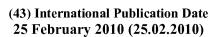
(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau







(10) International Publication Number WO 2010/020821 A3

(51) International Patent Classification: *B60K 15/077* (2006.01)

(21) International Application Number:

PCT/GB2009/051056

(22) International Filing Date:

24 August 2009 (24.08.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

0815371.0 22 August 2008 (22.08.2008) GB 0900489.6 13 January 2009 (13.01.2009) GB

- (72) Inventors; and
- (71) Applicants: GILCHRIST, James Wilson [GB/GB]; 5 Old Humbie Road, Newton Mearns, Glasgow G77 5DF (GB). MEECHAN, Ronald Thomas [GB/GB]; Doon Villa, 59 Midton Road, Ayr KA7 2TN (GB). MEECHAN, Andrew Robert [GB/GB]; 24 Nursery Wynd, Kilwinning KA13 6ER (GB).
- (74) Agent: HINDLE, Alistair Andrew; Hindle Lowther, 66 Hanover Street, Edinburgh EH2 1EL (GB).
- (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, BR, BW, BY, BZ,

CA, CH, CL, 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, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

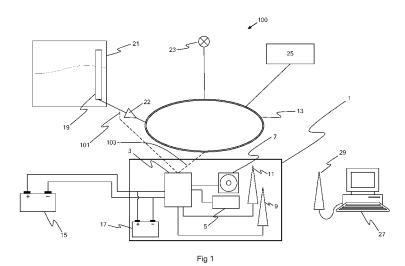
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, 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))
- (88) Date of publication of the international search report:

24 June 2010

(54) Title: FUEL MONITORING SYSTEM AND METHODS



(57) Abstract: A fuel monitoring device for a vehicle having one or more fuel tank sensors, the fuel monitoring device comprising a control module in communication with the or each fuel tank sensor, wherein the control module is operable to receive data from the or each fuel tank sensor and operable to output fuel level related data to a mobile communications system transmitter for transmission to an end user. The fuel monitoring device may be installed covertly within a vehicle and communicate with the vehicle's fuel tank sensor and, optionally, further sensors. The fuel monitoring device facilitates the transmission of information to an end user allowing the end user to identify occurrences of fuel theft from a remote location and/or the fuel monitoring device is operable to generate an alarm condition in or in the proximity of the vehicle. Data may additionally be audited to identify opportunities to improve operating efficiency of a vehicle, or a fleet of vehicles, or to provide early warning of possible vehicle faults and/or to identify fuel theft.

INTERNATIONAL SEARCH REPORT

International application No PCT/GB2009/051056

	•		,						
A. CLASSI	IFICATION OF SUBJECT MATTER B60K15/077								
According to	o International Patent Classification (IPC) or to both national classifica	ation and IPC							
B. FIELDS	SEARCHED								
	Minimum documentation searched (classification system followed by classification symbols) $ 860K B60R $								
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched									
Electronic d	lata base consulted during the international search (name of data base	se and, where practical, se	earch terms used)						
EPO-Internal									
C. DOCUM	ENTS CONSIDERED TO BE RELEVANT								
Category*	Citation of document, with indication, where appropriate, of the rele		Relevant to claim No.						
X	US 6 240 365 B1 (BUNN FRANK E [CA 29 May 2001 (2001-05-29)		1-17,19, 20, 37-40, 52-54						
	the whole document		52-5 4						
Furth	her documents are listed in the continuation of Box C.	X See patent family	annex.						
 Special categories of cited documents: "A" document defining the general state of the art which is not 		"T" later document publish or priority date and n	ot in conflict with the	application but					
consid	lered to be of particular relevance document but published on or after the international	cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention							
"L" docume which	ent which may throw doubts on priority claim(s) or	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							
other r	ent published prior to the international filing date but	document is combined with one or more other such docu- ments, such combination being obvious to a person skilled in the art.							
	nan the priority date claimed actual completion of the international search	&" document member of the same patent family Date of mailing of the international search report							
8	February 2010	20/04/2010							
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2		Authorized officer							
	NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Fax: (+31–70) 340–3016	Brachmann, Patrick							

INTERNATIONAL SEARCH REPORT

International application No. PCT/GB2009/051056

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:						
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.: 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:						
see additional sheet						
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 an 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.: 1-20, 37-40, 52-54						
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.						

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-20, 37-40, 52-54

General fuel monitoring device and vehicle with this device and corresponding software.

2. claims: 21-22, 55-56

Fuel dispending pump aspects.

3. claims: 23-36, 41-51

Fuel Anti-theft aspect.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/GB2009/051056

Pa cited	atent document I in search report		Publication date		Patent family member(s)	Publication date	
US	6240365	B1	29-05-2001	NONE			
		_					
							;
							,
							٠
,							