SECTION G — PHYSICS

G10 MUSICAL INSTRUMENTS; ACOUSTICS

Note(s)

1. This class covers all sound-emitting devices, in general, whether or not they may be considered as being musical.
2. In this class, the following expression is used with the meaning indicated:
   - "musical instrument" does not exclude devices emitting a single sound signal.
3. The following Class Index is given in place of subclass indexes, to show the grouping of the elaborations belonging to different subclasses, under the following three fundamental types:
   - wind instruments;
   - string instruments;
   - percussion instruments,

which relate clearly to the majority of instruments.

4. There are of course some instruments of which the principle of operation belongs less clearly to one of the three types mentioned in Note (3). They correspond to groups G10D 17/00 or G10K 7/00, G10K 9/00 or G10K 15/04, all the other groups normally finding a definite place.

Class index

G10B ORGANS, HARMONIUMS OR SIMILAR WIND MUSICAL INSTRUMENTS WITH ASSOCIATED BLOWING APPARATUS (accordions, concertinas or the like or keyboards therefor G10D 11/00; automatic wind instruments G10F 1/12)

Note(s) [2019.01]

In this subclass, the type of instrument is classified in group G10B 1/00, while details or accessories thereof are classified in group G10B 3/00.

1/00 General design of organs, harmoniums or similar wind musical instruments with associated blowing apparatus [1, 2006.01]

1/02 • of organs, i.e. pipe organs **[1, 2006.01]**

1/04 • • with electric action **[1, 2006.01]**

1/06 • • with pneumatic action **[1, 2006.01]**

1/08 • of harmoniums, i.e. reed organs **[1, 2006.01]**

3/00 Details or accessories [1, 2006.01, 2019.01]

3/02 • Blowers **[1, 2006.01]**

3/04 • Reservoirs **[1, 2006.01]**
3/06 • Valves; Sleeves **[1, 2006.01]**
3/08 • Pipes, e.g. open pipes or reed pipes **[1, 2006.01]**
3/10 • Actions, e.g. key actions, couplers or stops **[1, 2006.01]**
3/12 • Keys or keyboards; Manuals **[1, 2006.01]**
3/14 • Pedals or pedal boards **[1, 2006.01]**
3/16 • Swell chambers; Accentuating means **[1, 2006.01]**
3/18 • Tremolo-producing devices **[1, 2006.01]**
3/20 • Transposing devices **[1, 2006.01]**
3/22 • Details of electric action systems for organs, e.g. contacts therein **[1, 2006.01]**
3/24 • Cases **[2019.01]**

G10C PIANOS, HARPSICHORDS, SPINETS OR SIMILAR STRINGED MUSICAL INSTRUMENTS WITH ONE OR MORE KEYBOARDS (automatic musical instruments G10F)

Note(s) [2019.01]

In this subclass, the specific types of musical instruments are covered by group G10C 1/00, while aspects relevant to the details thereof or the accessories therefor are covered by groups G10C 3/00-G10C 9/00.

1/00 General design of pianos, harpsichords, spinets or similar stringed musical instruments with one or more keyboards [1, 2006.01]
1/02 • of upright pianos **[1, 2006.01]**
1/04 • of grand pianos **[1, 2006.01]**
1/06 • of harpsichords, spinets or similar stringed musical instruments **[1, 2006.01]**

3/00 Details or accessories [1, 2006.01, 2019.01]
3/02 • Cases **[1, 2006.01]**
3/04 • Frames; Bridges; Bars **[1, 2006.01]**
3/06 • Resonating means, e.g. soundboards or resonant strings; Fastenings thereof **[1, 2006.01]**
3/07 • Strings (resonant strings G10C 3/06) **[2019.01]**
3/08 • • Arrangements thereof **[1, 2006.01]**
3/10 • Tuning pins; Tensioning devices **[1, 2006.01, 2019.01]**
3/103 • • the axis of the pins being parallel to the strings **[2019.01]**
3/106 • • the axis of the pins being perpendicular to the strings **[2019.01]**
3/12 • Keyboards; Keys **[1, 2006.01]**
3/14 • • for playing by the feet **[1, 2006.01, 2019.01]**
3/16 • Actions **[1, 2006.01, 2019.01]**
3/161 • • specially adapted for upright pianos **[2019.01]**
3/163 • • • the action being mounted in a plane below the keyboard **[2019.01]**
3/165 • • for plucking the strings **[2019.01]**
3/166 • • for damping the strings (G10C 3/26 takes precedence) **[2019.01]**
3/168 • • with hanging jacks, i.e. jacks connected to hammer-butts or hammer-shanks **[2019.01]**
3/18 • • Hammers **[1, 2006.01]**
3/20 • • involving the use of hydraulic, pneumatic or electromagnetic means **[1, 2006.01]**
3/22 • • specially adapted for grand pianos **[1, 2006.01, 2019.01]**
3/23 • • • with hammers mounted above the strings, striking downwards **[2019.01]**
3/24 • • Repetition [tremolo] mechanisms **[1, 2006.01]**
3/26 • Pedals or pedal mechanisms (G10C 3/14 takes precedence); Manually operated sound modification means **[1, 2006.01, 2019.01]**
3/28 • Transposing devices **[1, 2006.01]**
3/30 • Couplers, e.g. for playing octaves **[1, 2006.01]**

5/00 Combinations with other musical instruments, e.g. with bells or xylophones [1, 2006.01, 2019.01]
5/10 • Switching musical instruments to a keyboard, e.g. switching a piano mechanism or an electrophonic instrument to a keyboard; Switching musical instruments to a silent mode **[2019.01]**

9/00 Methods, tools or materials specially adapted for the manufacture or maintenance of musical instruments covered by this subclass [1, 2006.01, 2019.01]

