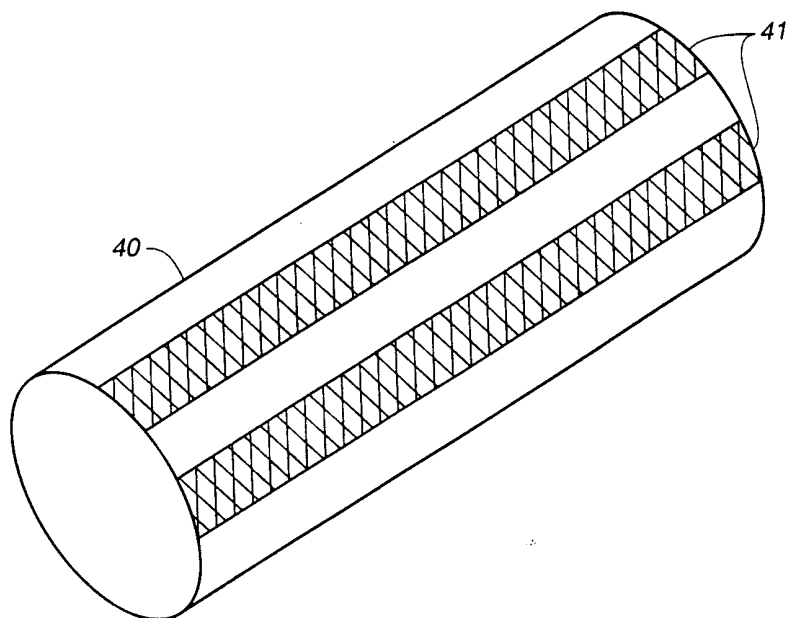




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(54) Title: WATER WEIGHT SENSOR ARRAY IMBEDDED IN A SHEETMAKING MACHINE ROLL



(57) Abstract

A sensor imbedded roller (40) for detecting changes in properties of a material and a measurement apparatus including a fixed impedance element coupled in series with a variable sensor imbedded roller (40) between an input signal and a reference potential is described. The sensor (41), which includes an electrode configuration, is embedded into a roller (40) such that when the roller rotates the sensor contacts the material being measured and the sensor's impedance varies. The variable impedance of the sensor relates to changes in property of the material being sensed which can then be related to changes in other physical characteristics of the material, such as weight, chemical composition, and temperature. Sensor imbedded rollers (40) can be placed in a sheetmaking machine to measure the pre-formed and post-formed paper product.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/07534

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G01R 27/26;

US CL :73/159, 160, 73; 162/198

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)

U.S. : 73/73, 74, 159, 160, 745; 162/198

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US 5,212,452 A (MAYER et al.) 18 May 1993 (18.05.93), col.1, lines 9-13, col. 3, lines 30-44, Figures 1, 2, and abstract.	1-4, 7-10, 12-14, 17, 20, 22, and 23 ----- 5, 6, 18, 19, 25-29, and 31-34
X -- Y	US 4,055,077 A (LOCH) 25 October 1977 (25.10.77), col. 1, lines 6-10, col. 2, lines 23-44, col. 4, lines 1-13 and 35-43, Figure1, and abstract.	1, 2, 4, 10-17, 20, 21, 23, 24 ----- 25-28 and 30-34

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1 CT/US99/07534

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 3,622,448 A (ADAMS et al.) 23 November 1971 (23.11.71), abstract and Figure 1.	5, 6, 18, 19, and 25-34
Y	SMOOK, G.A., Handbook for Pulp & Paper Technologist, 2d. ed., 1992, pages 228-229.	4, 17, 25, 27, 28, and 31-34
A	US 4,845,421 A (HOWARTH et al.) 04 July 1989 (04.07.89), whole document.	1-34
A	US 3,823,371 A (LIPPKE, deceased) 09 July 1974 (09.07.74), whole document.	1-34
A	US 3,246,216 A (MEAD et al.) 12 April 1966 (12.04.66), whole document.	1-34