . of discs which are stationary during transducing operation [4]
- 17/028 . . . of discs rotating during transducing operation [4]
- 17/03 in containers or trays [4]
- 17/032 Positioning by moving the door or the cover [4]
- 17/035 Positioning by moving the loading station [4]
- 17/038 . . Centering or locking of a plurality of discs in a single cartridge [4]
- 17/04 . . Feeding or guiding single record carrier to or from transducing unit
- 17/041 . . . specially adapted for discs contained within cartridges [8]
- 17/043 Direct insertion, i.e. without external loading means [8]
- 17/044 Indirect insertion, i.e. with external loading means [8]
- 17/046 with pivoting loading means [8]
- 17/047 with sliding loading means [8]
- 17/049 Insertion of discs having to be extracted from the cartridge prior to recording or reproducing [8]
- 17/05 . . . specially adapted for discs not contained within cartridges [8]
- 17/051 Direct insertion, i.e. without external loading means [8]
- 17/053 Indirect insertion, i.e. with external loading means [8]
- 17/054 with pivoting loading means [8]
- 17/056 with sliding loading means [8]
- 17/057 . . . specially adapted for handling both discs contained within cartridges and discs not contained within cartridges [8]
- 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
- 17/18 . . . 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
- Group G11B 17/30 takes precedence over groups G11B 17/24 G11B 17/28.
- 17/24 . . the magazine having a toroidal or part-toroidal shape
- 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 accordingly to the location of the selected record
- 17/32 . Maintaining desired spacing between record carrier and head, e.g. by fluid-dynamic spacing [2]
- 17/34 . Guiding record carriers during transducing operation, e.g. for track following (G11B 17/32 takes precedence) [4]

- 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)
- 19/02 . Control of operating function, e.g. switching from recording to reproducing [4]
 - 19/04 . . Arrangements for preventing, inhibiting, or warning against, double recording on the same blank, or against other recording or reproducing malfunctions
 - 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) [4]
 - 19/10 . . by sensing presence or absence of record in accessible stored position or on turntable
 - 19/12 . . by sensing distinguishing features of records, e.g. diameter
 - 19/14 . . by sensing movement or position of head, e.g. means moving in correspondence with head movements
 - 19/16 . . Manual control
 - 19/18 . . . Manual action on one element producing control effect indirectly by consequent action of driving mechanism
 - 19/20 . Driving; Starting; Stopping; Control thereof [4]
 - 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 [4]
 - 19/253 . . . using mechanical means [4]
 - 19/26 . . Speed-changing arrangements; Reversing arrangements; Drive-transfer means therefor [4]
 - 19/265 . . . Friction wheel drive [4]
 - 19/27 . . . Belt drive [4]
 - 19/275 . . . Gear wheel drive [4]
 - 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 [4]**
- 20/02 . Analogue recording or reproducing [4]
 - 20/04 . . Direct recording or reproducing [4]
 - 20/06 . . Angle-modulation recording or reproducing (angle-modulation H03C; demodulation of angle-modulated oscillations H03D) [4]
 - 20/08 . . Pulse-modulation recording or reproducing (pulse-code-modulation recording G11B 20/10; pulse modulation or pulse demodulation H03K) [4]
 - 20/10 . Digital recording or reproducing (electrical digital data processing G06F; speech analysis-synthesis techniques for redundancy reduction G10L 19/00; transmission of digital information H04L) [4]
 - 20/12 . . Formatting, e.g. arrangement of data block or words on the record carriers [4]
 - 20/14 . . using self-clocking codes [4]
 - 20/16 . . using non self-clocking codes, i.e. the clock signals being either recorded in a separate clocking track or in a combination of several information tracks [4]
 - 20/18 . . Error detection or correction; Testing [4]
 - 20/20 . for correction of skew for multitrack recording [4]
 - 20/22 . for reducing distortions [4]
 - 20/24 . for reducing noise [4]
- 21/00 Head arrangements not specific to the method of recording or reproducing**
- 21/02 . Driving or moving of heads
 - 21/03 . . for correcting time base error [4]
 - 21/04 . . Automatic feed mechanism producing a transducing traverse of the head in a direction which cuts across the direction of travel of the recording medium, e.g. helical scan
 - 21/06 . . . the record carrier having means to ensure traverse movement of the head
 - 21/08 . . Track changing or selecting (G11B 21/12 takes precedence)
 - 21/10 . . Track finding or aligning by moving the head
 - 21/12 . . Raising and lowering; Back-spacing or forward-spacing along track; Returning to starting position
 - 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 [4]
 - 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 [4]**