G10D STRINGED MUSICAL INSTRUMENTS; WIND MUSICAL INSTRUMENTS; ACCORDIONS OR CONCERTINAS; PERCUSSION MUSICAL INSTRUMENTS; AEOLIAN HARPS; SINGING-FLAME MUSICAL INSTRUMENTS; MUSICAL INSTRUMENTS NOT OTHERWISE PROVIDED FOR (organs, harmoniums or similar wind musical instruments with associated blowing apparatus G10B; pianos, harpsichords, spinets or similar stringed musical instruments with one or more keyboards G10C; automatic musical instruments G10F; electrophonic musical instruments in which tones are generated by electromechanical means G10H)

Note(s) [2010.01]

1. In this subclass, the specific types of musical instruments are covered in groups G10D 1/00, G10D 7/00 or G10D 13/01, while aspects relevant to the arrangements thereof or the accessories therefor are covered in groups G10D 3/00, G10D 9/00 or G10D 13/10.
2. This subclass does not cover pianos, harpsichords, spinets or similar stringed musical instruments with keyboards that cause the strings to be struck or plucked, which are covered by subclass G10C.

1/00 General design of stringed musical instruments [1, 2006.01, 2020.01]
1/02 • Bowed or rubbed string instruments, e.g. violins or hurdy-gurdies **[1, 2006.01]**
1/04 • Plucked or strummed string instruments, e.g. harps or lyres **[1, 2006.01, 2020.01]**
1/05 • • with fret boards or fingerboards **[2020.01]**
1/06 • • • Mandolins **[1, 2006.01]**

1/08 • • • Guitars **[1, 2006.01]**
1/10 • • • Banjos **[1, 2006.01]**
1/12 • Zithers, e.g. autoharps **[1, 2006.01]**
1/14 • Struck string instruments, e.g. dulcimers **[2020.01]**

3/00 Details of, or accessories for, stringed musical instruments, e.g. slide-bars [1, 2006.01, 2020.01]
3/01 • Endpins or accessories therefor **[2020.01]**
3/02 • Resonating means, horns or diaphragms **[1, 2006.01]**
3/04 • Bridges **[1, 2006.01, 2020.01]**
3/046 • Mutes; Mute holders **[2020.01]**
3/053 • Capos, i.e. capo tastos **[2020.01]**
3/06 • Necks; Fingerboards, e.g. fret boards **[1, 2006.01, 2020.01]**
3/08 • • Fingerboards in the form of keyboards **[1, 2006.01, 2020.01]**
3/09 • • • for zithers **[2020.01]**
3/095 • • Details of removable or collapsible necks, e.g. suitable for transport or storage **[2020.01]**
3/10 • Strings **[1, 2006.01]**
3/12 • Anchoring devices for strings, e.g. tail pieces or hitchpins **[1, 2006.01, 2020.01]**
3/13 • • Tail pieces **[2020.01]**
3/14 • Tuning devices, e.g. pegs, pins, friction discs or worm gears **[1, 2006.01, 2020.01]**
3/147 • • Devices for altering the string tension during playing **[2020.01]**
3/153 • • • Tremolo devices **[2020.01]**
3/16 • Bows; Guides for bows; Plectra or similar playing means **[1, 2006.01, 2020.01]**
3/166 • • Guides for bows **[2020.01]**
3/173 • • Plectra or similar accessories for playing; Plectrum holders **[2020.01]**
3/18 • Chin-rests, hand-rests, shoulder rests or guards being removable from, or integral with the instrument **[1, 2006.01, 2020.01]**
3/20 • Winding tools separate from the musical instruments, e.g. tuning keys **[2020.01]**
3/22 • Material for manufacturing stringed musical instruments; Treatment of the material **[2020.01]**

7/00 General design of wind musical instruments (accordions or concertinas G10D 11/00; whistles G10K 5/00) **[1, 2006.01]**
7/02 • of the type wherein an air current is directed against a ramp edge **[1, 2006.01, 2020.01]**
7/026 • • with air currents blown into an opening arranged on the cylindrical surface of the tube, e.g. transverse flutes, piccolos or fifes **[2020.01]**
7/03 • • with a windway for leading the air to the labium, e.g. recorders **[2020.01]**
7/04 • • with Helmholtz resonators, e.g. ocarinas **[1, 2006.01, 2020.01]**
7/06 • Beating-reed wind instruments, e.g. single or double reed wind instruments **[1, 2006.01, 2020.01]**
7/063 • • Oboes; Bassoons; Bagpipes **[2020.01]**
7/066 • • Clarinets **[2020.01]**
7/08 • • Saxophones **[1, 2006.01]**
7/10 • Lip-reed wind instruments, i.e. using the vibration of the musician's lips, e.g. cornets, trumpets, trombones or French horns **[1, 2006.01]**
7/12 • Free-reed wind instruments **[1, 2006.01, 2020.01]**
7/14 • • Mouth-organs **[2020.01]**
7/16 • • • with keyboards **[2020.01]**

9/00 Details of, or accessories for, wind musical instruments (accordions or concertinas G10D 11/00) **[1, 2006.01, 2020.01]**
9/01 • Tuning devices **[2020.01]**
9/02 • Mouthpieces; Reeds; Ligatures **[1, 2006.01, 2020.01]**
9/025 • • Movable mouthpieces **[2020.01]**
9/03 • • Cupped mouthpieces **[2020.01]**
9/035 • • Reeds **[2020.01]**
9/04 • Valves; Valve controls **[1, 2006.01, 2020.01]**
9/047 • • for wood wind instruments **[2020.01]**
9/053 • • with continuous change of tonal pitch **[2020.01]**
9/06 • Mutes **[1, 2006.01]**
9/08 • Material for manufacturing wind musical instruments; Treatment of the material **[2020.01]**
9/10 • Resonating bodies, e.g. tubes **[2020.01]**
9/11 • • Bells **[2020.01]**

