

(21) Application No: 0328662.2
(22) Date of Filing: 12.06.2002
(30) Priority Data:
(31) 60298927 (32) 18.06.2001 (33) US
(86) International Application Data:
PCT/GB2002/002724 En 12.06.2002
(87) International Publication Data:
WO2002/103315 En 27.12.2002

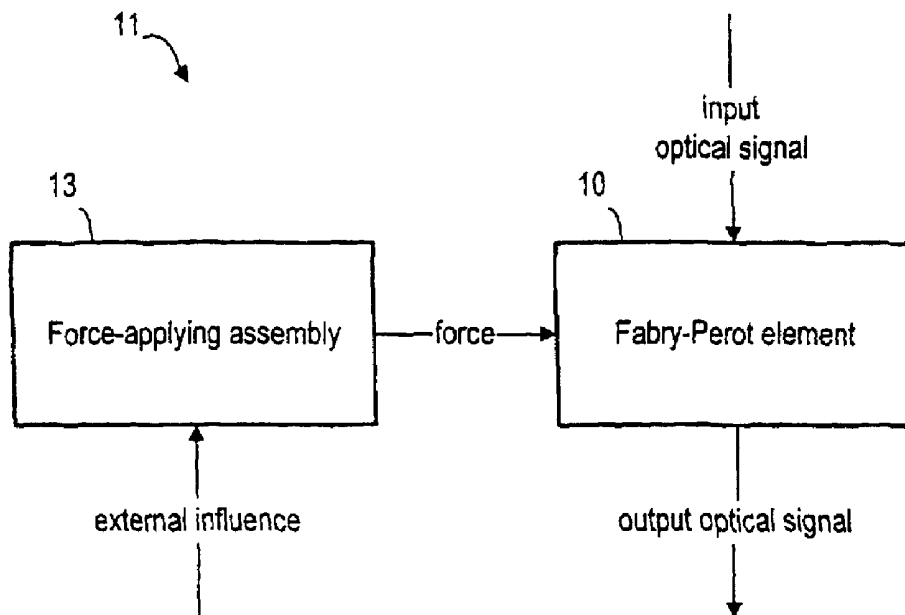
(51) INT CL⁷:
G01L 1/24 // G01D 5/26 , G01L 11/02
(52) UK CL (Edition W):
G1A AA5 ACA ACEF AR7 AT28 AT5
(56) Documents Cited by ISA:
WO 2000/037914 A US 6056436 A
US 5392117 A
(58) Field of Search by ISA:
INT CL⁷ G01D, G01L
Other: EPO-Internal, WPI Data, PAJ, INSPEC

(71) Applicant(s):
Weatherford/Lamb Inc.
(Incorporated in USA - Delaware)
515 Post Oak Boulevard, Suite 600,
Houston, Texas 77027,
United States of America

(continued on next page)

(54) Abstract Title: **A Fabry-perot sensing element based on a large-diameter optical waveguide**

(57) An optical sensing device including a force-applying assembly for providing a force and a Fabry-Perot (FP) element including a large-diameter waveguide having a core and having a cavity in line with the core, the cavity having reflective surfaces and having an optical path length related to the distance between the reflective surfaces, the FP element being coupled to the force so that the optical path length changes according to the force, the FP element for providing an output optical signal containing information about a parameter that relates to the force. Sometimes the large-diameter waveguide is formed by collapsing a glass tube, having a bore and having an outer diameter of about one millimeter, onto a pair of optical fibers arranged in tandem in the bore and separated by a predetermined distance, and respective end faces of the optical fibers form the cavity and are coated with a wholly or partially reflective material.



GB 2398120 A continuation

(72) Inventor(s):

**Alan D Kersey
Mark R Fernald
Robert N Brucato
James S Sirkis
Martin A Putnam**

(74) Agent and/or Address for Service:

**Marks & Clerk
4220 Nash Court,
Oxford Business Park South, OXFORD,
OX4 2RU, United Kingdom**