

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
18 April 2002 (18.04.2002)

PCT

(10) International Publication Number  
**WO 02/031569 A3**

(51) International Patent Classification<sup>7</sup>: **G02B 7/00**,  
6/35, B81B 3/00

(74) Agents: **CRISS, Roger, H.** et al.; Honeywell International  
Inc., 101 Columbia Road, P.O. Box 2245, Morristown, NJ  
07960 (US).

(21) International Application Number: PCT/US01/31834

(22) International Filing Date: 11 October 2001 (11.10.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
09/689,967 12 October 2000 (12.10.2000) US

(71) Applicant: **HONEYWELL INTERNATIONAL INC.**  
[US/US]; 101 Columbia Avenue, P.O. Box 2245, Morris-  
town, NJ 07960 (US).

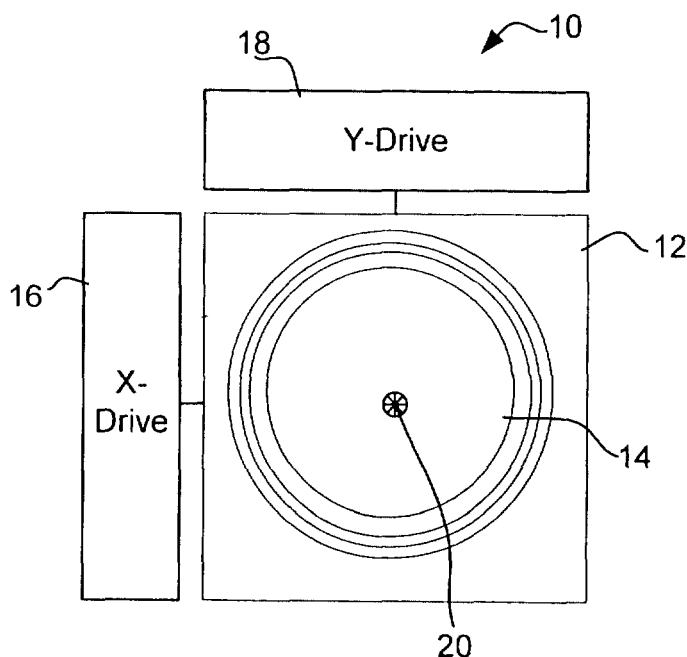
(81) Designated States (*national*): AE, AL, AM, AT, AU, AZ,  
BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK,  
DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,  
IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU,  
LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PH, PL,  
PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ,  
UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, 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, TR), OAPI patent (BF, BJ, CF,  
CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,  
TG).

**Published:**  
— with international search report

[Continued on next page]

(54) Title: MICRO-POSITIONING OPTICAL ELEMENT



(57) Abstract: A micro-positioning system for accurately positioning an optical element relative to an optical device such as a laser diode, Vertical Cavity Surface Emitting Laser (VCSEL), Resonant Cavity Photo Detector (RCPD), or some other type of optical device. The micro-positioning system is adapted to move the optical element independently in both the X and Y directions. The optical element preferably has at least two regions where the optical characteristics are different. In operation, the optical element is selectively moved so that a light beam intersects a selected region of the optical element. Because the optical characteristics of the optical element are different in different regions, the optical element produces a different optical result as the light beam is moved between regions. This may be useful in a number of applications including, for example, optical alignment, optical switching including Space Division Multiplexing (SDM), Wavelength Division Multiplexing (WDM), and Polarization Division Multiplexing (PDM).



WO 02/031569 A3



**(88) Date of publication of the international search report:**  
25 September 2003

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*