11/00 Accordions, concertinas or the like; Keyboards therefor [1, 2006.01]
11/02 • Actions **[1, 2006.01]**

13/00 Percussion musical instruments; Details or accessories therefor (struck string instruments G10D 1/14) **[1, 2006.01, 2020.01]**
13/01 • General design of percussion musical instruments **[2020.01]**
13/02 • • Drums; Tambourines with drumheads **[1, 2006.01, 2020.01]**
13/03 • • Practice drumkits or pads **[2020.01]**
13/04 • • Timpani **[1, 2006.01]**
13/06 • • Castanets, cymbals, triangles, tambourines without drumheads or other single-toned percussion musical instruments **[1, 2006.01, 2020.01]**
13/063 • • • Cymbals **[2020.01]**
13/065 • • • • Hi-hats **[2020.01]**
13/08 • • Multi-toned musical instruments with sonorous bars, blocks, forks, gongs, plates, rods or teeth **[1, 2006.01, 2020.01]**
13/09 • • • with keyboards **[2020.01]**
13/10 • Details of, or accessories for, percussion musical instruments **[2020.01]**
13/11 • • Pedals; Pedal mechanisms **[2020.01]**
13/12 • • Drumsticks; Mallets (pedals for beaters G10D 13/11) **[2020.01]**
13/14 • • Mutes or dampers **[2020.01]**
13/16 • • Tuning devices; Hoops; Lugs **[2020.01]**
13/18 • • Snares; Snare-strainers **[2020.01]**
13/20 • • Drumheads **[2020.01]**
13/22 • • Shells **[2020.01]**
13/24 • • Material for manufacturing percussion musical instruments; Treatment of the material **[2020.01]**

15/00 Combinations of different musical instruments [1, 2006.01]

17/00 Aeolian harps; Singing-flame musical instruments [1, 2006.01, 2020.01]

99/00 Musical instruments not otherwise provided for [2020.01]

G10D

G10F **AUTOMATIC MUSICAL INSTRUMENTS** (non-musical aspects of musical toy instruments A63H 5/00; arrangements for the associated working of recording or reproducing apparatus with automatic musical instruments G11B 31/02)

Note(s)

This subclass does not cover aspects of musical instruments which are independent of the automatic actuation, which are covered by subclass G10B, G10C or G10D.

1/00 **Automatic musical instruments [1, 2006.01]**
1/02 • Pianofortes with keyboard **[1, 2006.01]**
1/04 • Pianofortes which have no keyboard **[1, 2006.01]**
1/06 • Musical boxes with plucked teeth, blades, or the like (combinations with other articles, see the relevant classes for the articles) **[1, 2006.01]**
1/08 • Percussion instruments **[1, 2006.01]**
1/10 • • Carillons **[1, 2006.01]**
1/12 • Wind instruments **[1, 2006.01]**
1/14 • • Barrel-organs **[1, 2006.01]**
1/16 • Stringed instruments other than pianofortes **[1, 2006.01]**
1/18 • • to be played by a bow **[1, 2006.01]**
1/20 • • to be plucked **[1, 2006.01]**
1/22 • Combinations of two or more instruments **[1, 2006.01]**

3/00 **Independent players for keyboard instruments [1, 2006.01]**

5/00 **Details or accessories [1, 2006.01]**
5/02 • Actions **[1, 2006.01]**
5/04 • Tune barrels, sheets, rollers, spools, or the like **[1, 2006.01]**
5/06 • • Driving or setting of tune barrels, discs, or the like; Winding, rewinding, or guiding of tune sheets or the like **[1, 2006.01]**

G10G **REPRESENTATION OF MUSIC; RECORDING MUSIC IN NOTATION FORM; ACCESSORIES FOR MUSIC OR MUSICAL INSTRUMENTS NOT OTHERWISE PROVIDED FOR, e.g. SUPPORTS** (music stands A47B; non-musical aspects of musical toy instruments A63H 5/00; metronomes G04F 5/02; teaching music G09B 15/00)

1/00 **Means for the representation of music [1, 2006.01]**
1/02 • Chord or note indicators, fixed or adjustable, for keyboards or fingerboards **[1, 2006.01]**
1/04 • Transposing; Transcribing **[1, 2006.01]**

3/00 **Recording music in notation form, e.g. recording the mechanical operation of a musical instrument [1, 2006.01]**
3/02 • using mechanical means only **[1, 2006.01]**
3/04 • using electrical means **[1, 2006.01]**

5/00 **Supports for musical instruments [1, 2006.01]**

7/00 **Other auxiliary devices or accessories, e.g. conductors' batons or separate holders for resin or strings [1, 2006.01]**
7/02 • Tuning forks or like devices **[1, 2006.01]**

G10H **ELECTROPHONIC MUSICAL INSTRUMENTS; INSTRUMENTS IN WHICH THE TONES ARE GENERATED BY ELECTROMECHANICAL MEANS OR ELECTRONIC GENERATORS, OR IN WHICH THE TONES ARE SYNTHESISED FROM A DATA STORE**

Note(s)

This subclass covers musical instruments in which individual notes are constituted as electric oscillations under the control of a performer and the oscillations are converted to sound-vibrations by a loudspeaker or equivalent device.

