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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR FERROMAGNETIC CABLE INSPECTION

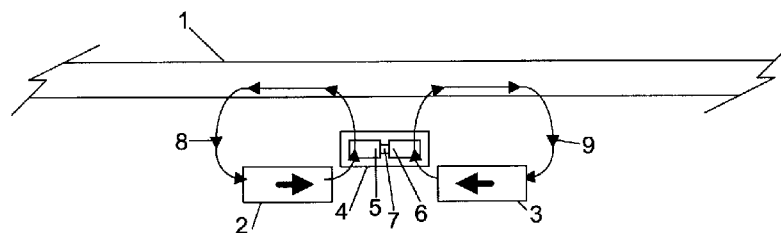


Fig. 1

(57) Abstract: An opposing field sensing element, for ferromagnetic cable inspection is disclosed that uses magnetic flux sources and a magnetic flux sensor to detect anomalies in ferromagnetic cables. An array of opposing field sensing elements may be used to non-invasively inspect systems that contain ferromagnetic cables such as conveyer belts and the like. The opposing field sensing element is small and compact, and immune to vertical axis flutter and disturbances of the ferromagnetic cable being inspected. In addition, the opposing field sensing element does not magnetize the ferromagnetic cable being inspected such that, interference with other sensing and control systems is minimized.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER IPC: G01N 27/83 (2006.01) , G01R 33/07 (2006.01) 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) IPC: G01N (2006.01) , G01R (2006.01) (using keywords) Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used) Canadian Patent Database, Epoque, Esp@cenet, TotalPatent, United States Patent Database (USPTO), WEST. Keywords: concentrator, ferromagnetic cable, hall effect, magnetic field, magnetic flux, sensor.														
C. DOCUMENTS CONSIDERED TO BE RELEVANT <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>CA 1166696 (Daley-Hall) 1 May 1984 (01-05-1984) - abstract - page 2, lines 1-13 - page 4, line 14 - page 5, line 13 - page 11, line 12 - page 14, line 29 - page 18, line 28 - page 21, line 11 - claims 1, 5, 6, 10 - figures 1-4</td> <td>1-4, 6-10, 12, 15, 17-19</td> </tr> <tr> <td>Y</td> <td>US 5245279 (Bendzsak) 14 September 1993 (14-09-1993) - abstract - col. 5, line 56 - col. 6, line 29 - col. 7, lines 12-35 - col. 10, lines 22-64</td> <td>2, 4, 8, 10, 13, 14, 16, 17</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	CA 1166696 (Daley-Hall) 1 May 1984 (01-05-1984) - abstract - page 2, lines 1-13 - page 4, line 14 - page 5, line 13 - page 11, line 12 - page 14, line 29 - page 18, line 28 - page 21, line 11 - claims 1, 5, 6, 10 - figures 1-4	1-4, 6-10, 12, 15, 17-19	Y	US 5245279 (Bendzsak) 14 September 1993 (14-09-1993) - abstract - col. 5, line 56 - col. 6, line 29 - col. 7, lines 12-35 - col. 10, lines 22-64	2, 4, 8, 10, 13, 14, 16, 17			
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[X] Further documents are listed in the continuation of Box C. [X] See patent family annex. <table border="1"> <tbody> <tr> <td>* Special categories of cited documents :</td> <td>"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</td> </tr> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"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</td> </tr> <tr> <td>"E" earlier application or patent but published on or after the international filing date</td> <td>"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</td> </tr> <tr> <td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"&" document member of the same patent family</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td></td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </tbody> </table>			* Special categories of cited documents :	"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	"A" document defining the general state of the art which is not considered to be of particular relevance	"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	"E" earlier application or patent but published on or after the international filing date	"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	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family	"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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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2012/001780

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5247202 (Popovic et al.) 21 September 1993 (21-09-1993) - abstract - col. 1, lines 47-56 - col. 2, lines 38-57 - col. 3, line 55 - col. 4, line 35 - col. 6, lines 13-49 - claim 1	5, 11
A	US 5414353 (Weischedel) 9 May 1995 (09-05-1995) - see entire document	1-20
A	US 5483161 (Deeter et al.) 9 January 1996 (09-01-1996) - see entire document	1-20

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/IB2012/001780

Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
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