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(71) Applicants (for all designated States except US): **TOYOTA JIDOSHA KABUSHIKI KAISHA** [JP/JP]; 1, Toyota-cho, Toyota-shi, Aichi-ken, 471-8571 (JP). **NIPPON SOKEN, INC.** [JP/JP]; 14, Iwaya, Shimohasumi-cho, Nishio, Aichi 445-0012 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **SAKAKIBARA, Hiroyuki** [JP/JP]; c/o Nippon Soken, Inc, of 14 Iwaya, Shimohasumi-cho, Nishio, Aichi 445-0012 (JP). **ICHIKAWA, Shinji** [JP/JP]; c/o Toyota Jidosha Kabushiki Kaisha, of 1, Toyota-cho, Toyota-shi, Aichi-ken, 471-8571 (JP).

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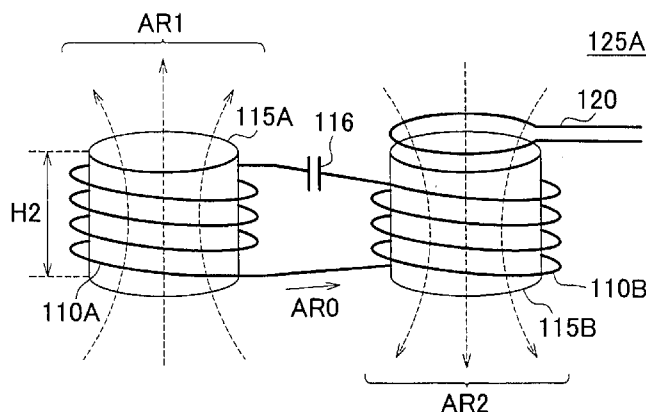
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(54) Title: COIL UNIT, NON-CONTACT POWER TRANSMISSION DEVICE, NON-CONTACT POWER RECEPTION DEVICE, NON-CONTACT POWER SUPPLY SYSTEM, AND VEHICLE

FIG. 5



(57) Abstract: A coil unit performs at least one of transmission and reception of electric power using electromagnetic resonance between the coil unit and a primary resonance coil disposed to face the coil unit. The coil unit includes a secondary resonance coil (110A, H0B) that includes a plurality of coils, and that electromagnetically resonates with the primary resonance coil. A first coil among the plurality of coils is disposed in a manner such that a magnetic field generated by at least one coil other than the first coil among the plurality of coils, with respect to a plane that faces the primary resonance coil.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

INV. B60L11/18 H02J7/02 B60L5/00 H01F38/14
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B60L H02J H01F

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

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

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 252 386 B1 (MINAMI HIDEAKI [JP] ET AL) 26 June 2001 (2001-06-26) column 4, line 19 - column 6, line 9; figures 3, 4, 5A, 5B -----	1,11,21, 24,29
X	US 2009/244866 A1 (KAWANO MASAYA [JP] ET AL) 1 October 2009 (2009-10-01) abstract paragraphs [0009] - [0014], [0057] paragraphs [0067] - [0078] paragraph [0129] figures 3A-3C, 6, 7A-7b, 8A, 8B -----	1-28
A	US 2010/065352 A1 (ICHIKAWA SHINJI [JP]) 18 March 2010 (2010-03-18) the whole document -----	1-29

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Further documents are listed in the continuation of Box C.

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See patent family annex.

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Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Marannino, M

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6252386	B1	26-06-2001	JP 3465075 B2	10-11-2003
			JP 2000175378 A	23-06-2000
			KR 20000047860 A	25-07-2000
			US 6252386 B1	26-06-2001

US 2009244866	A1	01-10-2009	CN 101621065 A	06-01-2010
			JP 2010016142 A	21-01-2010
			US 2009244866 A1	01-10-2009

US 2010065352	A1	18-03-2010	JP 4743244 B2	10-08-2011
			JP 2010070048 A	02-04-2010
			US 2010065352 A1	18-03-2010
			US 2011148351 A1	23-06-2011