1/00 **Details of electrophonic musical instruments** (keyboards applicable also to other musical instruments G10B, G10C; arrangements for producing a reverberation or echo sound G10K 15/08) **[1, 5, 2006.01]**
1/02 • Means for controlling the tone frequencies, e.g. attack or decay; Means for producing special musical effects, e.g. vibratos or glissandos **[1, 2006.01]**
1/04 • • by additional modulation **[1, 2006.01]**
1/043 • • • Continuous modulation **[3, 2006.01]**
1/045 • • • • by electromechanical means **[3, 2006.01]**
1/047 • • • • by acousto-mechanical means, e.g. rotating speakers or sound deflectors **[3, 2006.01]**
1/053 • • • during execution only **[3, 2006.01]**
1/055 • • • • by switches with variable impedance elements **[3, 2006.01]**
1/057 • • • • by envelope-forming circuits **[3, 2006.01]**
1/06 • • Circuits for establishing the harmonic content of tones **[1, 2006.01]**
1/08 • • • by combining tones (G10H 1/14, G10H 1/16 take precedence; chord G10H 1/38; speech analysis or synthesis, G10L) **[3, 2006.01]**
1/10 • • • • for obtaining chorus, celeste or ensemble effects (continuous modulation G10H 1/043) **[3, 2006.01]**
1/12 • • • by filtering complex waveforms (G10H 1/14, G10H 1/16 take precedence) **[3, 2006.01]**
1/14 • • • during execution (modulation during execution G10H 1/053) **[3, 2006.01]**
1/16 • • • by non-linear elements (G10H 1/14 takes precedence; generation of non-sinusoidal basic tones G10H 5/10) **[3, 2006.01]**
1/18 • Selecting circuits **[3, 2006.01]**
1/20 • • for transposition **[3, 2006.01]**

1/22 • • for suppressing tones; Preference networks **[3, 2006.01]**
1/24 • • for selecting plural preset register stops **[3, 2006.01]**
1/26 • • for automatically producing a series of tones **[3, 2006.01]**
1/28 • • • to produce arpeggios **[3, 2006.01]**
1/30 • • • to reiteratively sound two tones **[3, 2006.01]**
1/32 • Constructional details **[3, 2006.01]**
1/34 • • Switch arrangements, e.g. keyboards or mechanical switches peculiar to electrophonic musical instruments (keyboards applicable also to other musical instruments G10B, G10C) **[3, 2006.01]**
1/36 • Accompaniment arrangements **[3, 2006.01]**
1/38 • • Chord **[3, 2006.01]**
1/40 • • Rhythm (metronomes G04F 5/02) **[3, 2006.01]**
1/42 • • • comprising tone forming circuits **[3, 2006.01]**
1/44 • Tuning means **[3, 2006.01]**
1/46 • Volume control **[3, 2006.01]**

3/00 Instruments in which the tones are generated by electromechanical means [1, 2006.01]

3/02 • using mechanical interrupters **[1, 2006.01]**
3/03 • using pick-up means for reading recorded waves, e.g. on rotating discs **[3, 2006.01]**
3/06 • • using photoelectric pick-up means **[1, 2006.01]**
3/08 • • using inductive pick-up means **[1, 2006.01]**
3/09 • • • using tapes or wires **[3, 2006.01]**
3/10 • • using capacitive pick-up means **[1, 2006.01]**
3/12 • using mechanical resonant generators, e.g. strings or percussion instruments, the tones of which are picked up by electromechanical transducers, the electrical signals being further manipulated or amplified and subsequently converted to sound by a loudspeaker or equivalent device **[3, 2006.01]**
3/14 • • using mechanically actuated vibrators with pick-up means (G10H 3/24 takes precedence) **[3, 2006.01]**
3/16 • • • using a reed **[3, 2006.01]**
3/18 • • • using strings, e.g. electric guitars **[3, 2006.01]**
3/20 • • • using a tuning fork, rod or tube **[3, 2006.01]**
3/22 • • using electromechanically actuated vibrators with pick-up means (G10H 3/24 takes precedence) **[3, 2006.01]**
3/24 • • incorporating feedback means, e.g. acoustic **[3, 2006.01]**
3/26 • • • using electric feedback **[3, 2006.01]**

5/00 Instruments in which the tones are generated by means of electronic generators (G10H 7/00 takes precedence) **[1, 3, 2006.01]**

5/02 • using generation of basic tones **[1, 2006.01]**
5/04 • • with semiconductor devices as active elements (G10H 5/10, G10H 5/12 take precedence) **[1, 2006.01]**
5/06 • • tones generated by frequency multiplication or division of a basic tone **[1, 2006.01]**
5/07 • • • resulting in complex waveforms **[3, 2006.01]**
5/08 • • tones generated by heterodyning **[1, 2006.01]**
5/10 • using generation of non-sinusoidal basic tones, e.g. sawtooth **[1, 2006.01]**
5/12 • • using semiconductor devices as active elements **[1, 2006.01]**
5/14 • using electromechanical resonators, e.g. quartz crystals, as frequency-determining elements **[3, 2006.01]**
5/16 • using cathode ray tubes **[3, 2006.01]**

7/00 Instruments in which the tones are synthesised from a data store, e.g. computer organs (synthesis of acoustic waves not specific to musical instruments G10K 15/02, G10L) **[3, 5, 2006.01]**

7/02 • in which amplitudes at successive sample points of a tone waveform are stored in one or more memories **[5, 2006.01]**
7/04 • • in which amplitudes are read at varying rates, e.g. according to pitch **[5, 2006.01]**
7/06 • • in which amplitudes are read at a fixed rate, the read-out address varying stepwise by a given value, e.g. according to pitch **[5, 2006.01]**
7/08 • by calculating functions or polynomial approximations to evaluate amplitudes at successive sample points of a tone waveform **[5, 2006.01]**
7/10 • • using coefficients or parameters stored in a memory, e.g. Fourier coefficients (G10H 7/12 takes precedence) **[5, 2006.01]**
7/12 • • by means of a recursive algorithm using one or more sets of parameters stored in a memory and the calculated amplitudes of one or more preceding sample points **[5, 2006.01]**

G10K SOUND-PRODUCING DEVICES (sound-producing toys A63H 5/00); METHODS OR DEVICES FOR PROTECTING AGAINST, OR FOR DAMPING, NOISE OR OTHER ACOUSTIC WAVES IN GENERAL; ACOUSTICS NOT OTHERWISE PROVIDED FOR [6]

Note(s) [6]

1. This subclass covers arrangements for generating mechanical vibrations in fluids.
2. This subclass covers also the production of sounds which may not be audible to human beings but which are audible to animals.
3. In this subclass, the following terms are used with the meanings indicated:
   - "acoustics" and "sound" cover the technical field dealing with mechanical vibrations at all infrasonic-, sonic- and ultrasonic frequencies. However, generation or transmission of mechanical waves, in general, is covered by subclass B06B, subject to the exception specified in Note (1) above.

