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- (72) Inventors; and
- (71) Applicants : ZHENG, Xiaolin [CN/US]; Building 520, Room 520J, Stanford University, Stanford, California 94305 (US). OHKURA, Yuma [JP/US]; 125 Blackwelder Ct., Apt. #109, Stanford, California 94305 (US).
- (74) Agents: LIU, Cliff Z. et al.; Foley & Lardner LLP, 975 Page Mill Road, Palo Alto, CA 94304-1013 (US).

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(54) Title: DISTRIBUTED IGNITION OF FUELS USING NANOPARTICLES

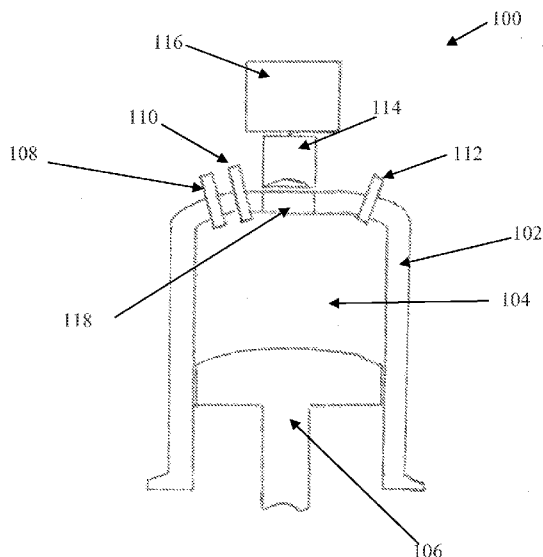


Fig. 1

(57) Abstract: An engine includes: (1) a housing defining a combustion chamber; (2) a set of injection mechanisms connected to the housing and configured to introduce a fuel and nanoparticles into the combustion chamber; and (3) an optical ignition system connected to the housing and configured to irradiate the nanoparticles to ignite the fuel.





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A. CLASSIFICATION OF SUBJECT MATTER***F02M 27/02(2006.01)i, F02P 15/00(2006.01)i, F02B 51/02(2006.01)i***

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)

F02M 27/02; F02B 23/10; F02B 23/02; F23J 7/00; F02P 23/04; F02B 43/00; F02B 19/00

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords:chamber, injection, ignition, nanoparticle, metal, aluminum, oxide

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 7,517,215 B1 (CHEHROUDI et al.) 14 April 2009 see column 3, line 67 - column 6, line 4; figures 1-3.	1,2,3,6,9,10
Y	see column 3, line 67 - column 6, line 4; figures 1-3.	5,7,8
A	see column 3, line 67 - column 6, line 4; figures 1-3.	4
Y	DE 10 2009 029096 A1 (ROBERT BOSCH GMBH) 29 April 2010 see paragraph 0047.	5
Y	CN 101363391 A (INST OF MECHANICS CAS) 11 February 2009 See page 5, line 11 - page 6, line 26.	5
Y	US 2010-0236511 A1 (ELKANICK et al.) 23 September 2010 see paragraphs 0031,0033,0036,0040,0042; figure 5.	7,8
A	US 2010-0095582 A1 (SHTATNOV, ARTEM) 22 April 2010 See paragraphs 0002.	4
A	JP 2006-242035 A (DENSO CORP) 14 September 2006 see paragraphs 0025,0026; figure 1.	1-10

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

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"P" document published prior to the international filing date but later than the priority date claimed

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"&" document member of the same patent family

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189 Cheongsa-ro, Seo-gu, Daejeon Metropolitan
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Authorized officer

HAN Joong Sub

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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CN 101363391 A	11.02.2009	None	
US 2010-0236511 A1	23.09.2010	None	
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