G10K

COOPERATIVE PATENT CLASSIFICATION

G PHYSICS

(NOTES omitted)

INSTRUMENTS

G10 MUSICAL INSTRUMENTS; ACOUSTICS

(NOTES omitted)

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

NOTES

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.

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

1/00 Devices in which sound is produced by striking a resonating body, e.g. bells, chimes, gong (combinations with clocks or watches G04B, G04C; carillons G10F 1/10; [for percussion instruments G10D 13/00])

1/06 . . . the resonating devices having the shape of a bell, plate, rod, or tube (bells for towers G10K 1/28)

1/062 . . . electrically operated ([self-interrupting relays H01H 51/34])

1/063 . . . the sounding member being a bell

1/064 . . . Operating or striking mechanisms therefor

1/0645 . . . . . (provided with loudness adjustment)

1/065 . . . . . . . for timed or repeated operation ([alarm-clocks G04C 21/00])

1/066 . . . . . . . the sounding member being a tube, plate or rod

1/067 . . . . . . Operating or striking mechanisms therefor

1/068 . . . . . hydraulicly operated; pneumatically operated

1/07 . . . . . mechanically operated; Hand bells; Bells for animals

1/071 . . . . . Hand bells; Bells for animals

1/072 . . . . . Operating or striking mechanisms therefor

1/074 . . . . . . with rotary clappers or shells

1/076 . . . . . . . for timed or repeated operation ([alarm-clocks G04B 23/00])

1/08 . . . Details or accessories of general applicability

1/10 . . . Sounding members; Mounting thereof; Clappers or other strikers

1/26 . . . Mountings; Casings

1/28 . . . Bells for towers or the like

1/30 . . . Details or accessories

1/32 . . . Sounding members; Clappers or other strikers

1/34 . . . Operating mechanisms

1/341 . . . . . [for a still-standing bell]

1/342 . . . . . [electrically operated]

1/344 . . . . . [for an oscillating bell which is driven once per cycle]

1/345 . . . . . [electrically operated]

1/347 . . . . . [for an oscillating bell which is driven twice per cycle]

1/348 . . . . . [electrically operated]

1/36 . . . . Means for silencing or damping (means or arrangements for avoiding or reducing out-of-balance forces due to motion F16F 15/00)

1/38 . . . . . . . Supports; Mountings

3/00 Rattles or like noise-producing devices [ e.g. door-knockers]

5/00 Whistles

5/02 . . . Ultrasonic whistles

7/00 Sirens

7/005 . . . [Ultrasonic sirens]

7/02 . . . . in which the sound-producing member is rotated manually or by a motor (G10K 7/06 takes precedence [ ; musical tops A63H 1/28])

7/04 . . . . by an electric motor

7/06 . . . . in which the sound-producing member is driven by a fluid, e.g. by a compressed gas ([fluidically operated vibrators B06B 1/18])
9/00  Devices in which sound is produced by vibrating a diaphragm or analogous element, e.g. fog horns, vehicle hooter, buzzer (loudspeakers or like acoustic electromechanical transducers H04R { ; arrangement or adaptation for ships B63B 45/08; mechanically driven vibrators B06B 1/10})
9/02  . driven by gas; e.g. suction operated
9/04  . . by compressed gases, e.g. compressed air
9/06  . . produced by detonation
9/08  . driven by water or other liquids
9/10  . driven by mechanical means only
9/12  . electrically operated

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

9/121  . . (Flextensional transducers)
9/122  . . using piezo-electric driving means {(G10K 9/121 takes precedence)}
9/125  . . with a plurality of active elements
9/128  . . using magnetostrictive driving means {(G10K 9/121 takes precedence)}
9/13  . . using electromagnetic driving means

**NOTE**
see provisionally also G10K 9/12

9/15  . . Self-interrupting arrangements
9/16  . . with means for generating current by muscle power
9/18  . Details, e.g. bulbs, pumps, pistons, switch, casing {(cones, diaphragms G10K 13/00)}
9/20  . . Soundings members
9/22  . . Mountings; Casings

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

11/002  . {Devices for damping, suppressing, obstructing or conducting sound in acoustic devices (G10K 1/06 - G10K 1/10 take precedence; for electro-mechanical transducers for communication H04R 3/002)}

11/004  . {Mounting transducers, e.g. provided with mechanical moving or orienting device (mountings specially adapted to a particular sound-producing device, see the preceding groups G10K 1/00 - G10K 9/00, e.g. G10K 1/26; G10K 1/28; G10K 9/22; arrangements of sonic watch equipment on submarines B63G 8/39; buoys B63B 22/00)}

11/006  . . (Transducer mounting in underwater equipment, e.g. sonobuoys)
11/008  . . . {Arrays of transducers (seismic streamers, see G01V 1/20)}
11/02  . Mechanical acoustic impedances; Impedance matching, e.g. by horns; Acoustic resonators
11/025  . . (horns for impedance matching (see provisionally also G10K 11/28))
11/04  . . Acoustic filters { ; Acoustic resonators}

11/08  . Non-electric sound-amplifying devices, e.g. non-electric megaphones (amplifying by horns G10K 11/02; amplifying by focusing G10K 11/26)
11/16  . Methods or devices for protecting against, or for damping, noise or other acoustic waves in general (G10K 11/36 takes precedence)

**NOTE**
This group does not cover protecting against, or damping of, acoustic waves adapted for particular applications, which are covered by the subclasses for these applications, provided that there is a specific provision for this aspect.