1/00 Devices in which sound is produced by striking a resonating body, e.g. bells, chimes or gongs (combinations with clocks or watches G04B, G04C; multi-toned musical instruments G10D 13/08; automatic carillons G10F 1/10) **[1, 2006.01]**

1/06 • the resonating device having the shape of a bell, plate, rod, or tube (bells for towers G10K 1/28) **[1, 2006.01]**
1/062 • • electrically operated **[1, 2006.01]**
1/063 • • • the sounding member being a bell **[1, 2006.01]**

1/064 • • • • Operating or striking mechanisms therefor **[1, 2006.01]**
1/065 • • • • • for timed or repeated operation **[1, 2006.01]**
1/066 • • • the sounding member being a tube, plate, or rod **[1, 2006.01]**
1/067 • • • • Operating or striking mechanisms therefor **[1, 2006.01]**
1/068 • • hydraulically operated; pneumatically operated **[1, 2006.01]**
1/07 • • mechanically operated; Hand bells; Bells for animals **[1, 2006.01]**
1/071 • • • Hand bells; Bells for animals **[1, 2006.01]**
1/072 • • • Operating or striking mechanisms therefor **[1, 2006.01]**
1/074 • • • • with rotary clappers or shells **[1, 2006.01]**
1/076 • • • • for timed or repeated operation **[1, 2006.01]**
1/08 • • Details or accessories of general applicability **[1, 2006.01]**
1/10 • • • Sounding members; Mounting thereof; Clappers or other strikers **[1, 2006.01]**
1/26 • • • Mountings; Casings **[1, 2006.01]**
1/28 • Bells for towers or the like **[1, 2006.01]**
1/30 • • Details or accessories **[1, 2006.01]**
1/32 • • • Sounding members; Clappers or other strikers **[1, 2006.01]**
1/34 • • • Operating mechanisms **[1, 2006.01]**
1/36 • • • Means for silencing or damping (means or arrangements for avoiding or reducing out-of-balance forces due to motion F16F 15/00) **[1, 2006.01]**
1/38 • • • Supports; Mountings **[1, 2006.01]**

3/00 Rattles or like noise-producing devices [1, 2006.01]

5/00 Whistles [1, 2006.01]
5/02 • Ultrasonic whistles **[3, 2006.01]**

7/00 Sirens [1, 2006.01]
7/02 • in which the sound-producing member is rotated manually or by a motor (G10K 7/06 takes precedence) **[1, 2006.01]**
7/04 • • by an electric motor **[1, 2006.01]**
7/06 • in which the sound-producing member is driven by a fluid, e.g. by a compressed gas **[1, 2006.01]**

9/00 Devices in which sound is produced by vibrating a diaphragm or analogous element, e.g. fog horns, vehicle hooters or buzzers (loudspeakers or like acoustic electromechanical transducers H04R) **[1, 2006.01]**
9/02 • driven by gas, e.g. suction operated **[1, 2006.01]**
9/04 • • by compressed gases, e.g. compressed air **[1, 2006.01]**
9/06 • • produced by detonation **[1, 2006.01]**
9/08 • driven by water or other liquids **[1, 2006.01]**
9/10 • driven by mechanical means only **[1, 2006.01]**
9/12 • electrically operated **[1, 2006.01]**

Note(s) [6]

This group does not cover the construction of, or circuits for, broadband-transducers such as loudspeakers or microphones, which are covered by subclass H04R.

9/122 • • using piezo-electric driving means **[6, 2006.01]**
9/125 • • • with a plurality of active elements **[6, 2006.01]**
9/128 • • using magnetostrictive driving means **[6, 2006.01]**
9/13 • • using electromagnetic driving means **[3, 2006.01]**
9/15 • • • Self-interrupting arrangements **[3, 2006.01]**
9/16 • • with means for generating the current by muscle power **[1, 2006.01]**
9/18 • Details, e.g. bulbs, pumps, pistons, switches or casings **[1, 2006.01]**
9/20 • • Sounding members **[1, 2006.01]**
9/22 • • Mountings; Casings **[1, 2006.01]**

11/00 Methods or devices for transmitting, conducting or directing sound in general; Methods or devices for protecting against, or for damping, noise or other acoustic waves in general [1, 2006.01]
11/02 • Mechanical acoustic impedances; Impedance matching, e.g. by horns; Acoustic resonators **[1, 3, 2006.01]**
11/04 • • Acoustic filters **[1, 3, 2006.01]**
11/08 • Non-electric sound-amplifying devices, e.g. non-electric megaphones (amplifying by horns G10K 11/02; amplifying by focusing G10K 11/26) **[1, 2006.01]**
11/16 • Methods or devices for protecting against, or for damping, noise or other acoustic waves in general (G10K 11/36 takes precedence) **[3, 2006.01]**
11/162 • • Selection of materials **[6, 2006.01]**
11/165 • • • Particles in a matrix **[6, 2006.01]**
11/168 • • • Plural layers of different materials, e.g. sandwiches **[6, 2006.01]**

Note(s) [6]

When classifying in this group, classification is also made in subclass B32B, insofar as any layered product is concerned.

