

ECLA EUROPEAN CLASSIFICATION

G10K

SOUND-PRODUCING DEVICES (sound-producing toys [A63H5/00](#); musical instruments or parts thereof, see the relevant subclass, e.g. [G10D](#)); **ACOUSTICS NOT OTHERWISE PROVIDED FOR** (systems using the reflection or reradiation of acoustic waves [G01S15/00](#); generating seismic energy [G01V1/02](#); signalling or calling arrangements, alarm arrangements [G08B](#); piezo-electric electrostrictive or magnetostrictive elements in general [H01L41/00](#); transmission systems using infrasonic, sonic, or ultrasonic waves [H04B11/00](#); loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers [H04R](#)) [[C9511](#)]

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.

G10K1/00

Devices in which sound is produced by striking a resonating body, e.g. bell, chimes, gong (combinations with clocks or watches [G04B](#), [G04C](#); carillons [G10F1/10](#); [[N](#): for percussion instruments [G10D13/00](#)])

- G10K1/06 . the resonating devices having the shape of a bell, plate, rod, or tube ([bells for towers G10K1/28](#))
- G10K1/062 . . electrically operated [[N](#): [self-interrupting relays H01H51/34](#)]
- G10K1/063 . . . the sounding member being a bell
- G10K1/064 Operating or striking mechanisms therefor
- G10K1/064B [[N](#): [provided with loudness adjustment](#)]
- G10K1/065 for timed or repeated operation [[N](#): [alarm-clocks G04C21/00](#)]
- G10K1/066 . . . the sounding member being a tube, plate or rod
- G10K1/067 Operating or striking mechanisms therefor
- G10K1/068 . . hydraulically operated; pneumatically operated
- G10K1/07 . . mechanically operated; Hand bells; Bells for animals
- G10K1/071 . . . Hand bells; Bells for animals
- G10K1/072 . . . Operating or striking mechanisms therefor
- G10K1/074 with rotary clappers or shells
- G10K1/076 for timed or repeated operation [[N](#): [alarm-clocks G04B23/00](#)]
- G10K1/08 . . Details or accessories of general applicability

- G10K1/10 . . . Sounding members; Mounting thereof; Clappers or other strikers
- G10K1/26 . . . Mountings; Casings
- G10K1/28 . Bells for towers or the like
- G10K1/30 . . Details or accessories
- G10K1/32 . . . Sounding members; Clappers or other strikers
- G10K1/34 . . . Operating mechanisms
- G10K1/34B [N: for a still-standing bell]
- G10K1/34B2 [N: electrically operated]
- G10K1/34C [N: for an oscillating bell which is driven once per cycle]
- G10K1/34C2 [N: electrically operated]
- G10K1/34D [N: for an oscillating bell which is driven twice per cycle]
- G10K1/34D2 [N: electrically operated]
- G10K1/36 . . . Means for silencing or damping (means or arrangements for avoiding or reducing out-of-balance forces due to motion [F16F15/00](#))
- G10K1/38 . . . Supports; Mountings
- G10K3/00** **Rattles or like noise-producing devices, [N: e.g. door-knockers]**
- G10K5/00** **Whistles**
- G10K5/02 . Ultrasonic whistles
- G10K7/00** **Sirens**
- G10K7/00B . [N: Ultrasonic sirens]
- G10K7/02 . in which the sound-producing member is rotated manually or by a motor ([G10K7/06](#) takes precedence; [N: musical tops [A63H1/28](#)])
- G10K7/04 . . by an electric motor
- G10K7/06 . in which the sound-producing member is driven by a fluid, e.g. by a compressed gas [N: (fluidically operated vibrators [B06B1/18](#))]
- G10K9/00** **Devices in which sound is produced by vibrating a diaphragm or analogous element, e.g. fog horn, vehicle hooter, buzzer (loudspeakers or like acoustic electromechanical transducers [H04R](#)) [N: arrangement or adaptation for ships [B63B45/08](#); mechanically driven vibrators [B06B1/10](#)] [C9511]**
- G10K9/02 . driven by gas; e.g. suction operated
- G10K9/04 . . by compressed gases, e.g. compressed air
- G10K9/06 . . produced by detonation
- G10K9/08 . driven by water or other liquids
- G10K9/10 . driven by mechanical means only

