

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
12 June 2008 (12.06.2008)

PCT

(10) International Publication Number
WO 2008/070534 A3

(51) International Patent Classification:
H02P 9/04 (2006.01) *A43B 13/20* (2006.01)
A43B 7/04 (2006.01)

(21) International Application Number:
PCT/US2007/086002

(22) International Filing Date:
30 November 2007 (30.11.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/872,220 1 December 2006 (01.12.2006) US
11/869,515 9 October 2007 (09.10.2007) US

(71) Applicant (for all designated States except US): **HONEYWELL INTERNATIONAL INC.** [US/US]; Law Department AB/2B, 101 Columbia Road, Morristown, NJ 07962 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **YANG, Wei** [US/US]; 3282 Oak Road, Minnetonka, Minnesota 55345 (US).

(74) Agent: **BEATUS, Carrie**; Honeywell International Inc., Law Department AB/2B, 101 Columbia Road, Morristown, New Jersey 07962 (US).

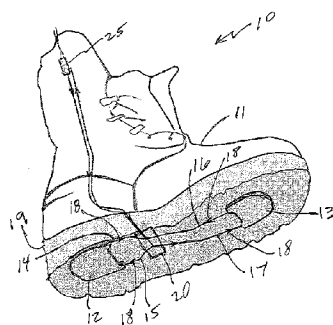
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, 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, MT, 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).

Published:
— with international search report

(88) Date of publication of the international search report:
31 July 2008

(54) Title: A FOOTWEAR ENERGY HARVESTING SYSTEM



(57) Abstract: A system for harvesting footwear energy. The energy may be in a form of footwear movement which involves a compression and decompression of chambers (12, 13) situated in the footwear. There may be a back chamber (12) in the heel area and a front chamber (13) in the toe area of the footwear. The chambers may be filled with gas which moves in and out upon compression and decompression of the chambers at the heel and toe areas upon the ambulatory motion of a person wearing the footwear. The moving gas (18) may go through a pneumatic rectifier (20) that provides a unidirectional stream of gas to spin a micro-turbine (28) which turns an electrical generator (25), or operate a pneumatic device.



WO 2008/070534 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/086002

A. CLASSIFICATION OF SUBJECT MATTER
 INV. H02P9/04 A43B7/04 A43B13/20

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)
 A43B H02P

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 practical, search terms used)
 EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 6 182 378 B1 (SENDAULA MUSOKE H [US]) 6 February 2001 (2001-02-06) column 6, line 30 - column 7, line 4; figures 5A-5D,9 column 8, line 18 - line 48 -----	1,2, 5-18,20 3,4,19
X	US 6 281 594 B1 (SARICH IVAN MARIJAN [US]) 28 August 2001 (2001-08-28) column 9, line 27 - column 10, line 28; figures 4A,4B,6-8 -----	1,2, 5-18,20
Y	US 6 239 501 B1 (KOMARECHKA ROBERT [CA]) 29 May 2001 (2001-05-29) column 3, line 44 - line 67; figures -----	3,4,19
A	US 6 201 314 B1 (LANDRY NORMAN [US]) 13 March 2001 (2001-03-13) the whole document -----	1,9,12
	-/--	

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

* Special categories of cited documents :

A document defining the general state of the art which is not considered to be of particular relevance	*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
E earlier document but published on or after the international filing date	*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
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)	*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.
O document referring to an oral disclosure, use, exhibition or other means	*Z* document member of the same patent family
P document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 6 May 2008	Date of mailing of the international search report 16/05/2008
---	--

Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Vesin, Stéphane
---	---

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/086002

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 255 799 B1 (LE BINH Q [US] ET AL) 3 July 2001 (2001-07-03) column 4, line 5 - line 61; figures 5,6 -----	1,9,12

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/086002

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6182378	B1	06-02-2001	NONE
US 6281594	B1	28-08-2001	NONE
US 6239501	B1	29-05-2001	CA 2238592 A1 26-11-1999
US 6201314	B1	13-03-2001	NONE
US 6255799	B1	03-07-2001	NONE