11/172 • • using resonance effects **[6, 2006.01]**
11/175 • • using interference effects; Masking sound **[6, 2006.01]**
11/178 • • • by electro-acoustically regenerating the original acoustic waves in anti-phase **[6, 2006.01]**
11/18 • Methods or devices for transmitting, conducting or directing sound (G10K 11/02, G10K 11/36 take precedence; medical stethoscopes A61B 7/02) **[3, 2006.01]**
11/20 • • Reflecting arrangements (G10K 11/28 takes precedence) **[3, 2006.01]**
11/22 • • for conducting sound through hollow pipes, e.g. speaking tubes **[3, 2006.01]**
11/24 • • for conducting sound through solid bodies, e.g. wires **[3, 2006.01]**
11/26 • • Sound-focusing or directing, e.g. scanning **[3, 2006.01]**
11/28 • • • using reflection, e.g. parabolic reflectors **[3, 2006.01]**
11/30 • • • using refraction, e.g. acoustic lenses **[3, 2006.01]**
11/32 • • • characterised by shape of the source **[3, 2006.01]**
11/34 • • • using electrical steering of transducer arrays, e.g. beam steering **[3, 2006.01]**
11/35 • • • using mechanical steering of transducers **[6, 2006.01]**
11/36 • Devices for manipulating acoustic surface waves (electro-acoustic amplifiers H03F 13/00; networks comprising electro-acoustic elements H03H 9/00) **[3, 2006.01]**

13/00 Cones, diaphragms, or the like, for emitting or receiving sound in general (for electromechanical transducers H04R 7/00) **[1, 2006.01]**

15/00 Acoustics not otherwise provided for [4, 2006.01]
15/02 • Synthesis of acoustic waves (synthesis of speech G10L 13/00) **[4, 2006.01]**
15/04 • Sound-producing devices (G10K 15/02 takes precedence) **[4, 2006.01]**
15/06 • • using electric discharge **[4, 2006.01]**
15/08 • Arrangements for producing a reverberation or echo sound **[5, 2006.01]**
15/10 • • using time-delay networks comprising electromechanical or electro-acoustic devices **[5, 2006.01]**
15/12 • • using electronic time-delay networks **[5, 2006.01]**

G10L SPEECH ANALYSIS OR SYNTHESIS; SPEECH RECOGNITION; SPEECH OR VOICE PROCESSING; SPEECH OR AUDIO CODING OR DECODING [4]

Note(s) [2010.01]

This subclass does not cover :
- devices for the storage of speech or audio signals, which are covered by subclasses G11B and G11C;
- encoding of compressed speech signals for transmission or storage, which is covered by group H03M 7/30.

13/00 Speech synthesis; Text to speech systems [7, 2006.01]
13/02 • Methods for producing synthetic speech; Speech synthesisers **[7, 2006.01, 2013.01]**
13/027 • • Concept to speech synthesisers; Generation of natural phrases from machine-based concepts (generation of parameters for speech synthesis out of text G10L 13/08) **[2013.01]**
13/033 • • Voice editing, e.g. manipulating the voice of the synthesiser **[2013.01]**
13/04 • • Details of speech synthesis systems, e.g. synthesiser structure or memory management **[7, 2006.01, 2013.01]**
13/047 • • • Architecture of speech synthesisers **[2013.01]**
13/06 • Elementary speech units used in speech synthesisers; Concatenation rules **[7, 2006.01, 2013.01]**
13/07 • • Concatenation rules **[2013.01]**
13/08 • Text analysis or generation of parameters for speech synthesis out of text, e.g. grapheme to phoneme translation, prosody generation or stress or intonation determination **[7, 2006.01, 2013.01]**
13/10 • • Prosody rules derived from text; Stress or intonation **[2013.01]**

15/00 Speech recognition (G10L 17/00 takes precedence) **[7, 2006.01, 2013.01]**
15/01 • Assessment or evaluation of speech recognition systems **[2013.01]**
15/02 • Feature extraction for speech recognition; Selection of recognition unit **[7, 2006.01]**
15/04 • Segmentation; Word boundary detection **[7, 2006.01, 2013.01]**
15/05 • • Word boundary detection **[2013.01]**
15/06 • Creation of reference templates; Training of speech recognition systems, e.g. adaptation to the characteristics of the speaker's voice (G10L 15/14 takes precedence) **[7, 2006.01, 2013.01]**
15/065 • • Adaptation **[2013.01]**
15/07 • • • to the speaker **[2013.01]**
15/08 • Speech classification or search **[7, 2006.01]**
15/10 • • using distance or distortion measures between unknown speech and reference templates **[7, 2006.01]**
15/12 • • using dynamic programming techniques, e.g. dynamic time warping [DTW] **[7, 2006.01]**
15/14 • • using statistical models, e.g. Hidden Markov Models [HMM] (G10L 15/18 takes precedence) **[7, 2006.01]**
15/16 • • using artificial neural networks **[7, 2006.01]**
15/18 • • using natural language modelling **[7, 2006.01, 2013.01]**
15/183 • • • using context dependencies, e.g. language models **[2013.01]**
15/187 • • • • Phonemic context, e.g. pronunciation rules, phonotactical constraints or phoneme n-grams **[2013.01]**
15/19 • • • • Grammatical context, e.g. disambiguation of recognition hypotheses based on word sequence rules **[2013.01]**
15/193 • • • • • Formal grammars, e.g. finite state automata, context free grammars or word networks **[2013.01]**
15/197 • • • • • Probabilistic grammars, e.g. word n-grams **[2013.01]**
15/20 • Speech recognition techniques specially adapted for robustness in adverse environments, e.g. in noise or of stress induced speech (G10L 21/02 takes precedence) **[7, 2006.01]**
15/22 • Procedures used during a speech recognition process, e.g. man-machine dialog **[7, 2006.01]**
15/24 • Speech recognition using non-acoustical features **[7, 2006.01, 2013.01]**
15/25 • • using position of the lips, movement of the lips or face analysis **[2013.01]**
15/26 • Speech to text systems (G10L 15/08 takes precedence) **[7, 2006.01]**
15/28 • Constructional details of speech recognition systems **[7, 2006.01, 2013.01]**
15/30 • • Distributed recognition, e.g. in client-server systems, for mobile phones or network applications **[2013.01]**
15/32 • • Multiple recognisers used in sequence or in parallel; Score combination systems therefor, e.g. voting systems **[2013.01]**
15/34 • • Adaptation of a single recogniser for parallel processing, e.g. by use of multiple processors or cloud computing **[2013.01]**

