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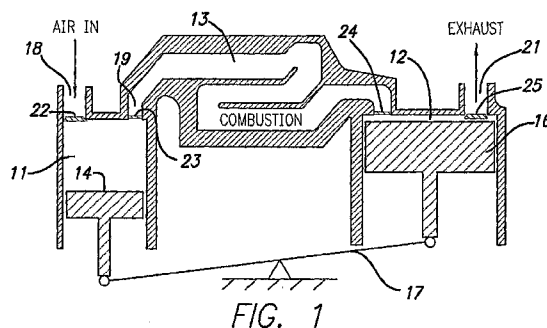
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(54) Title: INTERNAL COMBUSTION ENGINE AND METHOD WITH IMPROVED COMBUSTION CHAMBER



(57) Abstract: Constant pressure internal combustion engine having an elongated combustion chamber which in some embodiments is folded back upon itself and has a rough, twisting interior side wall, a fuel inlet for introducing fuel into the chamber, a compression chamber in communication with the combustion chamber, means for varying the volume of the compression chamber and combustion chamber to form a mixture of fuel and air that burns as it travels through the chamber and is further mixed by the rough, twisting side wall of the chamber, an expansion chamber in communication with the combustion chamber, and an output member in the expansion chamber which is driven by pressure produced by the burning mixture, with the means for varying the volume of the compression chamber and the output member in the expansion chamber being connected together for movement in concert such that the pressure remains substantially constant within the combustion chamber. A gas flow separator near the fuel inlet forms a one or more smaller volumes within the combustion chamber where the fuel can mix and burn with only a portion of the air introduced into the chamber. Long, sharp protrusions extend inwardly from the wall of the combustion chamber and form hot spots which help to provide complete combustion of the fuel mixture throughout the combustion chamber, and these protrusions, together with flow turbulators within the chamber, promote complete mixing and, hence, combustion of the fuel and air.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **F02B 43/00**(2006.01)

USPC: 123/527
 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)
 U.S. : 123/527

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 practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,789,514 (Suh et al.) 14 Sept 2004 (9.14.2004), column 4, lines 19-21	32, 65,66,68,70, and 76-78
Y	US 6,789,514 (Suh et al.) 14 Sept 2004 (9.14.2004), column 4, lines 19-21	1-13, 25-31, 33-64, 69, 71-75, 79-85
Y	US 6,318,310 (Clark) 20 Nov 2001 (20.11.2001), column 2, lines 40-45	14-23
Y	US 4,200,149 (Pechner) 29 April 1980 (29.4.1980), column 1, Lines 5-10 and 20-30	1-8,33-45,57-64,9-19, and 25-31
Y	US 4,074,671 (Pennila) 21 Feb 1978 (21.02.1978), Col. 2, Lines 64-68	9-13, 20-23, 25-31,79-85
A	US 7,270,110 (Keoppel) 18 Sept 2007 (18.09.2007), Column 1, Lines 1-10	1-85

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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