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(54) **Capacitive ultrasonic transducer and method of fabricating the same**

(57) A capacitive ultrasonic transducer (30) that includes a first electrode (31), an insulating layer (32) formed on the first electrode, at least one support frame (38) formed on the insulating layer, and a second electrode (35) formed spaced apart from the first electrode,

wherein the first electrode and the second electrode define an effective area of oscillation of the capacitive ultrasonic transducer, and the respective length of the first electrode and the second electrode defining the effective area of oscillation is substantially the same.

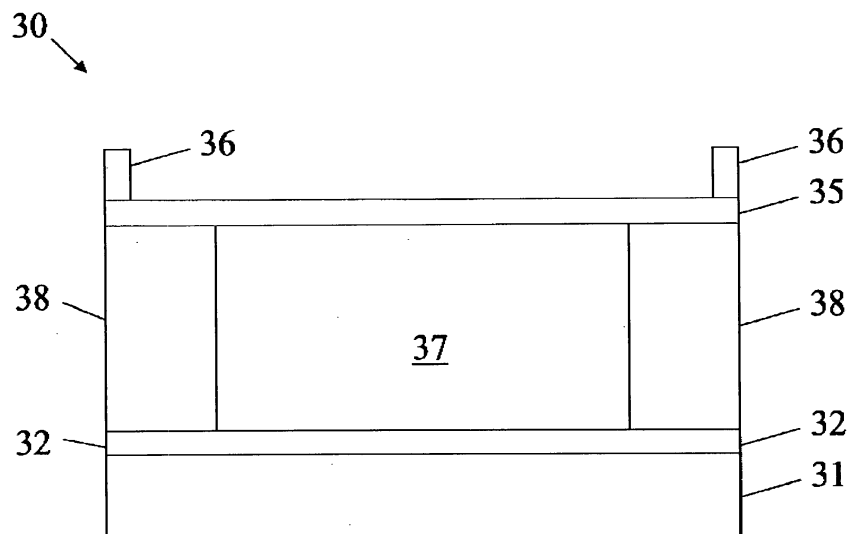


FIG. 3A

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EUROPEAN SEARCH REPORT

Application Number
EP 06 01 3590

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 4 432 007 A (CADY WILLIAM R [US]) 14 February 1984 (1984-02-14)	1,8	INV. B06B1/02 G01H11/06
Y	* sentence 10 - sentence 15 * * column 2, line 30 - column 3, line 47; figures 1d,2 *	2-5	
X	US 1 975 801 A (FRANK RIEBER) 9 October 1934 (1934-10-09)	1,8	
Y	* page 1, line 1 - line 9 * * page 2, line 18 - line 126; figure 4 * * page 3, line 139 - line 146 *	2-5	
Y	JP 2005 027186 A (SEIKO EPSON CORP) 27 January 2005 (2005-01-27) * paragraph [0019] *	2-3,5	
Y	EP 1 085 784 A2 (SANYO ELECTRIC CO [JP]; HOSIDEN CORP [JP]) 21 March 2001 (2001-03-21) * paragraph [0023] - paragraph [0032]; figure 1 *	4-5	TECHNICAL FIELDS SEARCHED (IPC)
A	WO 2005/077012 A2 (GEORGIA TECH RES INST [US]; DEGERTEKIN LEVENT F [US]; MCLEAN JEFFREY J) 25 August 2005 (2005-08-25) * page 9, line 8 - line 18; figures 1,2 *	1	B06B G01H H04R G01D
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		22 January 2010	Häusser, Thomas
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)



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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-8

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-8

Capacitive ultrasonic transducer wherein the support frame has the same thermal coefficient as the conductive layer.

2. claims: 9-12

Capacitive ultrasonic transducer wherein the length of the first electrode and the second electrode are the same.

3. claims: 13-17

Capacitive ultrasonic transducer wherein the chamber is defined by the conductive layer, the support frame and the substrate.

4. claims: 18-40

Method of manufacturing comprising forming a first, second and third metal layer.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

22-01-2010

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