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(54) **Internal combustion engine electric discharge structure**

(57) An internal combustion engine electric discharge structure is provided which comprises a first electrode and a dielectric material. The first electrode includes a first voltage receiving end and a second engine attachment end with a long thin conductive material that discharges non-equilibrium plasma. The dielectric material covers the first electrode.

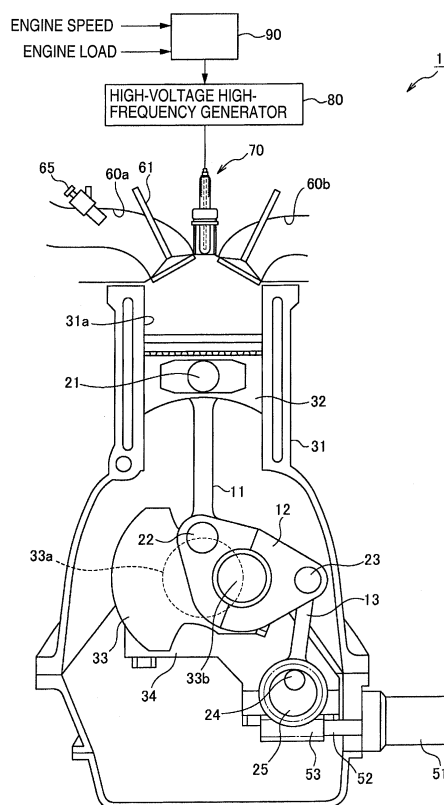


FIG. 1



EUROPEAN SEARCH REPORT

Application Number
EP 08 16 8914

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
E	EP 2 025 927 A2 (NISSAN MOTOR [JP]) 18 February 2009 (2009-02-18) * figures 1-3,9 * * paragraphs [0038] - [0040] * -----	1-5,14, 15	INV. F02P23/04 H01T13/52
X,P	US 2007/266979 A1 (NAGAMINE MORIHIRO [JP] ET AL) 22 November 2007 (2007-11-22) * figure 1 * * claims 1-4,25-31 * -----	13-15	
X	US 5 469 013 A (KANG MICHAEL [US]) 21 November 1995 (1995-11-21) * the whole document * -----	1-5	
Y		6,12	
X	US 2004/129241 A1 (FREEMAN PAUL DOUGLAS [US]) 8 July 2004 (2004-07-08) * figure 3 * * paragraph [0008] * -----	1-5	
E	EP 2 020 503 A2 (NISSAN MOTOR [JP]) 4 February 2009 (2009-02-04) * the whole document * -----	1-5	TECHNICAL FIELDS SEARCHED (IPC)
Y	GB 2 352 772 A (FORD GLOBAL TECH INC [US]) 7 February 2001 (2001-02-07) * figure 2 * * page 1, line 14 - page 5, line 25 * -----	6,12	F02D F02P H01T
A		1-5, 7-11, 13-15	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 11 September 2012	Examiner Parmentier, Hélène
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)

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

EP 08 16 8914

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
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11-09-2012

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 2025927	A2	18-02-2009	EP 2025927 A2	18-02-2009
			JP 4924275 B2	25-04-2012
			JP 2009036125 A	19-02-2009
			US 2009031988 A1	05-02-2009

US 2007266979	A1	22-11-2007	JP 4946173 B2	06-06-2012
			JP 2007309160 A	29-11-2007
			US 2007266979 A1	22-11-2007

US 5469013	A	21-11-1995	NONE	

US 2004129241	A1	08-07-2004	AT 487059 T	15-11-2010
			AT 543000 T	15-02-2012
			AU 2003297149 A1	10-08-2004
			EP 1588048 A1	26-10-2005
			EP 2067986 A2	10-06-2009
			JP 4240225 B2	18-03-2009
			JP 4731591 B2	27-07-2011
			JP 2006513351 A	20-04-2006
			JP 2009008100 A	15-01-2009
			US 2004129241 A1	08-07-2004
			WO 2004063560 A1	29-07-2004

EP 2020503	A2	04-02-2009	EP 2020503 A2	04-02-2009
			JP 2009036123 A	19-02-2009
			US 2009031984 A1	05-02-2009

GB 2352772	A	07-02-2001	DE 60000942 D1	16-01-2003
			DE 60000942 T2	24-04-2003
			EP 1200730 A1	02-05-2002
			GB 2352772 A	07-02-2001
			WO 0111233 A1	15-02-2001
