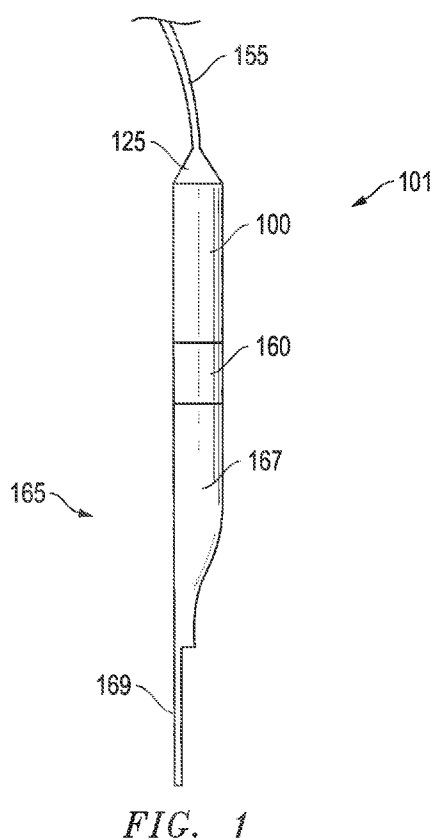




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[Continued on next page]

(54) Title: FLOW ACTIVATED SENSOR ASSEMBLY



(57) Abstract: A sensor assembly for detection of fluid flow signaling over a tubular conveyance. The assembly may be employed for activation of a variety of different downhole actuators such as firing heads for perforating guns or hydrostatic set modules for packer deployment. The assembly is configured with a flow translation device which is disposed in a manner exposed to fluid flow directed through an oilfield tubular coupled to the assembly. Thus, a detector coupled to the translation device may obtain mechanical data from the device which is reliably indicative of the flow, irrespective of the physical nature of the flow itself. As such, enhanced reliability for subsequent actuator firing based on the flow signaling may be achieved.



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RW, 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.

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International application No.
PCT/US2012/029776**A. CLASSIFICATION OF SUBJECT MATTER*****E21B 49/08(2006.01)i, E21B 47/12(2006.01)i, E21B 47/06(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)

E21B 49/08; E21B 43/1185; G01J 1/04; E21B 43/117; G01V 1/00; E21B 34/10

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) & Keywords: flow activated sensor, downhole, fluid, flow translation device, detector, actuator, data communication

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	US 2002-0109080 A1 (TUBEL, PAULO S. et al.) 15 August 2002 See abstract, paragraphs 0058, 0059, claims 1, 5, 6 and figure 4.	1 2-10
Y	US 2003-0218939 A1 (CASARSA, JOSE R. et al.) 27 November 2003 See abstract, paragraph 0013 and claims 1 - 3.	1
A	US 4886126 A (YATES, JR., DONALD N.) 12 December 1989 See abstract, column 4, line 66 - column 5, line 28 and figure 1A.	1-10
A	US 5226494 A (RUBBO, RICHARD P. et al.) 13 July 1993 See abstract, column 8, lines 10 - 39, claim 1 and figures 1, 4A, 4B.	1-10

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

* Special categories of cited documents:

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"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

11 OCTOBER 2012 (11.10.2012)

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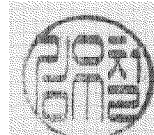
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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