- In group G11B 23/00, recording or reproducing apparatus does not include the record carriers. [5]
- 23/02 . Containers; Storing means (cabinets, cases, stands, modified to store record carriers G11B 33/04; storing webs, tapes or filamentary material in general B65H 75/00) [4]
 - 23/023 . . Containers for magazines or cassettes [4]
 - 23/027 . . Containers for single reels or spools [4]
 - 23/03 . . Containers for flat record carriers [4]
 - 23/033 . . . for flexible discs [4]
 - 23/037 . . Single reels or spools [4]
 - 23/04 . . Magazines; Cassettes (G11B 23/12 takes precedence)
 - 23/06 . . . for housing endless webs or filaments
 - 23/07 using a single reel or core [4]
 - 23/08 . . . for housing webs or filaments having two distinct ends
 - 23/087 using two different reels or cores [4]
 - 23/093 the reels or cores being coaxial [4]
 - 23/107 using one reel or core, one end of the record carrier coming out of the magazine or cassette [4]
 - 23/113 . . Apparatus or processes specially adapted for the manufacture of magazines or cassettes [4]
 - 23/12 . . Bins for random storage of webs or filaments
 - 23/14 . providing ability to repeat location, e.g. using sprocket holes

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- 23/16 . Record carriers with single track for recording at spaced intervals along the track thereof, e.g. for speech or language training
- 23/18 . Record carriers with multiple tracks, e.g. with complementary and partial tracks such as paired “stereo” tracks
- 23/20 . with provision for splicing to provide permanent or temporary connections
- 23/22 . . of endless belts; of tapes forming Möbius 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 prior or unauthorised use
- 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
- 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) [4]
- 23/50 . Reconditioning of record carriers; Cleaning of record carriers (G11B 3/58 takes precedence) [2]
- 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) [4]
- 25/02 . using cylindrical record carriers
- 25/04 . using flat record carriers, e.g. disc, card
- 25/06 . using web-form record carriers, e.g. tape
- 25/08 . using filamentary record carriers, e.g. wire
- 25/10 . Apparatus capable of using record carriers defined in more than one of the groups G11B 25/02 G11B 25/08
- 27/00 Editing; Indexing; Addressing; Timing or synchronising; Monitoring; Measuring tape travel [2,4]**
- 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) [5]
- 27/022 . . Electronic editing of analogue information signals, e.g. audio or video signals [5]
- 27/024 . . . on tapes (G11B 27/028, G11B 27/029 take precedence) [5]
- 27/026 . . . on discs (G11B 27/028, G11B 27/029 take precedence) [5]
- 27/028 . . . with computer assistance [5]
- 27/029 . . . Insert-editing [5]
- 27/031 . . Electronic editing of digitised analogue information signals, e.g. audio or video signals [5]
- 27/032 . . . on tapes (G11B 27/036, G11B 27/038 take precedence) [5]
- 27/034 . . . on discs (G11B 27/036, G11B 27/038 take precedence) [5]
- 27/036 . . . Insert-editing [5]
- 27/038 . . . Cross-faders therefor [5]
- 27/04 . . using differential drive of record carrier and head
- 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 [2]
- 27/11 . . by using information not detectable on the record carrier [4]
- 27/13 . . . the information being derived from movement of the record carrier, e.g. using tachometer [4]
- 27/15 using mechanical sensing means [4]
- 27/17 using electrical sensing means [4]
- 27/19 . . by using information detectable on the record carrier [4]
- 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)
- 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
- 27/30 on the same track as the main recording
- 27/32 on separate auxiliary tracks of the same or an auxiliary record carrier
- 27/34 . . Indicating arrangements
- 27/36 . Monitoring, i.e. supervising the progress of recording or reproducing
- 31/00 Arrangements for the associated working of recording or reproducing apparatus with related apparatus** (with cameras or projectors G03B 31/00; substation equipment for recording telephonic conversations or messages for absent subscribers H04M 1/65) [1,7]
- 31/02 . with automatic musical instruments
- 33/00 Constructional parts, details or accessories not provided for in the other groups of this subclass** (containers, packaging elements or packages specially adapted for record carriers B65D 85/00) [4]
- 33/02 . Cabinets; Cases; Stands; Disposition of apparatus therein or thereon (furniture aspects A47B, e.g. A47B 81/06) [4]
- 33/04 . . modified to store record carriers [4]
- 33/06 . . combined with other apparatus having a different main function [4]
- 33/08 . . Insulation or absorption of undesired vibrations or sounds [4]
- 33/10 . Indicating arrangements; Warning arrangements [4]
- 33/12 . Disposition of constructional parts in the apparatus, e.g. of power supply, of modules [4]
- 33/14 . Reducing influence of physical parameters, e.g. temperature change, moisture, dust [4]