

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
2 September 2010 (02.09.2010)

(10) International Publication Number  
**WO 2010/099490 A3**

(51) International Patent Classification:

G01F 3/02 (2006.01) G01F 11/08 (2006.01)  
G01F 3/00 (2006.01) G01L 7/08 (2006.01)

(21) International Application Number:

PCT/US2010/025663

(22) International Filing Date:

26 February 2010 (26.02.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/156,405 27 February 2009 (27.02.2009) US  
61/184,282 4 June 2009 (04.06.2009) US

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(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, 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, 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).

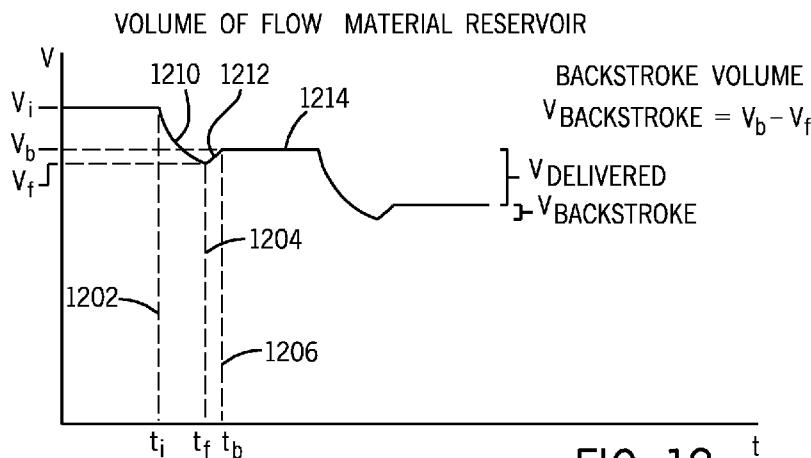
Published:

— with international search report (Art. 21(3))

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

6 January 2011

(54) Title: METHODS AND DEVICES FOR DETERMINATION OF FLOW RESERVOIR VOLUME



(57) Abstract: A novel enhanced flow metering device is adapted for disposing into a flow material reservoir a known volume of flow material whereby software used in conjunction with a pressure sensor may be calibrated. Additionally, by measuring the known amount of flow material returning to the flow material reservoir, checks are quickly made to ensure the pressure sensor is behaving as expected.

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**A. CLASSIFICATION OF SUBJECT MATTER***G01F 3/02(2006.01)i, G01F 3/00(2006.01)i, G01F 11/08(2006.01)i, G01L 7/08(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)

G01F 3/02; G01F 3/38; G01F 1/34; G05D 7/06; G05D 11/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) &amp; Keywords: flow metering device, actuation shaft, backstroke volume, sensor calibration, and similar terms

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0560571 A1 (CURTIN MATHESON SCIENTIFIC INC) 15 September 1993 See abstract; claim 1; figure 1.	1-20
A	EP 0055836 A2 (THE PERKIN-ELMER CORPORATION) 14 July 1982 See abstract; claim 1; figure 1.	1-20
A	US 2001-0000282 A1 (POLESHUK, EDWARD S.; LONG, JOSEPH D.) 19 April 2001 See abstract; claim 18; figure 1.	1-20

 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

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"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

"&amp;" document member of the same patent family

Date of the actual completion of the international search

30 SEPTEMBER 2010 (30.09.2010)

Date of mailing of the international search report

**30 SEPTEMBER 2010 (30.09.2010)**

Name and mailing address of the ISA/KR

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Government Complex-Daejeon, 139 Seonsa-ro, Seo-gu,  
Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2010/025663**

Patent document cited in search report	Publication date	Patent family member(s)	Publication date		
EP 0560571 A1	15.09.1993	AU 3284893 A	16.09.1993		
		AU 662275 B2	24.08.1995		
		CA 2090162 C	24.09.2002		
		CA 2090162-A1	13.09.1993		
		DE 69310252 D1	05.06.1997		
		DE 69310252 T2	04.12.1997		
		EP 0560571 B1	02.05.1997		
		JP 03-312346 B2	31.05.2002		
		JP 06-288801 A	18.10.1994		
		JP 3312346 B2	05.08.2002		
		US 5367910 A1	29.11.1994		
		EP 0055836 A2	14.07.1982	CA 1168332-A1	29.05.1984
				DE 3175277 D1	09.10.1986
EP 0055836 A3	06.07.1983				
EP 0055836 B1	03.09.1986				
JP 02-031408 B	13.07.1990				
JP 1614473 C	15.08.1991				
JP 57-137908 A	25.08.1982				
US 4364413 A1	21.12.1982				
US 2001-0000282 A1	19.04.2001			US 2001-000282 A1	19.04.2001
		US 6227227 B1	08.05.2001		
		US 6505134 B2	07.01.2003		