1 **BINAURAL AND STEREOPHONIC**
2 .Broadcast or multiplex stereo
3 ..FM final modulation
4 ...AM subcarrier
5 ....Four discrete channels
6 .....Having transmitter
7 ....Switch-type detector or modulator
8 .....Two diodes
9 .....Four or more diodes
10 ....Channel separation control
11 ....Automatic switchover between mono and stereo modes
12 ....Stereo indicators (e.g., stereo presence)
13 ....Antinoise
14 ....Having transmitter
15 ..AM or both AM and angle final modulation
16 ...Having transmitter
17 .Pseudo stereophonic
18 ..Pseudo quadrasonic
19 .Quadrasonic
20 ..Matrix
21 ...4-2-4
22 ....Variable decoder
23 ....With encoder
23.1 .Hearing aid
300 .Stereo speaker arrangement
301 ..In furniture or clothing
302 ..In vehicle
303 ..Optimization
304 ...Enclosure orientation
305 ...Enclosure adaptation
306 ..With image presentation means
307 ..Surround (i.e., front plus rear or side)
308 ..In single baffle
309 ..Stereo earphone
310 ...Virtual positioning
311 ...Wireless or for use in diverse
26 .Stereo sound pickup device (microphone)
27 .Center channel
28 .Amplifier
54 **HELIUM SPEECH**
55 **AUDIO TRANSDUCER PROTECTION CIRCUITRY**
56 **MONITORING OF SOUND**
57 .Amplification control responsive to ambient sound
58 **MONITORING/MEASURING OF AUDIO DEVICES**
59 .Loudspeaker operation
60 .Testing of hearing aids
61 **SOUND EFFECTS**
62 .Tremelo or vibrato effects
63 .Reverberators
64 ..Mechanical (e.g., reverberation chamber)
65 ...Helical spring
66 **DEREVERBERATORS**
67 **STETHOSCOPES, ELECTRICAL**
312 **HEARING AIDS, ELECTRICAL**
313 .Directional
314 .Programming interface circuitry
315 .Remote control, wireless, or alarm
316 .Frequency transposition
317 .Noise compensation circuit
318 ..Feedback suppression
319 .With vacuum tube amplifier
320 .Spectral control
321 .Wideband gain control
322 .Specified casing or housing
323 ..Power supply or programming interface terminals
324 ..Component mounting
325 ..Cerumen protection
326 ..Non-air-conducted sound delivery
327 ..Spectacle
328 ..Ear insert
329 ...Device for manipulation
330 ..Hook over ear
331 ..Inductive pickup
70 **ARTIFICIAL LARYNX, ELECTRICAL**
71.1 **ACOUSTICAL NOISE OR SOUND CANCELLATION**
71.2 .Acoustic, nonairborne vibration sensing or counterwave emission
71.3 .From appliance
71.4 .Within cabin or compartment of vehicle
71.5 .Within duct
71.6 .Adjacent ear
71.7 .Particular transducer or enclosure structure
71.8 .Counterwave generation control path
71.9 ..Nonacoustically derived reference signal
71.11 ..Adaptive filter topology
71.12 ..Algorithm or formula (e.g., LMS, Filtered-X, etc.)

71.13 ..Analog or nonadaptive
71.14 ..Tonal noise or particular frequency or band
72 **HEARING PROTECTORS, ELECTRICAL**
73.1 **SOUND OR NOISE MASKING**
74 **HEADPHONE CIRCUITS**
75 **MEGAPHONES**
76 **LECTERNS**
77 **ONE-WAY AUDIO SIGNAL PROGRAM DISTRIBUTION**
78 .Drive-in
79 .Near field
80 .Multiple channel
81 ..With switching
82 .Public address system
83 ..Feedback suppression
84 ..Spare amplifier substitution
85 ..Speaker or channel switching
86 **VEHICLE**
87 **HAVING NON-ELECTRICAL FEATURE (E.G., MOUNTING)**
89 .Loudspeakers driven in given phase relationship
332 .And loudspeaker
333 ..With furniture, clothing, or image presentation means
334 ..Portable or for use in diverse environment
335 ..Plural diaphragms, compartments, or housings
336 ..Curved or angled housing
91 .Having microphone
92 **DIRECTIVE CIRCUITS FOR MICROPHONES**
93 **FEEDBACK SUPPRESSION**
94.1 **NOISE OR DISTORTION SUPPRESSION**
94.2 .Spectral adjustment
94.3 ..In multiple frequency bands
94.4 .Interpolation
94.5 .Soft switching, muting, or noise gating
94.6 .Hum or ground loop
94.7 .Using signal channel and noise channel
94.8 .Peak limiting or pulsive noise compensation
94.9 .Feedforward circuitry for transducer compensation
95 **MICROPHONE FEEDBACK**
96 **LOUDSPEAKER FEEDBACK**
97 **INCLUDING PHASE CONTROL**
98 **INCLUDING FREQUENCY CONTROL**
99 .Having crossover filter
100 ..With active device
101 .Automatic tone control
102 ..With amplitude control
103 .Having automatic equalizer circuit
104 **INCLUDING AMPLITUDE OR VOLUME CONTROL**
105 .Remote
106 .With amplitude compression/ expansion
107 .Automatic
108 ..Including feedback
109 .With manual volume control
110 **VOICE CONTROLLED**
111 **CIRCUITRY COMBINED WITH SPECIFIC TYPE MICROPHONE OR LOUDSPEAKER**
112 .With carbon microphone
113 .With electrostatic microphone
114 .With piezoelectric microphone
115 .With magnetic microphone
116 .With electrostatic loudspeaker
117 .With magnetic loudspeaker
118 **WITH MUSICAL INSTRUMENT**
119 **WITH MIXER**
120 **WITH AMPLIFIER**
121 .Feedback
122 **HAVING MICROPHONE**
123 **SWITCHING**
150 **ELECTRO-ACOUSTIC AUDIO TRANSDUCER**
151 .Body contact wave transfer (e.g., bone conduction earphone, larynx microphone)
152 .Driven diverse static structure (e.g., wall, sounding board)
337 .Having acoustic wave modifying structure
338 ..With tubular waveguide or resonant element
339 ..Sound intensifying or spreading element
340 ...Horn
341 ....Inverted, folded, or curled
342 ....Plural horns or diaphragms
343 ....Phase plug
344 ...Mouthpiece
345 ..Acoustic enclosure
346 ...Acoustic resistance
347 ....On front side of diaphragm
348 ....On rear side of diaphragm
349 ...Bass reflex (e.g., rear wave)
350 ...Front wave
351 ...Plural chambers

