(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3: **22.03.2006 Bulletin 2006/12**

(51) Int Cl.: H04R 1/28^(2006.01)

(11)

(43) Date of publication A2: 30.03.2005 Bulletin 2005/13

(21) Application number: 04255080.6

(22) Date of filing: 24.08.2004

(84) Designated Contracting States:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR Designated Extension States:

AL HR LT LV MK

(30) Priority: 25.09.2003 JP 2003333523

(71) Applicants:

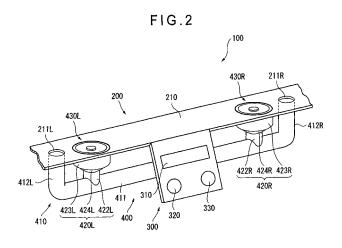
- Pioneer Corporation Tokyo 153-8654 (JP)
- Tohoku Pioneer Corporation Tendo-shi, Yamagata 994-8585 (JP)
- (72) Inventors:
 - Kitamura, Ichio,
 c/o Pioneer Corporation
 Tokyo 153-8654 (JP)

- Oonuma, Tetsuya, c/o Tohoku Pioneer Corp. Tendo-shi, Yamagata 994-8585 (JP)
- Inohana, Haruyuki, c/o Pioneer Corporation Kawagoe-shi, Saitama 350-8555 (JP)
- (74) Representative: Haley, Stephen Gill Jennings & Every LLP Broadgate House 7 Eldon Street London EC2M 7LH (GB)

(54) Acoustic device

(57) An acoustic device (400), which is mounted on an instrument panel (100) with a built-in reinforcement (410) having a hollow portion, comprises speaker mounting members (420L and 420R), each having a hollow portion, a base end of which is communicated with the reinforcement (410), and speakers (430L and 430R) disposed in the openings at the front end side of the speaker

mounting members (420L and 420R), which emit sounds outside the instrument panel (100). It is arranged so that the hollow portions of the reinforcement (410) and the hollow portions of the speaker mounting members (420L and 420R) function as the resonant sections for allowing the sounds emitted by the speakers (430L and 430R) to resonate.





EUROPEAN SEARCH REPORT

Application Number EP 04 25 5080

		ERED TO BE RELEVANT	1	
Category	Citation of document with in of relevant passa	idication, where appropriate, ges	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Χ	US 6 141 428 A (NAR 31 October 2000 (20 * the whole documen	00-10-31)	1-5	H04R1/28
Х	US 5 576 522 A (TAS 19 November 1996 (1 * column 1, line 40 * column 3, line 27 * figures 7-9 *	996-11-19)	1,5	
X	PATENT ABSTRACTS OF vol. 017, no. 097 (25 February 1993 (1 -& JP 04 287497 A (13 October 1992 (19 * abstract *	E-1326), 993-02-25) SHIGERU HARADA),	1,3	
Α	US 5 197 103 A (HAY 23 March 1993 (1993 * column 1, line 40 * column 5, line 29 * figures 6-8 *		1-5	TECHNICAL FIELDS SEARCHED (IPC)
A		E-1524),	1-5	H04R B60R
	The present search report has b	peen drawn up for all claims		
	Place of search	Date of completion of the search		Examiner
	Munich	1 February 2006	Cod	da, R
X : part Y : part docu A : tech O : non	ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone icularly relevant if combined with anoth ument of the same category inological background -written disclosure rmediate document	L : document cited t	cument, but publi te in the application for other reasons	shed on, or

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

EP 04 25 5080

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.

01-02-2006

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 6141428	Α	31-10-2000	NONE		
US 5576522	Α	19-11-1996	NONE		
JP 04287497	Α	13-10-1992	NONE		
US 5197103	Α	23-03-1993	NONE		
JP 05328469	Α	10-12-1993	NONE		

 $\stackrel{\circ}{\mathbb{L}}$ For more details about this annex : see Official Journal of the European Patent Office, No. 12/82