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— of inventorship (Rule 4.17(iv))

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(54) Title: INTERNAL COMBUSTION ENGINE WITH VARIABLE COMPRESSION RATIO

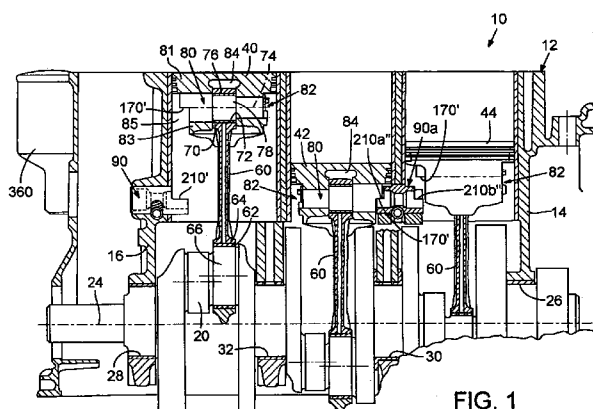


FIG. 1

(57) Abstract: A coupler, such as a piston pin, is pivotally coupled to a piston such that the piston can pivot about a first axis relative to the coupler. A connecting rod is coupled to the coupler for pivoting about a second axis. The relative positions of the first and second axes can be shifted by pivoting an eccentric portion of the coupler to thereby vary the compression ratio of a piston cylinder within which the piston slides. The coupler comprises a pivot member engager portion that is selectively shifted from first to second positions to vary the compression rates in response to shifting of a pivot member. The pivot member engager is shifted from first to second positions as the piston approaches the bottom dead center position. The pivot member and pivot member engager disengage from one another as the piston travels away from the bottom dead center position.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2008/005883

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - F02B 75/04 (2008.04)

USPC - 123/48A

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)

IPC(8) - F02B 75/04 (2008.04)

USPC - 123/48A, 48AA, 48R, 48B

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)

MicroPatent, IP.com, DialogPro

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 1,386,114 A (JEDRZYKOWSKI) 02 August 1921 (02.08.1921) entire document	1-6, 39-40
A	US 5,146,879 A (KUME et al) 15 September 1992 (15.09.1992) entire document	1-6, 39-40
A	US 1,463,474 A (LAZIER) 31 July 1923 (31.07.1923) entire document	1-6, 39-40
A	US 4,215,660 A (FINLEY) 05 August 1980 (05.08.1980) entire document	1-6, 39-40
A	US 5,025,757 A (LARSEN) 25 June 1991 (25.06.1991) entire document	1-6, 39-40
A	US 5,417,185 A (BEATTIE) 23 May 1995 (23.05.1995) entire document	1-6, 39-40
A	US 5,908,014 A (LEITHINGER) 01 June 1999 (01.06.1999) entire document	1-6, 39-40
A	US 5,960,750 A (KREUTER) 05 October 1999 (05.10.1999) entire document	1-6, 39-40
A	US 6,966,282 B2 (HIRANO) 22 November 2005 (22.11.2005) entire document	1-6, 39-40
A	US 7,191,741 B2 (HIYOSHI et al) 20 March 2007 (20.03.2007) entire document	1-6, 39-40
A	US 2002/0002957 A1 (MOTECKI et al) 10 January 2002 (10.01.2002) entire document	1-6, 39-40
A	US 2005/0150471 A1 (STYRON) 14 July 2005 (14.07.2005) entire document	1-6, 39-40

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Further documents are listed in the continuation of Box C.

☐

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"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2008/005883

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☒ Claims Nos.: 7-38
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.