

CPC**COOPERATIVE PATENT CLASSIFICATION****B06B**

METHODS OR APPARATUS FOR GENERATING OR TRANSMITTING MECHANICAL VIBRATIONS OF INFRASONIC, SONIC, OR ULTRASONIC FREQUENCY, { e.g. } FOR PERFORMING MECHANICAL WORK IN GENERAL (for particular applications, see the relevant subclasses, e.g. [B07B 1/40](#), [B23Q 17/12](#), [B24B 31/06](#); measurement of mechanical vibrations [G01H](#) ; in direction finding, locating, distance or velocity measuring [G01S](#) ; { generating seismic energy [G01V 1/02](#) } ; control of mechanical vibrations in general [G05D](#) ; sound-producing devices, e.g. bells, sirens, whistles [G10K](#) , { e.g. methods or devices for transmitting, conducting, or directing sound in general [G10K 11/00](#) } ; generation of electrical oscillations [H03B](#) ; electromechanical resonators in general [H03H](#) ; electromechanical transducers { for communication techniques, e.g. microphones, speakers } [H04R](#))

B06B 1/00

Methods or apparatus for generating mechanical vibrations of infrasonic, sonic, or ultrasonic frequency

- B06B 1/02 . making use of electrical energy ([B06B 1/18](#), [B06B 1/20](#) take precedence)
- B06B 1/0207 .. { Driving circuits (specially adapted for particular applications, see the relevant subclass, e.g. [G01](#) ; circuits for steering transducer arrays [G10K 11/34](#); basic circuits [H03](#)) }
- B06B 1/0215 ... { for generating pulses, e.g. bursts of oscillations, envelopes }
- B06B 1/0223 ... { for generating signals continuous in time }
- B06B 1/023 { and stepped in amplitude, e.g. square wave, 2-level signal }
- B06B 1/0238 { of a single frequency, e.g. a sine-wave }
- B06B 1/0246 { with a feedback signal }
- B06B 1/0253 { taken directly from the generator circuit }
- B06B 1/0261 { taken from a transducer or electrode connected to the driving transducer }
- B06B 1/0269 { for generating multiple frequencies }
- B06B 1/0276 { with simultaneous generation, e.g. with modulation, harmonics }
- B06B 1/0284 { with consecutive, i.e. sequential generation, e.g. with frequency sweep }
- B06B 1/0292 .. { Electrostatic transducers, e.g. electret-type }
- B06B 1/04 .. operating with electromagnetism (dynamo-electric motors with vibrating magnet, armature or coil system [H02K 33/00](#))
- B06B 1/045 ... { using vibrating magnet, armature or coil sytem }
- B06B 1/06 .. operating with piezo-electric effect or with electrostriction (piezo-electric or electrostrictive devices per se [H01L 41/00](#))
- B06B 1/0603 ... { using a piezo-electric bender, e.g. bimorph }
- B06B 1/0607 ... { using multiple elements ([B06B 1/064](#) and [B06B 1/0688](#) take precedence) }
- B06B 1/0611 { in a pile }
- B06B 1/0614 { for generating several frequencies }
- B06B 1/0618 { of piezo- and non-piezo-electric elements, e.g. `Tonpilz` }
- B06B 1/0622 { on one surface }
- B06B 1/0625 { Annular array }

