200102557--6
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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : G01N 21/63, G01M 11/00	A1	(11) International Publication Number: WO 00/37925
		(43) International Publication Date: 29 June 2000 (29.06.00)

(21) International Application Number: PCT/AU99/01028

(22) International Filing Date: 19 November 1999 (19.11.99)

(30) Priority Data:

PP 7808	18 December 1998 (18.12.98)	AU
PQ 0126	3 May 1999 (03.05.99)	AU

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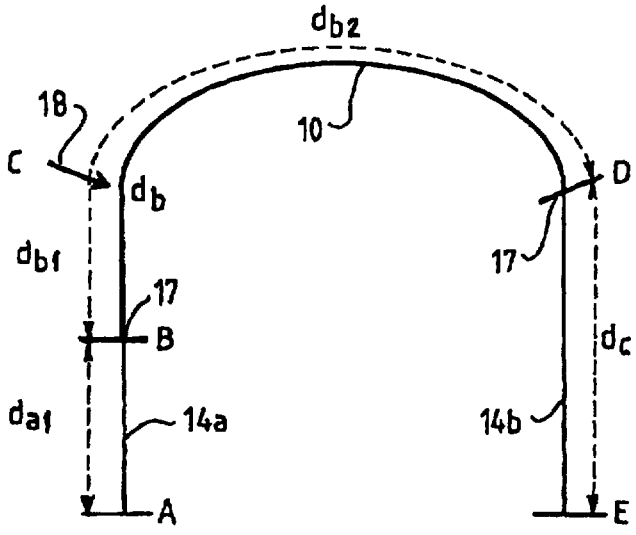
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(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: APPARATUS AND METHOD FOR MONITORING A STRUCTURE USING A COUNTER-PROPAGATING SIGNAL METHOD FOR LOCATING EVENTS



(57) Abstract

An apparatus and method for monitoring a structure such as machines, buildings, fibre optic communication links and infra-structure is disclosed which includes a waveguide (10) and a light source (20) for launching light into both ends of the waveguide (10) so that counter-propagating light signals are produced in the waveguide (10). The waveguide (10) is in the form of an optical fibre or fibre bundle formed from silica and in which the characteristic of the light is modified or effected by an external parameter caused by an event. A detector (30) is provided for detecting light form both ends of the waveguide (10) and for determining the time delay or difference between the modified signals which have been effected by the parameter in order to determine the location of the event along the length of the waveguide (10).