

## SECTION H — ELECTRICITY

### H04 ELECTRIC COMMUNICATION TECHNIQUE

**H04R LOUDSPEAKERS, MICROPHONES, GRAMOPHONE PICK-UPS OR LIKE ACOUSTIC ELECTROMECHANICAL TRANSDUCERS; DEAF-AID SETS; PUBLIC ADDRESS SYSTEMS** (producing sounds with frequency not determined by supply frequency G10K) [6]

#### Note(s)

- This subclass covers:
  - loudspeakers, microphones, gramophone pick-ups or like transducers producing acoustic waves or variations of electric current or voltage;
  - arrangements actuated by variations of electric current or voltage for cutting grooves in records;
  - circuits for the above-mentioned arrangements;
  - monitoring or testing the above-mentioned equipment.
- Attention is drawn to the Notes following the titles of class B81 and subclass B81B relating to "micro-structural devices" and "micro-structural systems".

#### Subclass index

##### TYPES OF TRANSDUCER

With magnetic circuit:

moving coil; moving armature; magnetisable diaphragm; magnetostriction.....9/00, 11/00, 13/00, 15/00

Without magnetic circuit:

piezo-electric; electrostatic; with variable resistance.....17/00, 19/00, 21/00

Other types.....23/00

Details

general; circuits; diaphragms and cones.....1/00, 3/00, 7/00

##### APPLICATIONS

Stereophonic arrangements; deaf-aid; public address systems.....5/00, 25/00, 27/00

MONITORING, TESTING; MANUFACTURE.....29/00, 31/00

<b>1/00</b>	<b>Details of transducers</b> (diaphragms H04R 7/00; characterised by the nature of the transducer, <u>see</u> the relevant group of main groups H04R 9/00-H04R 23/00; mountings specially adapted for telephone equipment H04M 1/02)	1/24	• • •	Structural combinations of separate transducers or of parts of the same transducer and responsive respectively to two or more frequency ranges
1/02	• Casings; Cabinets; Mountings therein (H04R 1/28 takes precedence)	1/26	• • •	Spatial arrangement of separate transducers responsive to two or more frequency ranges
1/04	• • Structural association of microphone with electric circuitry therefor (in deaf-aid sets H04R 25/00)	1/28	• • •	Transducer mountings or enclosures designed for specific frequency response; Transducer enclosures modified by provision of mechanical or acoustic impedances, e.g. resonator, damping means
1/06	• Arranging circuit leads; Relieving strain on circuit leads	1/30	• • •	Combinations of transducers with horns, e.g. with mechanical matching means
1/08	• Mouthpieces; Attachments therefor	1/32	• •	for obtaining desired directional characteristic only
1/10	• Earpieces; Attachments therefor	1/34	• • •	by using a single transducer with sound reflecting, diffracting, directing or guiding means
1/12	• Sanitary or hygienic devices for mouthpieces or earpieces, e.g. for protecting against infection	1/36	• • •	by using a single aperture of dimensions not greater than the shortest operating wavelength
1/14	• Throat mountings for microphones	1/38	• • •	in which sound waves act upon both sides of a diaphragm and incorporating acoustic phase-shifting means, e.g. pressure-gradient microphone
1/16	• Mounting or connecting stylus to transducer with or without damping means			
1/18	• • Holders for styli; Mounting holders on transducers			
1/20	• Arrangements for obtaining desired frequency or directional characteristics (for stereophonic purposes H04R 5/00)			
1/22	• • for obtaining desired frequency characteristic only			

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- 1/40 • • • by combining a number of identical transducers
- 1/42 • Combinations of transducers with fluid-pressure or other non-electrical amplifying means
- 1/44 • Special adaptations for subaqueous use, e.g. for hydrophone
- 1/46 • Special adaptations for use as contact microphones, e.g. on musical instrument, on stethoscope (throat mountings H04R 1/14)

### 3/00 **Circuits for transducers** (arrangements for producing a reverberation or echo sound G10K 15/08; amplifiers H03F)

- 3/02 • for preventing acoustic reaction
- 3/04 • for correcting frequency response
- 3/06 • • of electrostatic transducers
- 3/08 • • of electromagnetic transducers
- 3/10 • • of variable-resistance microphones
- 3/12 • for distributing signals to two or more loudspeakers
- 3/14 • • Cross-over networks

### 5/00 **Stereophonic arrangements** (stereophonic pick-ups H04R 9/16, H04R 11/12, H04R 17/08, H04R 19/10)

#### Note(s)

In this group, the following expression is used with the meaning indicated:

- "stereophonic arrangements" covers quadraphonic or similar arrangements.

