

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
5 June 2003 (05.06.2003)

PCT

(10) International Publication Number
WO 03/046655 A1

(51) International Patent Classification⁷: **G03B 21/56**,
21/00, 21/26, 21/14, 21/22, 21/28, H04N 5/74, F21V 5/00

(74) Agent: **BLACK, Bruce, E.**; Office of Intellectual Property
Counsel, P.O. Box 33427, St. Paul, MN 55133-3427 (US).

(21) International Application Number: PCT/US02/37583

(81) Designated States (*national*): AE, AG, AL, AU, BA, BB, BR, BZ, CA, CN, CO, CR, CU, DM, DZ, EC, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MA, MG, MK, MN, MX, NO, NZ, OM, PH, PL, RO, RU, SG, SI, TN, TT, UA, UZ, VN, YU, ZA.

(22) International Filing Date:
22 November 2002 (22.11.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/334,009 28 November 2001 (28.11.2001) US

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant: **3M INNOVATIVE PROPERTIES COMPANY** [US/US]; 3M Center, P.O. Box 33427, Saint-Paul, MN 55133-3427 (US).

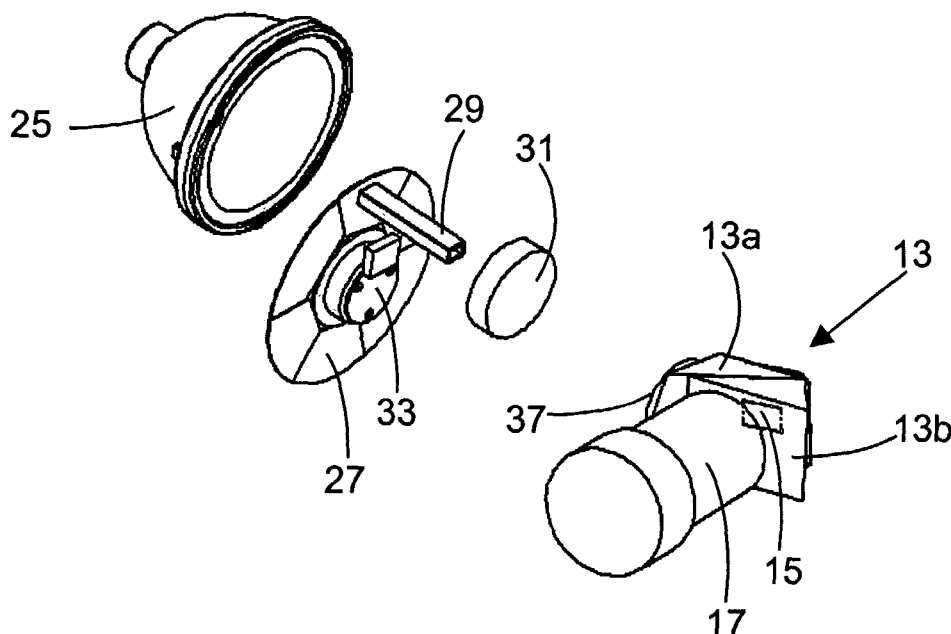
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(72) Inventors: **CANNON, Bruce, L.**; 222 Southwest Texas Street, Portland, OR 97219 (US). **OEHLER, Peter, R.**; 17852 Southwest Loxley Drive, Aloha, OR 97007 (US).

[Continued on next page]

(54) Title: TIR PRISM FOR DMD PROJECTOR



(57) Abstract: A light engine (9) for a projection display is provided which employs: 1) at least one light source (25), 2) at least one TIR prism assembly (13) and 3) at least one digital micromirror device (15), wherein: (a) the illumination path (55) between the light source (25) and the prism assembly (13) is unfolded, i.e., the illumination path is free of fold mirrors; and (b) the angle Υ between the illumination path (55) and the device's horizontal axis (53) is preferably less than or equal to about 20°.



WO 03/046655 A1



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.