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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: DEVICE AND METHOD FOR GENERATING A COLLIMATED BEAM OF ACOUSTIC ENERGY IN A BOREHOLE

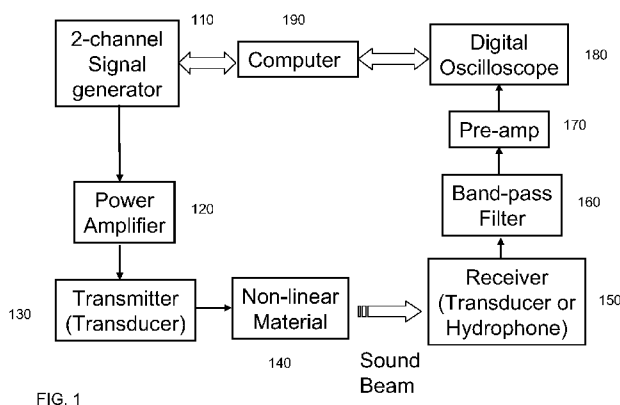


FIG. 1

(57) Abstract: In some aspects of the invention, a method of generating a beam of acoustic energy in a borehole is disclosed. The method includes generating a first acoustic wave at a first frequency; generating a second acoustic wave at a second frequency different than the first frequency, wherein the first acoustic wave and second acoustic wave are generated by at least one transducer carried by a tool located within the borehole; transmitting the first and the second acoustic waves into an acoustically non-linear medium, wherein the composition of the non-linear medium produces a collimated beam by a non-linear mixing of the first and second acoustic waves, wherein the collimated beam has a frequency based upon a difference between the first frequency range and the second frequency, and wherein the non-linear medium has a velocity of sound between 100 m/s and 800 m/s.

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Minimum documentation searched (classification system followed by classification symbols)
G01V G10K G01S G01N

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 practical, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	US 2010/002540 A1 (VU CUNG KHAC [US] ET AL) 7 January 2010 (2010-01-07) paragraphs [0024] - [0029]; figures 1,2a-c paragraphs [0050] - [0053]; figures 15a-c -----	1-22
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A	US 3 974 476 A (COWLES CHRISTOPHER S) 10 August 1976 (1976-08-10) column 2, line 17 - column 3, line 5; figure 1 -----	1,12
A	US 2005/036403 A1 (LEGGETT JAMES V [US] ET AL LEGGETT III JAMES V [US] ET AL) 17 February 2005 (2005-02-17) paragraphs [0040] - [0043]; figures 3A,3B -----	1,12

Further documents are listed in the continuation of Box C.

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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