

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
13 September 2007 (13.09.2007)

PCT

(10) International Publication Number
WO 2007/103621 A3

(51) International Patent Classification:
F02B 53/00 (2006.01)

(21) International Application Number:
PCT/US2007/062273

(22) International Filing Date:
16 February 2007 (16.02.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/779,338 3 March 2006 (03.03.2006) US
11/675,172 15 February 2007 (15.02.2007) US

(71) Applicant (for all designated States except US): **KARNES DYNOREV ENGINE, INC.** [US/US]; 1115 Jamestown Street, Suite 3, Columbia, KY 42728-7589 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **KARNES, Mark, D.** [US/US]; 1115 Jamestown Street, Suite 3, Columbia, KY 42728-7589 (US).

(74) Agent: **NAGLE, David, W. Jr.**; Stites & Harbison PLLC, 400 West Market Street, Suite 1800, Louisville, KY 40202 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

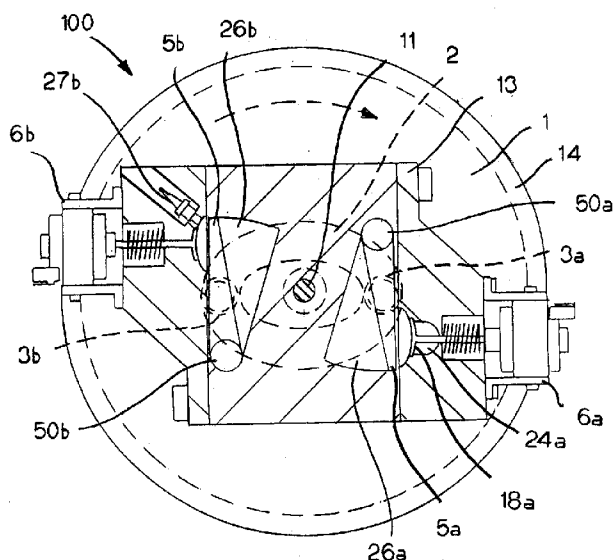
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

[Continued on next page]

(54) Title: INTERNAL COMBUSTION ENGINE



(57) Abstract: An internal combustion engine operates on a four-stroke cycle and includes a housing defining: one or more generally wedge-shaped combustion chambers, and an internal cavity in which a wheel is mounted for rotation on a crankshaft. Arranged inside each combustion chamber is a gate, with each gate having a corresponding gate control assembly including a control shaft. Each control shaft is supported by bearings that engage and ride in a generally elliptical cam-cutout defined in the surface of the wheel. Movement of the gate control assemblies within and with respect to the elliptical cam-cutout controls the movement and operation of the gates, such that, as the wheel rotates, a fuel/air mixture is drawn into a combustion chamber; compressed by the rotating movement of a gate; and ignited, imparting a force on the gate, with the gate then rotating to expel combustion gases through an exhaust port.

WO 2007/103621 A3



Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:

2 May 2008

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 07/62273

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - F02B 53/00 (2007.10)

USPC - 123/241

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 53/00 (2007.10)

USPC: 123/241

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 123/241, 226. (see search terms)

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

USPTO - West - DB: PGPB, USPT, EPAB, JPAB

Search terms: internal combustion engine, magnet, electricity, wheel, gate, housing, crankshaft, control, chamber, exhaust, bearing, generator and control arm.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 3,435,808 A (ALLENDER) 01 April 1969 (01.04.1969), Figure 1-22; column 5, line 35 to column 9, line 10.	1-18
Y	US 3,923,013 A (MYERS) 02 December 1975 (02.12.1975), Figure 1-5; column 2, line 40 to column 5, line 63.	1-18
Y	US 4,057,374 A (SEYBOLD) 08 November 1977 (08.11.1977), Figure 1; column 3, lines 2-40.	1-18
Y	US 4,562,802 A (GROEGER) 07 January 1986 (07.01.1986), Figure 1-4; column 2, line 55 to column 7, line 25.	8 and 18

☐ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

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

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family.

Date of the actual completion of the international search

10 December 2007 (10.12.2007)

Date of mailing of the international search report

21 FEB 2008

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774