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## (72) Inventor; and

(71) Applicant : JENKINS, Walter P. [US/US]; P.O. Box  
1673, Anna Maria, Florida 34216 (US).

(74) Agents: KUNZLER, Brian, C. et al.; 8 East Broadway,  
Suite 600, Salt Lake City, Utah 84111 (US).

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## (54) Title: APPARATUS, SYSTEM, AND METHOD FOR VAPORIZING A FUEL MIXTURE

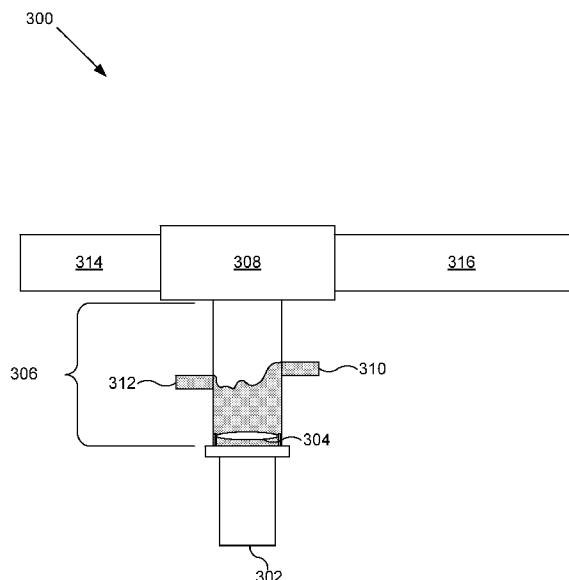


Figure 3

(57) Abstract: An apparatus, system, and method are disclosed for vaporizing fuel. A method for vaporizing fuel includes providing a fuel vaporizer 300. The fuel vaporizer 300 includes a chamber 306 for receiving a liquid, the chamber comprising at least one inlet 310 and at least one outlet 316. The fuel vaporizer also includes a driver module 302 coupled with the chamber 306, and an oscillator 304 disposed within the chamber 306 and configured to be driven by the driver module 302. The method includes feeding water through an inlet 310 of the at least one inlet into the chamber 306. The method includes driving the oscillator 304 using the driver module 302 at a predetermined frequency, wherein a mist is created from the liquid. The method also includes introducing the mist from the chamber 306 via an outlet 306 of the at least one outlet into an intake of an internal combustion engine.

**A. CLASSIFICATION OF SUBJECT MATTER*****F02M 17/00(2006.01)i, F02M 27/04(2006.01)i, F02M 25/025(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 17/00; F02M 17/18; F02M 25/028; B01F 11/02; F02M 25/04; F02D 19/00; F02B 47/02

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) &amp; Keywords:vapor,water,fuel,air,oscillator,chamber,supply

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                      | Relevant to claim No. |
|-----------|---------------------------------------------------------------------------------------------------------|-----------------------|
| X         | KR 20-0211810 Y1 (PARK,SUNGHOON) 15 January 2001<br>See page 2, lines 5-16; figure 1.                   | 1                     |
| X         | US 4,227,817 A (GERRY, MARTIN E.) 14 October 1980<br>See column 1, line 54 - column 3, line 13; figure. | 1                     |
| A         | US 4,324,209 A (GERRY, MARTIN E.) 13 April 1982<br>See column 7, lines 7-31; figures 1-4.               | 1                     |
| A         | US 4,368,711 A (ALLEN, LARRY D.) 18 January 1983<br>See column 2, line 51 - column 3, line 29; figure.  | 1                     |



Further documents are listed in the continuation of Box C.



See patent family annex.

\* Special categories of cited documents:

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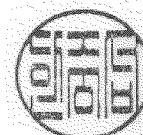
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Authorized officer

HAN Joong Sub

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

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| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s)     | Publication<br>date         |
|-------------------------------------------|---------------------|--------------------------------|-----------------------------|
| KR 20-0211810 Y1                          | 15.01.2001          | None                           |                             |
| US 4,227,817 A                            | 14. 10. 1980        | US 04324209 A<br>US 04463708 A | 13.04. 1982<br>07.08. 1984  |
| US 4,324,209 A                            | 13.04. 1982         | US 04227817 A<br>US 04463708 A | 14. 10. 1980<br>07.08. 1984 |
| US 4,368,711 A                            | 18.01. 1983         | None                           |                             |