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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

[Continued on next page]

(54) **Title:** METHOD AND APPARATUS FOR DETERMINING RADIAL SHEAR VELOCITY VARIATION FROM DIPOLE ACOUSTIC LOGGING

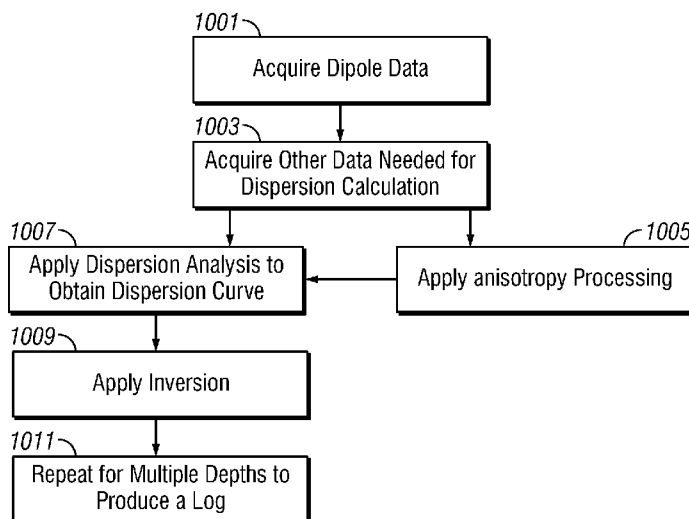


FIG. 10

(57) **Abstract:** A radial shear velocity profile of an earth formation is obtained by using dipole and/or cross-dipole measurements. The non-uniqueness in the inversion is addressed by using a constraint based on the fact that high-frequency dipole shear waves are mostly sensitive to the near-borehole shear velocity.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/036180**A. CLASSIFICATION OF SUBJECT MATTER***G01V 1/48(2006.01)i, G01V 1/28(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)

G01V 1/48; G01R 13/00; G01R 23/00; G01S 15/00; G01V 3/18; G01V 1/40; G01V 1/00

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)
eKOMPASS(KIPO internal) & "Keywords : group, velocity, frequency, shear, tube, wavelength 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	US 7330799 B2 (LEFEBVRE, G. & BENHASSEN, M.K.) 12 February 2008 See the whole document.	1-18
A	US 5077697 A (CHANG, S.K.) 31 December 1991 See the whole document.	1-18
A	US 7310285 B2 (DONALD, J.A. et al.) 18 December 2007 See the whole document.	1-18
A	US 7313479 B2 (FRENKEL, M.A.) 25 December 2007 See the whole document.	1-18

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

* Special categories of cited documents:

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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

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"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

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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