- G10K9/12 . 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](#).
- G10K9/12F . . [\[N: Flexensional transducers\]](#)
- G10K9/122 . . using piezo-electric driving means [\[N: \(G10K9/12F takes precedence\)\]](#) [\[N9511\]](#)
- G10K9/125 . . . with a plurality of active elements [\[N9511\]](#)
- G10K9/128 . . using magnetostrictive driving means [\[N: \(G10K9/12F takes precedence\)\]](#) [\[N9511\]](#)
- G10K9/13 . . using electromagnetic driving means
- [\[N: Notes](#)
[\[N1209\]](#)see provisionally also [G10K9/12](#)
[\]](#)
- G10K9/15 . . . Self-interrupting arrangements
- G10K9/16 . . with means for generating current by muscle power [\[C9511\]](#)
- G10K9/18 . Details, e.g. bulb, pump, piston, switch, casing [\[N: cones, diaphragms G10K13/00\]](#)
- G10K9/20 . . Sounding members
- G10K9/22 . . Mountings; Casings
- G10K11/00** **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** ([\[N: protective devices for the ears A61F11/06\]](#); sound insulation for vehicles [B60R13/08](#); sound insulation for aircraft [B64C1/40](#); sound insulating materials, see the relevant places, e.g. [C04B26/00](#) to [C04B38/00](#); reduction of noise on permanent way [E01B19/00](#); absorption of air-transmitted noise from road or railway traffic [E01F8/00](#); noise insulation, absorption or reflection in buildings [E04B1/74](#); room acoustics [E04B1/99](#); sound insulation in floors [E04F15/20](#); gas-flow silencers or exhaust apparatus for machines or engines in general, for internal-combustion engines [F01N](#); intake silencers for internal-combustion engines [F02M35/00](#); suppression of undesired vibrations [F16F7/00](#) to [G10K15/00](#); preventing noise in valves [F16K47/02](#); noise absorbers in pipes [F16L55/02](#); arrangements for suppressing noise in direct-contact trickle coolers [F28C1/10](#); silencers for weapons [F41](#)) [\[C9511\]](#)
- G10K11/00B . [\[N: Devices for damping, suppressing, obstructing or conducting sound in acoustic devices \(G10K1/06 to G10K1/10 take precedence; for electro-mechanical transducers for communication H04R3/00A\)\]](#)
- G10K11/00G . [\[N: Mounting transducers e.g. provided with mechanical moving or orienting device \(mountings specially adapted to a particular sound-producing device, see the preceding groups G10K1/00 to G10K9/00, e.g. G10K1/26, G10K1/28, G10K9/22; arrangements of sonic watch equipment on submarines B63G8/39; buoys B63B22/00\)\]](#)
- G10K11/00G2 . . [\[N: Transducer mounting in underwater equipment, e.g. sonobuoys\]](#)
- G10K11/00G2B . . . [\[N: Arrays of transducers \(seismic streamers, see G01V1/20\)\]](#)
- G10K11/02 . Mechanical acoustic impedances; Impedance matching, e.g. by horns; Acoustic resonators
- G10K11/02B . . [\[N: horns for impedance matching \(see provisionally also G10K11/28\)\]](#)
- G10K11/04 . . Acoustic filters [\[N: ; Acoustic resonators\]](#) [\[C9511\]](#)