352 ...Having internal wave reflecting means
353 ...Acoustic damping or attenuating resonator
354 ..Absorbing or attenuating element
160 ..Reflecting element
161 .With mechanical amplifier arrangement
162 .Detail of mechanical vibration coupling to transducer (e.g., tuned vibrating element)
163 .Having bi-directional transducer
164 .Thermal response to, or generation of, sound vibration
165 .By modifying fluid flow
166 .Having a fluid as a conducting element
167 ..Ionized gap, spark, or flame
355 .Housed microphone
356 ..Directional
357 ...With plural sound ports (e.g., pressure gradient)
358 ....Plural or variable characteristics
359 ..Windscreen
360 ..Cavity
361 ..Mounting or support
362 ...Boom (other than on headset)
363 ...Stand or gooseneck
364 ...On body or clothing
365 ...In electronic apparatus or vehicle
366 ...Detachable from support
367 ...In headgear
368 ...On shock absorbing support
369 .Microphone capsule only
170 ..Compound
171 ..Micromagnetic
172 ..Light modifying
173 ..Piezoelectric or ferroelectric
174 ..Capacitive
175 ..Semiconductor junction microphone
176 ..Conductive diaphragm (e.g., reed, ribbon)
177 ..Dynamic (e.g., magnetic)
178 ..Vibrating electrical contract
179 ..Resistive
180 ...Granular or carbon
181 ....Differential
182 .Plural or compound reproducers
370 ..Headphone
371 ...Particular cup
372 ....Having mechanical or acoustic sound attenuation
373 ....Openable to ambient
374 ...Particular support structure
375 ....And microphone
376 ....Headgear
377 ....Plural bands
378 ....Single band
379 ....adjustable
380 ....Ear insert or bone conduction
381 ....Hook over ear or spectacle
382 ....Sound conducting tube
383 ....Collapsible
384 ...Electrical hardware feature
184 ..Different types of diaphragms
185 ..Having common voice coil
186 ..Plural diaphragms
385 .Having body supported structure other than on head
386 .Mounting or support feature of housed loudspeaker
387 ..Directional, directible, or movable
388 ..With furniture, clothing, or image display
389 ..In vehicle
390 ..Boom or support arm
391 ..Grille
392 ..Resilient
393 ..electrical insulation feature
394 ..Electrical hardware
395 ..Mechanical detail
189 .Having protective or sheilding feature
190 .Electrostrictive, magnetostrictive, or piezoelectric
191 .Having electrostatic element (e.g., electret, vibrating plate)
396 .Electromagnetic (e.g., dyynamic)
397 ..Cooling feature
398 ..Having diaphragm support feature
399 ..Conductive diaphragm (e.g., ribbon)
400 ..Movable voice coil
401 ...Multiple voice coils
402 ....For different frequencies
403 ...Centering from outside bobbin or diaphragm
404 ....Spider
405 ...Centering from within bobbin or diaphragm

