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(54) **Title:** METHOD AND DEVICE FOR MULTI-SENSOR ELECTROMAGNETIC DEFECTOSCOPY OF WELL CASINGS

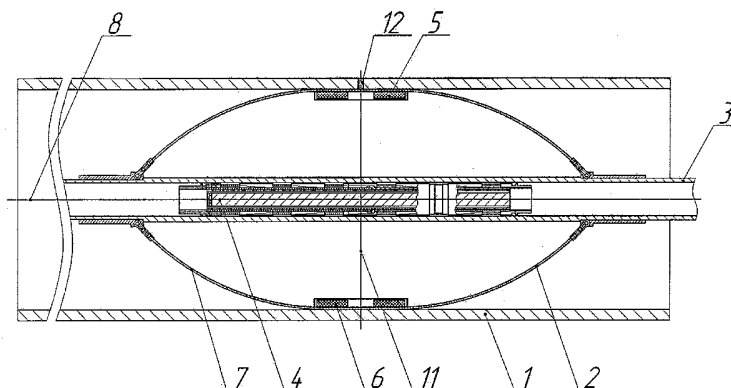


Fig. 1

(57) **Abstract:** A group of inventions related to geophysical well logging, in particular to magnetic imaging defectoscopy of well casings including magnetised ones, that can be used to identify and classify defects in production and intermediate casing and tubing strings in oil and gas wells. An electromagnetic multi-sensor defectoscope for surveying casing pipes containing a source of the electromagnetic field in the form of a central exciter coil designed to transmit current pulses from a current pulse generator, a system of measuring elements placed on bow springs to be forced against the inner surface of a casing pipe, and a unit for signal recording, control and data processing connected to the system of measuring elements through communication lines, with the system of measuring elements designed to record signals proportional to the longitudinal component of the electromagnetic field consisting of at least three compensated sensors, each placed on the inner side of a bow spring and being equidistant from one another along the circumference of the cross-section of a casing pipe to ensure reliable detection of defects within its surveyed section. A method of multi-sensor electromagnetic defectoscopy for surveying casing pipes, in which an electromagnetic field is generated within the surveyed section of a casing pipe by current pulses, and mainly response signals of the secondary electromagnetic field are measured in the intervals between excitation pulses using

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a system of measuring elements, while most response signals of the primary electromagnetic field are compensated, and the signals are then transmitted into a signal recording, control and data processing unit recording the time dependence of the output EMF of the signal of the system of measuring elements. Two independent claims, eight dependent claims and two figures.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER		
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According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
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G01N 27/00, 27/82, 27/87, 27/90, E21B 47/00, G01R 33/00		
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)		
PatSearch (RUPTO internal), USPTO, PAJ, Esp@cenet, DWPI, EAPATIS, PATENTSCOPE, Information Retrieval System of FIPS		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y, D	US 7960969 B2 (SCHLUMBERGER TECHNOLOGY CORPORATION) 14.06.2011, claims 1-13, fig. 2, 3	1, 3-6
A		2, 7-10
Y	RU 2397485 C2 (ZAO NIIN MNPO "SPEKTR") 20.08.2010, p. 4, lines 31-33, p. 5, lines 4-28	1, 3-6
A	BY 9846 C1 (BELORUSSKY NATSIONALNY TEKHNICHESKY UNIVERSITET) 30.10.2007	1-10
A	US 2008/0042646 A1 (SOUTHWEST RESEARCH INSTITUTE) 21.02.2008	1-10
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