- G10K11/08 . Non-electric sound-amplifying devices, e.g. non-electric megaphones ([amplifying by horns G10K11/02](#); [amplifying by focusing G10K11/26](#)) [C9511]
- G10K11/16 . Methods or devices for protecting against, or damping of, acoustic waves, e.g. sound ([G10K11/36 takes precedence](#)) [C9511]
- 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.
- G10K11/16E . . [N: in systems with fluid flow([G10K11/16B takes precedence](#); gas flow silencers or exhaust apparatus for machines or engines in general or for internal combustion engineF01N, noise absorbers in pipes or pipe systemsF16L55/02; noise absorption in air conditioning and ventilationF24F13/00C; silencing exhaust or propulsion jets in aircraftB64D33/06)]
- G10K11/162 . . Selection of materials [N9511]
- G10K11/165 . . . Particles in a matrix [N9511]
- G10K11/168 . . . Plural layers of different materials, e.g. sandwiches [N9511]
- Note**
When classifying in this group, classification is also made in subclass [B32B](#), in so far as any layered product is concerned.
- G10K11/172 . . . using resonance effects[N9511]
- G10K11/175 . . using interference effects; Masking sound
- G10K11/178 . . . by electro-acoustically regenerating the original acoustic waves in anti-phase
- G10K11/178B [N: using single input]
- G10K11/178C [N: using multiple inputs; single output]
- G10K11/178D [N: using multiple inputs; multiple outputs]
- G10K11/178E [N: Structural details]
- G10K11/18 . Methods or devices for transmitting, conducting, or directing sound ([G10K11/02](#), [G10K11/36 take precedence](#); medical stethoscopes [A61B7/02](#))
- G10K11/20 . . Reflecting arrangements ([G10K11/28 takes precedence](#))
- G10K11/20B . . . [N: for underwater use]
- G10K11/22 . . for conducting sound through hollow pipes, e.g. speaking tubes
- G10K11/24 . . for conducting sound through solid bodies, e.g. wire
- G10K11/26 . . Sound-focusing or directing, e.g. scanning [N: horns for impedance matching [G10K11/02](#); megaphones [G10K11/08](#)] [C9511]
- G10K11/28 . . . using reflection, e.g. parabolic reflector [N: ([hearing aids A61F11/00H](#))]
- G10K11/30 . . . using refraction, e.g. acoustic lenses
- G10K11/32 . . . characterised by the shape of the source
- G10K11/34 . . . using electrical steering of transducer arrays, e.g. beam steering [N: ([constructional aspects B06B1/06C](#), [B06B1/08B](#))] [C9506]
- G10K11/34C [N: Circuits therefor]
- G10K11/34C2 [N: using frequency variation or different frequencies]
- G10K11/34C3 [N: using energy switching from one active element to another]
- G10K11/34C4 [N: using phase variation]

- G10K11/34C5 [N: using amplitude variation]
- G10K11/35 using mechanical steering of transducers [N: or their beams] [N9511]
- G10K11/35B [N: by moving the transducer] [N9511]
- G10K11/35B2 [N: Arcuate movement] [N9511]
- G10K11/35C [N: by moving a reflector] [N9511]

- G10K11/36 Devices for manipulating acoustic surface waves ([electro-acoustic amplifiers H03F13/00](#); [networks comprising electro-acoustic elements H03H9/00](#)) [C9511]

- G10K13/00** **Cones, diaphragms, or the like, for emitting or receiving sound in general (for electromechanical transducers [H04R7/00](#))**

- G10K15/00** **Acoustics not otherwise provided for**

- G10K15/02 Synthesis of acoustic waves (synthesis of speech G10L)
 - [N: **Notes**
 - [N1209]see provisionally G10H e.g. [G10H1/26](#)
 -]

- G10K15/04 Sound-producing devices ([G10K15/02](#) takes precedence)
- G10K15/04B [N: producing shock waves ([G10K15/04C](#), [G10K15/06](#) take precedence; generating seismic energy [G01V1/02](#))]
- G10K15/04C [N: using optical excitation, e.g. laser bundle]
- G10K15/06 using electric discharge

- G10K15/08 Arrangements for producing a reverberation or echo sound [N: modifying acoustic properties to change reverberation time [G10K11/00B](#)]
- G10K15/10 using time-delay networks comprising electromechanical or electro-acoustic devices
- G10K15/12 using electronic time-delay networks