Title: CYLINDRICAL TRANSDUCER APPARATUS

Abstract: An air transducer apparatus (2A and 2B) comprising a curved piezoelectric film (26) having a first electrode surface (200) and a second surface (210), a first electrode layer (200) disposed on at least a portion of the first surface of the film (26); and a second electrode layer (210) disposed on a portion of the second surface of the film (26B) defining the second electrode layer (210) being sized less than the first electrode layer (200) generating a signal in response to acoustic energy incident on the piezoelectric film (26).
# INTERNATIONAL SEARCH REPORT

**A. CLASSIFICATION OF SUBJECT MATTER**

<table>
<thead>
<tr>
<th>IPC(7)</th>
<th>US CL.</th>
<th>According to International Patent Classification (IPC) or to both national classification and IPC</th>
</tr>
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<tbody>
<tr>
<td>H01L 41/08</td>
<td>310/226,227,335.</td>
<td></td>
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</table>

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

| U.S. | 310/226,227,335. |

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

NONE

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 4,825,116 A (Itoh et al.) (25 Apr 1989) figs. 4, 6, 7, 8, 14, 15, 23, full text,</td>
<td>1-14</td>
</tr>
<tr>
<td></td>
<td>fig. 4 column 8 line 46-47 and fig. 12-13.</td>
<td>15-20</td>
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<tr>
<td>Y</td>
<td>US 3,832,580 A (Yamamuro et al.) 27 Aug 1974 fig. 4 and 26 column 12 line 1-45.</td>
<td>15-20</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:
  - "A" - document defining the general state of the art which is not considered to be of particular relevance
  - "E" - earlier application or patent published on or after the international filing date
  - "L" - document which may throw doubts on priority claimed or which is cited to establish the publication date of another citation or other special reason (as specified)
  - "O" - document referring to an oral disclosure, use, exhibition or other means
  - "P" - document published prior to the international filing date but later than the priority date claimed

"T" - later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" - document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" - document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"A" - document member of the same patent family

Date of the actual completion of the international search: 22 AUG 2001

Date of mailing of the international search report: 22 AUG 2001

Name and mailing address of the ISA/US

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Form PCT/ISA/210 (second sheet) (July 1998)