B06B 1/0629	.....	{ Square array }
B06B 1/0633	.....	{ Cylindrical array }
B06B 1/0637	.....	{ Spherical array }
B06B 1/064	.....	{ with multiple active layers }
B06B 1/0644	...	{ using a single piezo-electric element (B06B 1/0688 takes precedence) }
B06B 1/0648	....	{ of rectangular shape }
B06B 1/0651	....	{ of circular shape }
B06B 1/0655	....	{ of cylindrical shape }
B06B 1/0659	....	{ of U-shape }
B06B 1/0662	....	{ with an electrode on the sensitive surface }
B06B 1/0666	.....	{ used as a diaphragm }
B06B 1/067	.....	{ which is used as, or combined with, an impedance matching layer }
B06B 1/0674	.....	{ and a low impedance backing, e.g. air }
B06B 1/0677	.....	{ and a high impedance backing }
B06B 1/0681	.....	{ and a damping structure }
B06B 1/0685	.....	{ on the back only of piezo-electric elements }
B06B 1/0688	...	{ with foil-type piezo-electric elements, e.g. PVDF }
B06B 1/0692	....	{ with a continuous electrode on one side and a plurality of electrodes on the other side }
B06B 1/0696	....	{ with a plurality of electrodes on both sides }
B06B 1/08	..	operating with magnetostriction (magnetostrictive devices per se H01L 41/00)
B06B 1/085	...	{ using multiple elements, e.g. arrays }
B06B 1/10	.	making use of mechanical energy (B06B 1/18 , B06B 1/20 take precedence)
B06B 1/12	..	operating with systems involving reciprocating masses
B06B 1/14	...	the masses being elastically coupled
B06B 1/16	..	operating with systems involving rotary unbalanced masses { (electrical motors using rotary unbalanced masses in general H02K 7/061) }
B06B 1/161	...	{ Adjustable systems, i.e. where amplitude or direction of frequency of vibration can be varied }
B06B 1/162	....	{ Making use of masses with adjustable amount of eccentricity }
B06B 1/163	.....	{ the amount of eccentricity being only adjustable when the system is stationary (B06B 1/165 takes precedence) }
B06B 1/164	.....	{ the amount of eccentricity being automatically variable as a function of the running condition, e.g. speed, direction (B06B 1/165 takes precedence) }
B06B 1/165	.....	{ with fluid masses or the like }
B06B 1/166	....	{ Where the phase-angle of masses mounted on counter-rotating shafts can be varied, e.g. variation of the vibration phase }
B06B 1/167	...	{ Orbital vibrators having masses being driven by planetary gearings, rotating cranks or the like }
B06B 1/168	....	{ Rotary pendulum vibrators }
B06B 1/18	.	wherein the vibrator is actuated by pressure fluid (B06B 1/20 takes precedence)
B06B 1/183	..	{ operating with reciprocating masses }

B06B 1/186	. . { operating with rotary unbalanced masses }
B06B 1/20	. making use of a vibrating fluid { (whistles or sirens per se G10K) }
B06B 3/00	Methods or apparatus specially adapted for transmitting mechanical vibrations of infrasonic, sonic, or ultrasonic frequency
B06B 3/02	. involving a change of amplitude
B06B 3/04	. involving focusing or reflecting
B06B 2201/00	Indexing scheme associated with B06B 1/0207 for details covered by B06B 1/0207 but not provided for in any of its subgroups
B06B 2201/20	. Application to multi-element transducer
B06B 2201/30	. with electronic damping
B06B 2201/40	. with testing, calibrating, safety devices, built-in protection, construction details
B06B 2201/50	. Application to a particular transducer type
B06B 2201/51	. . Electrostatic transducer
B06B 2201/52	. . Electrodynamic transducer
B06B 2201/53	. . . with vibrating magnet or coil
B06B 2201/54	. . . Electromagnetic acoustic transducers [EMAT]
B06B 2201/55	. . Piezoelectric transducer
B06B 2201/56	. . . Foil type, e.g. PVDF
B06B 2201/57	. . Electrostrictive transducer
B06B 2201/58	. . Magnetostrictive transducer
B06B 2201/70	. Specific application
B06B 2201/71	. . Cleaning in a tank
B06B 2201/72	. . Welding, joining, soldering
B06B 2201/73	. . Drilling
B06B 2201/74	. . Underwater
B06B 2201/75	. . Repelling animals, insects, humans
B06B 2201/76	. . Medical, dental
B06B 2201/77	. . Atomizers