

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization

International Bureau

(43) International Publication Date
10 October 2019 (10.10.2019)



(10) International Publication Number
WO 2019/194781 A3

(51) International Patent Classification:

F03G 7/08 (2006.01) H02N2/18 (2006.01)

(21) International Application Number:

PCT/TR20 19/050221

(22) International Filing Date:

05 April 2019 (05.04.2019)

(25) Filing Language:

Turkish

(26) Publication Language:

English

(30) Priority Data:

2018/04833 05 April 2018 (05.04.2018) TR

(71) Applicant: **TOBB EKONOMI VE TEKNOLOJİ
UNİVERSİTESİ** [TR/TR]; Tobb Ekonomi ve Teknoloji
Universitesi Sogutozu Caddesi No:43, 06520 Ankara (TR).

(72) Inventors: **OZER, Mehmet Bulent**; Orta Dogu Teknik
Universitesi Makina Muhendisligi Bolumu Universiteler
Mahallesi Dumlupinar Bulvari No:1, 06800 Ankara (TR).
OGUZ, Ahmet; 5017. Sokak No.3 Villa Beyaz Sitesi Ala-
caatli Mah., Cankaya/Ankara (TR). **BILGE, Mert**; Birlik
Mahallesi 467. Sok. 17/8, Cankaya/Ankara (TR). **UZEL,
Selcuk**; Turan Gunes Bulvari 597. Sokak 2/3, Cankaya/
Ankara (TR).

(74) Agent: **PROIP PATENT TRADEMARK CONSUL-
TANCY LIMITED**; 13 14 Cadde No:34/18 Ovecler, 06460
Ankara (TR).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP,
KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME,
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,
SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
- in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE

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

07 November 2019 (07. 11.2019)

(54) Title: AN ENERGY TRANSFORMATION MECHANISM

(57) Abstract: This invention relates to an energy transformation mechanism (1) which moves when a force is applied thereon and transforms motion energy into electric energy by means of a piezoelectric element at the end of said movement.



WO 2019/194781 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/TR2019/050221

A. CLASSIFICATION OF SUBJECT MATTER

F03G 7/08 (2006.01)i; H02N 2/18 (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)

F03G; H02N

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)

EPODOC, WPI, EPOQUE, Espacenet, TURKPATENT

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN 105656348 A (JINLING INST TECHNOLOGY) 08 June 2016 (2016-06-08) Abstract; Description paragraphs 5-28; Figures 1-2	1-32
Y	WO 2012080636 A1 (GIRAUD LUDOVIC [FR]) 21 June 2012 (2012-06-21) Abstract; Description page 4 line 3 – page 7 line 9, page 9 line 10 – page 10 line 19	1-32
Y	WO 02054569 A2 (HENDERSON GARY [US]) 11 July 2002 (2002-07-11) The whole document	1-32
Y	JP S60102776 A (SUGITA TOSHIO) 06 June 1985 (1985-06-06) Abstract; Figures 2, 8	1-32
Y	CN 200982279 Y (YIFENG DONG [CN]) 28 November 2007 (2007-11-28) The whole document	1-32
Y	CN 101975148 A (UNIV SHENYANG JIANZHU) 16 February 2011 (2011-02-16) Abstract; Description paragraphs 5-7, 9, 11, 23-25; Figure 2	1-32
Y	WO 2011145057 A2 (WAYDIP EN E AMBIENTE LDA [PT]) 24 November 2011 (2011-11-24) The whole document	1-32

 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

“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

26 September 2019

Date of mailing of the international search report

26 September 2019

Name and mailing address of the ISA/TR

Turkish Patent and Trademark Office (Turkpatent)
Hipodrom Caddesi No. 115
06560 Yenimahalle
Ankara
Turkey

Telephone No. (90-312) 303 11 82

Facsimile No. +903123031220

Authorized officer

Serhat GÖKHAN

Telephone No. 0090 312 303 10 00 (1616)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/TR2019/050221

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
CN	105656348	A	08 June 2016	CN	105656348B	B	31 May 2017
WO	2012080636	A1	21 June 2012	FR	2969422	A1	22 June 2012
WO	02054569	A2	11 July 2002	AU	2002248310	A1	16 July 2002
				US	2002145350	A1	10 October 2002
JP	S60102776	A	06 June 1985	NONE			
CN	200982279	Y	28 November 2007	NONE			
CN	101975148	A	16 February 2011	NONE			
WO	2011145057	A2	24 November 2011	PT	105126	A	17 November 2011