17/00 Speaker identification or verification [7, 2006.01, 2013.01]
17/02 • Preprocessing operations, e.g. segment selection; Pattern representation or modelling, e.g. based on linear discriminant analysis [LDA] or principal components; Feature selection or extraction **[2013.01]**
17/04 • Training, enrolment or model building **[2013.01]**
17/06 • Decision making techniques; Pattern matching strategies **[2013.01]**

17/08 • • Use of distortion metrics or a particular distance between probe pattern and reference templates **[2013.01]**

17/10 • • Multimodal systems, i.e. based on the integration of multiple recognition engines or fusion of expert systems **[2013.01]**

17/12 • • Score normalisation **[2013.01]**

17/14 • • Use of phonemic categorisation or speech recognition prior to speaker recognition or verification **[2013.01]**

17/16 • Hidden Markov models [HMMs] **[2013.01]**

17/18 • Artificial neural networks; Connectionist approaches **[2013.01]**

17/20 • Pattern transformations or operations aimed at increasing system robustness, e.g. against channel noise or different working conditions **[2013.01]**

17/22 • Interactive procedures; Man-machine interfaces **[2013.01]**

17/24 • • the user being prompted to utter a password or a predefined phrase **[2013.01]**

17/26 • Recognition of special voice characteristics, e.g. for use in lie detectors; Recognition of animal voices **[2013.01]**

19/00 Speech or audio signal analysis-synthesis techniques for redundancy reduction, e.g. in vocoders; Coding or decoding of speech or audio signals, using source filter models or psychoacoustic analysis (in musical instruments G10H) **[7, 2006.01, 2013.01]**

19/002 • Dynamic bit allocation (for perceptual audio coders G10L 19/032) **[2013.01]**

19/005 • Correction of errors induced by the transmission channel, if related to the coding algorithm **[2013.01]**

19/008 • Multichannel audio signal coding or decoding using interchannel correlation to reduce redundancy, e.g. joint-stereo, intensity-coding or matrixing **[2013.01]**

19/012 • Comfort noise or silence coding **[2013.01]**

19/018 • Audio watermarking, i.e. embedding inaudible data in the audio signal **[2013.01]**

19/02 • using spectral analysis, e.g. transform vocoders or subband vocoders **[7, 2006.01, 2013.01]**

19/022 • • Blocking, i.e. grouping of samples in time; Choice of analysis windows; Overlap factoring **[2013.01]**

19/025 • • • Detection of transients or attacks for time/frequency resolution switching **[2013.01]**

19/028 • • Noise substitution, e.g. substituting non-tonal spectral components by noisy source (comfort noise for discontinuous speech transmission G10L 19/012) **[2013.01]**

19/03 • • Spectral prediction for preventing pre-echo; Temporary noise shaping [TNS], e.g. in MPEG2 or MPEG4 **[2013.01]**

19/032 • • Quantisation or dequantisation of spectral components **[2013.01]**

19/035 • • • Scalar quantisation **[2013.01]**

19/038 • • • Vector quantisation, e.g. TwinVQ audio **[2013.01]**

19/04 • using predictive techniques **[7, 2006.01, 2013.01]**

19/06 • • Determination or coding of the spectral characteristics, e.g. of the short-term prediction coefficients **[7, 2006.01, 2013.01]**

19/07 • • • Line spectrum pair [LSP] vocoders **[2013.01]**

19/08 • • Determination or coding of the excitation function; Determination or coding of the long-term prediction parameters **[7, 2006.01, 2013.01]**

19/083 • • • the excitation function being an excitation gain (G10L 25/90 takes precedence) **[2013.01]**

19/087 • • • using mixed excitation models, e.g. MELP, MBE, split band LPC or HVXC **[2013.01]**

19/09 • • • Long term prediction, i.e. removing periodical redundancies, e.g. by using adaptive codebook or pitch predictor **[2013.01]**

19/093 • • • using sinusoidal excitation models **[2013.01]**

19/097 • • • using prototype waveform decomposition or prototype waveform interpolative [PWI] coders **[2013.01]**

19/10 • • • the excitation function being a multipulse excitation **[7, 2006.01, 2013.01]**

19/107 • • • • Sparse pulse excitation, e.g. by using algebraic codebook **[2013.01]**

19/113 • • • • Regular pulse excitation **[2013.01]**

19/12 • • • the excitation function being a code excitation, e.g. in code excited linear prediction [CELP] vocoders **[7, 2006.01, 2013.01]**

19/125 • • • • Pitch excitation, e.g. pitch synchronous innovation CELP [PSI-CELP] **[2013.01]**

19/13 • • • • Residual excited linear prediction [RELP] **[2013.01]**

19/135 • • • • Vector sum excited linear prediction [VSELP] **[2013.01]**

19/16 • • Vocoder architecture **[2013.01]**

19/18 • • • Vocoders using multiple modes **[2013.01]**

19/20 • • • • using sound class specific coding, hybrid encoders or object based coding **[2013.01]**