- 5/02 • Spatial or constructional arrangements of loudspeakers
- 5/027 • Spatial or constructional arrangements of microphones, e.g. in dummy heads [3]
- 5/033 • Headphones for stereophonic communication [3]
- 5/04 • Circuit arrangements (stereophonic systems H04S)

### 7/00 **Diaphragms for electromechanical transducers; Cones**

- 7/02 • characterised by the construction
- 7/04 • • Plane diaphragms
- 7/06 • • • comprising a plurality of sections or layers
- 7/08 • • • • comprising superposed layers separated by air or other fluid
- 7/10 • • • • comprising superposed layers in contact
- 7/12 • • Non-planar diaphragms or cones
- 7/14 • • • corrugated, pleated, or ribbed
- 7/16 • Mounting or tensioning of diaphragms or cones
- 7/18 • • at the periphery
- 7/20 • • • Securing diaphragm or cone resiliently to support by flexible material, springs, cords, or strands
- 7/22 • • • Clamping rim of diaphragm or cone against seating
- 7/24 • • Tensioning by means acting directly on free portion of diaphragm or cone
- 7/26 • Damping by means acting directly on free portion of diaphragm or cone

### 9/00 **Transducers of moving-coil, moving-strip, or moving-wire type**

- 9/02 • Details
- 9/04 • • Construction, mounting, or centering of coil
- 9/06 • Loudspeakers
- 9/08 • Microphones
- 9/10 • Telephone receivers
- 9/12 • Gramophone pick-ups using a stylus; Recorders using a stylus

- 9/14 • • comprising two or more styli or transducers (H04R 9/16 takes precedence)
- 9/16 • • signals being recorded or played-back by vibration of a stylus in two orthogonal directions simultaneously
- 9/18 • Resonant transducers, i.e. adapted to produce maximum output at a predetermined frequency

### 11/00 **Transducers of moving-armature or moving-core type**

- 11/02 • Loudspeakers
- 11/04 • Microphones
- 11/06 • Telephone receivers
- 11/08 • Gramophone pick-ups using a stylus; Recorders using a stylus
- 11/10 • • comprising two or more styli or transducers (H04R 11/12 takes precedence)
- 11/12 • • signals being recorded or played-back by vibration of a stylus in two orthogonal directions simultaneously
- 11/14 • Resonant transducers, i.e. adapted to produce maximum output at a predetermined frequency

### 13/00 **Transducers having an acoustic diaphragm of magnetisable material directly co-acting with electromagnet**

- 13/02 • Telephone receivers

### 15/00 **Magnetostrictive transducers**

- 15/02 • Resonant transducers, i.e. adapted to produce maximum output at a predetermined frequency

### 17/00 **Piezo-electric transducers; Electrostrictive transducers**

- 17/02 • Microphones
- 17/04 • Gramophone pick-ups using a stylus; Recorders using a stylus
- 17/06 • • comprising two or more styli or transducers (H04R 17/08 takes precedence)
- 17/08 • • signals being recorded or played-back by vibration of a stylus in two orthogonal directions simultaneously
- 17/10 • Resonant transducers, i.e. adapted to produce maximum output at a predetermined frequency

### 19/00 **Electrostatic transducers**

- 19/01 • characterised by the use of electrets [3]
- 19/02 • Loudspeakers (H04R 19/01 takes precedence) [3]
- 19/04 • Microphones (H04R 19/01 takes precedence) [3]
- 19/06 • Gramophone pick-ups using a stylus; Recorders using a stylus (H04R 19/01 takes precedence) [3]
- 19/08 • • comprising two or more styli or transducers (H04R 19/10 takes precedence)
- 19/10 • • signals being recorded or played-back by vibration of a stylus in two orthogonal directions simultaneously

### 21/00 **Variable-resistance transducers** (gaseous-resistance transducers H04R 23/00; magneto-resistive transducers H04R 23/00)

- 21/02 • Microphones
- 21/04 • Gramophone pick-ups using a stylus; Recorders using a stylus

### 23/00 **Transducers other than those covered by groups H04R 9/00-H04R 21/00**

- 23/02 • Transducers using more than one principle simultaneously

**25/00 Deaf-aid sets**

- 25/02 • adapted to be supported entirely by ear
- 25/04 • comprising pocket amplifiers

**27/00 Public address systems** (circuits for preventing acoustic reaction H04R 3/02)

- 27/02 • Amplifying systems for the deaf

- 27/04 • Electric megaphones

**29/00 Monitoring arrangements; Testing arrangements****31/00 Apparatus or processes specially adapted for the manufacture of transducers or diaphragms therefor**