406 ...Field coil
407 ...Particular bobbin structure
408 ...Pattern
409 ...Wiring structure
410 ...Coil coating, winding layer structure, or wire
411 ..Including adjustment mechanism
412 ..Magnetic circuit
413 ...Having damping
414 ...Flux modifying means
415 ...Magnetic liquid
416 ...Inverted (e.g., within cone)
417 ...Armature diaphragm
418 ...Armature linked to diaphragm
419 ...Not having central magnetic portion
420 ...Having central magnetic portion
421 ....Plural magnets
422 .....Like poles adjacent
423 ..Specified diaphragm shape or structure
424 ...Plural portions or sections
425 ....Honeycomb
426 ...Critically defined material or lamination
427 ....Metal
428 ....Fibrous
429 ...Apertures in surface
430 ...Dome or round
431 ...Flat
432 ...Conical
433 ..Basket detail
124 **MISCELLANEOUS**

## FOREIGN ART COLLECTIONS

FOR 000 **CLASS-RELATED FOREIGN DOCUMENTS**

Any foreign patents or non-patent literature from subclasses that have been reclassified have been transferred directly to FOR Collections listed below. These Collections contain ONLY foreign patents or non-patent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

FOR 100 **AUDIO BANDWIDTH COMPRESSION OR EXPANSION (381/29)**
FOR 101 .With content reduction encoding (381/30)
FOR 102 .Delay line (381/33)
FOR 103 **TIME COMPRESSION OR EXPANSION (E.G., RUN LENGTH CODING) (381/34)**
FOR 104 .With content reduction encoding (381/35)
FOR 105 **SPEECH ANALYSIS AND SYNTHESIS COMBINED (381/36)**
FOR 106 .Using frequency (381/37)
FOR 107 ..Pitch (381/38)
FOR 108 ..Formants (381/39)
FOR 109 .Using time (381/40)
FOR 110 **SPEECH ANALYSIS (E.G., PHONEME RECOGNITION) (381/41)**
FOR 111 .Voice recognition (381/42)
FOR 112 .Word recognition (381/43)
FOR 113 ..Phonetic typewriters (381/44)
FOR 114 ..Frequency domain (381/45)
FOR 115 .Detection of speech in noise (381/46)
FOR 116 .Signal to noise ratio enhancement (381/47)
FOR 117 .Speech parameter display (381/48)
FOR 118 .Speech pitch fundamental frequency (381/49)
FOR 119 .Speech formant frequencies (381/50)
FOR 120 **SPEECH SYNTHESIS (381/51)**
FOR 121 .Speech from printed matter (381/52)
FOR 122 .Vocal tract model (381/53)
FOR 123 **ACOUSTICAL NOISE OR SOUND CANCELLATION (381/71)**
FOR 124 **NOISE SUPPRESSION (381/94)**
**BINAURAL AND STEREOPHONIC**
FOR 125 .Speaker arrangement (381/24)
FOR 126 ..Earphone (381/25)
FOR 127 **HEARING AIDS, ELECTRICAL (381/68)**
FOR 128 .Directional (381/68.1)
FOR 129 .Frequency control (381/68.2)
FOR 130 .Bone conduction (381/68.4)
FOR 131 .Gain Control (381/68.3)
FOR 132 .Spectacle (381/68.5)
FOR 133 .Ear insert (381/68.6)
FOR 134 .Hook over ear (381/68.7)
FOR 135 .Specified casing or housing (381/69)
FOR 136 ..Having vacuum tube amplifier (381/69.1)
FOR 137 ..Having battery (381/69.2)

FOR 138 .Having enclosure or housing (381/138)
FOR 139 ..With loudspeaker (e.g., baffle, spatial orientation, etc.) (381/90)
FOR 140 .With acoustic wave modifying structure (381/153)
FOR 141 ..Including sound conducting tube (381/154)
FOR 142 ..Directional (381/155)
FOR 143 ..Sound intensifying or spreading element (381/156)
FOR 144 ...Mouthpiece (381/157)
FOR 145 ..Absorbing or attenuating element (e.g., baffle, obstruction, damping) (381/158)
FOR 146 ..Enclosure or resonant cavity (381/159)
FOR 147 .Microphone (381/168)
FOR 148 ..With mounting or support feature (381/169)
FOR 149 ..Headphone (381/183)
FOR 150 .Having body supported structure (e.g., earphone) (381/187)
FOR 151 .With mounting or support feature (381/188)
FOR 152 .Electromagnetic (e.g., dynamic) (381/192)
FOR 153 ..Having feature of edge-supported diaphragm (381/193)
FOR 154 ..Movable voice coil (381/194)
FOR 155 ...Multiple (e.g., double) (381/195)
FOR 156 ...Pattern (381/196)
FOR 157 ...Centering (381/197)
FOR 158 ..Including adjustment mechanism (381/198)
FOR 159 ..Magnetic circuit or core structure (381/199)
FOR 160 ...Armature (381/200)
FOR 161 ...Magnetic configuration (e.g., tubular or U-shaped) (381/201)
FOR 162 ..Specified diaphragm shape or structure (381/202)
FOR 163 ...Flat (381/203)
FOR 164 ...Conical (381/204)
FOR 165 .Electro-acoustical transducer mounting or support (381/205)