19/22 • • • • Mode decision, i.e. based on audio signal content versus external parameters **[2013.01]**

19/24 • • • • Variable rate codecs, e.g. for generating different qualities using a scalable representation such as hierarchical encoding or layered encoding **[2013.01]**

19/26 • • Pre-filtering or post-filtering **[2013.01]**

21/00 Processing of the speech or voice signal to produce another audible or non-audible signal, e.g. visual or tactile, in order to modify its quality or its intelligibility (G10L 19/00 takes precedence) **[7, 2006.01, 2013.01]**

21/003 • Changing voice quality, e.g. pitch or formants **[2013.01]**

21/007 • • characterised by the process used **[2013.01]**

21/01 • • • Correction of time axis **[2013.01]**

21/013 • • • Adapting to target pitch **[2013.01]**

21/02 • Speech enhancement, e.g. noise reduction or echo cancellation (reducing echo effects in line transmission systems H04B 3/20; echo suppression in hands-free telephones H04M 9/08) **[7, 2006.01, 2013.01]**

21/0208 • • Noise filtering **[2013.01]**

21/0216 • • • characterised by the method used for estimating noise **[2013.01]**

21/0224 • • • • Processing in the time domain **[2013.01]**

21/0232 • • • • Processing in the frequency domain **[2013.01]**

21/0264 • • • characterised by the type of parameter measurement, e.g. correlation techniques, zero crossing techniques or predictive techniques **[2013.01]**

21/0272 • • Voice signal separating **[2013.01]**

21/028 • • • using properties of sound source **[2013.01]**

21/0308 • • • characterised by the type of parameter measurement, e.g. correlation techniques, zero crossing techniques or predictive techniques **[2013.01]**

21/0316 • • by changing the amplitude **[2013.01]**

21/0324 • • • Details of processing therefor **[2013.01]**
21/0332 • • • • involving modification of waveforms **[2013.01]**
21/034 • • • • Automatic adjustment **[2013.01]**
21/0356 • • • for synchronising with other signals, e.g. video signals **[2013.01]**
21/0364 • • • for improving intelligibility **[2013.01]**
21/038 • • using band spreading techniques **[2013.01]**
21/0388 • • • Details of processing therefor **[2013.01]**
21/04 • Time compression or expansion **[7, 2006.01, 2013.01]**
21/043 • • by changing speed **[2013.01]**
21/045 • • • using thinning out or insertion of a waveform **[2013.01]**
21/047 • • • • characterised by the type of waveform to be thinned out or inserted **[2013.01]**
21/049 • • • • characterised by the interconnection of waveforms **[2013.01]**
21/055 • • for synchronising with other signals, e.g. video signals **[2013.01]**
21/057 • • for improving intelligibility **[2013.01]**
21/06 • Transformation of speech into a non-audible representation, e.g. speech visualisation or speech processing for tactile aids (G10L 15/26 takes precedence) **[7, 2006.01, 2013.01]**
21/10 • • Transforming into visible information **[2013.01]**
21/12 • • • by displaying time domain information **[2013.01]**
21/14 • • • by displaying frequency domain information **[2013.01]**
21/16 • • Transforming into a non-visible representation (devices or methods enabling ear patients to replace direct auditory perception by another kind of perception A61F 11/04) **[2013.01]**
21/18 • • Details of the transformation process **[2013.01]**

25/00 Speech or voice analysis techniques not restricted to a single one of groups G10L 15/00-G10L 21/00 (muting semiconductor-based amplifiers when some special characteristics of a signal are sensed by a speech detector, e.g. sensing when no signal is present, H03G 3/34) **[2013.01]**

25/03 • characterised by the type of extracted parameters **[2013.01]**
25/06 • • the extracted parameters being correlation coefficients **[2013.01]**
25/09 • • the extracted parameters being zero crossing rates **[2013.01]**
25/12 • • the extracted parameters being prediction coefficients **[2013.01]**
25/15 • • the extracted parameters being formant information **[2013.01]**
25/18 • • the extracted parameters being spectral information of each sub-band **[2013.01]**
25/21 • • the extracted parameters being power information **[2013.01]**
25/24 • • the extracted parameters being the cepstrum **[2013.01]**
25/27 • characterised by the analysis technique **[2013.01]**
25/30 • • using neural networks **[2013.01]**
25/33 • • using fuzzy logic **[2013.01]**
25/36 • • using chaos theory **[2013.01]**
25/39 • • using genetic algorithms **[2013.01]**
25/45 • characterised by the type of analysis window **[2013.01]**
25/48 • specially adapted for particular use **[2013.01]**
25/51 • • for comparison or discrimination **[2013.01]**
25/54 • • • for retrieval **[2013.01]**
25/57 • • • for processing of video signals **[2013.01]**
25/60 • • • for measuring the quality of voice signals **[2013.01]**
25/63 • • • for estimating an emotional state **[2013.01]**
25/66 • • • for extracting parameters related to health condition (detecting or measuring for diagnostic purposes A61B 5/00) **[2013.01]**
25/69 • • for evaluating synthetic or decoded voice signals **[2013.01]**
25/72 • • for transmitting results of analysis **[2013.01]**
25/75 • for modelling vocal tract parameters **[2013.01]**
25/78 • Detection of presence or absence of voice signals (switching of direction of transmission by voice frequency in two-way loud-speaking telephone systems H04M 9/10) **[2013.01]**
25/81 • • for discriminating voice from music **[2013.01]**
25/84 • • for discriminating voice from noise **[2013.01]**
25/87 • • Detection of discrete points within a voice signal **[2013.01]**
25/90 • Pitch determination of speech signals **[2013.01]**
25/93 • Discriminating between voiced and unvoiced parts of speech signals (G10L 25/90 takes precedence) **[2013.01]**

99/00 Subject matter not provided for in other groups of this subclass [2013.01]