11/161  . . (in systems with fluid flow (G10K 11/162 takes precedence; gas flow silencers or exhaust apparatus for machines or engines in general or for internal combustion engine F01N, noise absorbers in pipes or pipe systems F16L 55/02; noise absorption in air conditioning and ventilation F24F 13/24; silencing exhaust or propulsion jets in aircraft B64D 33/06))

11/162  . . Selection of materials
11/165  . . . Particles in a matrix
11/168  . . . Plural layers of different materials, e.g. sandwiches

**NOTE**
When classifying in this group, classification is also made in subclass B32B, in so far as any layered product is concerned.

11/172  . . using resonance effects
11/175  . . using interference effects; Masking sound
11/178  . . . by electro-acoustically regenerating the original acoustic waves in anti-phase

**NOTE**
{When classifying in any of the groups G10K 11/1781 - G10K 11/1786, classification is also made in at least one subgroup of G10K 11/1787.}

**WARNING**
Group G10K 11/178 is impacted by reclassification into groups G10K 11/1781 - G10K 11/1785.
All groups listed in this Warning should be considered in order to perform a complete search.
WARNING


All groups listed in this Warning should be considered in order to perform a complete search.

WARNING


All groups listed in this Warning should be considered in order to perform a complete search.

WARNING


All groups listed in this Warning should be considered in order to perform a complete search.

WARNING


All groups listed in this Warning should be considered in order to perform a complete search.

NOTE

[When classifying in this group, classification is also made in the other appropriate groups under G10K 11/178.]

Methods, e.g. algorithms; Devices (G10K 11/1781, G10K 11/1783 take precedence)

Methods or devices for transmitting, conducting, or directing sound (G10K 11/02, G10K 11/36 take precedence; medical stethoscopes A61B 7/02)

Reflecting arrangements (G10K 11/28 takes precedence)

(for underwater use)

for conducting sound through hollow pipes, e.g. speaking tubes

for conducting sound through solid bodies, e.g. wires
Details of active noise control [ANC] covered by G10K 11/178 but not provided for in any of its subgroups

2210/00
2210/10 . Applications
2210/101 . One dimensional
2210/102 . Two dimensional
2210/103 . Three dimensional
2210/104 . Airco

2210/105 . Appliances, e.g. washing machines or dishwashers
2210/1051 . . Camcorder
2210/1052 . . Copiers or other image-forming apparatus, e.g. laser printer
2210/1053 . . Hi-fi, i.e. anything involving music, radios or loudspeakers
2210/1054 . . Refrigerators
2210/106 . . Boxes, i.e. active box covering a noise source; Enclosures
2210/107 . . Combustion, e.g. burner noise control of jet engines (internal combustion engines G10K 2210/121)
2210/108 . . Communication systems, e.g. where useful sound is kept and noise is cancelled
2210/1081 . . Earphones, e.g. for telephones, ear protectors or headsets
2210/1082 . . Microphones, e.g. systems using “virtual” microphones
2210/109 . . Compressors, e.g. fans
2210/11 . . Computers, i.e. ANC of the noise created by cooling fan, hard drive or the like
2210/111 . . Directivity control or beam pattern
2210/112 . . Ducts (vehicle exhausts G10K 2210/12822)
2210/113 . . Elevators
2210/114 . . Feeders, i.e. of the vibrating kind
2210/115 . . Impact noise, e.g. from typewriter or printer
2210/116 . . Medical; Dental
2210/1161 . . . NMR or MRI
2210/117 . . . Nonlinear
2210/118 . . . Panels, e.g. active sound-absorption panels or noise barriers
2210/119 . . . Radiation control, e.g. control of sound radiated by vibrating structures
2210/12 . . . Rooms, e.g. ANC inside a room, office, concert hall or automobile cabin
2210/121 . . . Rotating machines, e.g. engines, turbines, motors; Periodic or quasi-periodic signals in general
2210/122 . . . Seismics
2210/123 . . . Synchrophasors or other applications where multiple noise sources are driven with a particular phase relationship
2210/124 . . . Traffic
2210/125 . . . Transformers
2210/126 . . . Transients
2210/127 . . . Underwater acoustics, e.g. for submarine
2210/128 . . . Vehicles
2210/1281 . . . Aircraft, e.g. spacecraft, airplane or helicopter
2210/1282 . . . Automobiles
2210/12821 . . . . Rolling noise; Wind and body noise
2210/12822 . . . . Exhaust pipes or mufflers
2210/1283 . . . . Trains, trams or the like
2210/129 . . . . Vibration, e.g. instead of, or in addition to, acoustic noise
2210/1291 . . . . Anti-Vibration-Control, e.g. reducing vibrations in panels or beams
2210/30 . . . Means
2210/301 . . . Computational
2210/3011 . . . Single acoustic input
2210/3012 . . . Algorithms
2210/3013 . . . Analogue, i.e. using analogue computers or circuits
Variation of parameters to test for optimisation

- **Variable gain**
- **Stepsize variation**
- **Decreasing the computational load**
- **Speeding up computation or convergence**
- **Simulation**
- **Decimated or interpolated sampling**, e.g. **variable rate**, **synchronous**
- **Random noise used**, e.g. in **model identification**
- **Pretraining**, e.g. to **identify transfer functions**
- **Prediction**, e.g. of future values of noise
- **Random noise used**, e.g. in model identification
- **Sampling**, e.g. variable rate, synchronous, decimated or interpolated
- **Simulation**
- **Stepsie size variation**
- **Transfer function of the acoustic system**
- **Variable gain**
- **Variation of parameters to test for optimisation**