



- (51) **International Patent Classification:**
G02B 27/22 (2006.01) *G02F 1/01* (2006.01)
G02B 26/00 (2006.01)
- (21) **International Application Number:**
PCT/US2011/061511
- (22) **International Filing Date:**
18 November 2011 (18.11.2011)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/415,810 19 November 2010 (19.11.2010) US
13/300,293 18 November 2011 (18.11.2011) US
- (71) **Applicant (for all designated States except US):** **REALD INC.** [US/US]; 100 North Crescent Drive, Suite 120, Beverly Hills, CA 90210 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **ROBINSON, Michael, G.** [GB/US]; 100 North Crescent Drive, Suite 120, Beverly Hills, CA 90210 (US). **WOODGATE, Graham, John** [GB/GB]; 100 North Crescent Drive, Suite 120, Beverly Hills, CA 90210 (US). **HARROLD, Jonathan** [GB/GB]; 100 North Crescent Drive, Suite 120, Beverly Hills, CA 90210 (US).
- (74) **Agents:** **YANG, Charles C.** et al.; Baker & McKenzie LLP, 2001 Ross Avenue, Suite 2300, Dallas, TX 75201 (US).
- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— without international search report and to be republished upon receipt of that report (Rule 48.2(g))

(54) **Title:** DIRECTIONAL FLAT ILLUMINATORS

(57) **Abstract:** Disclosed is an optical valve or light valve for providing large area collimated illumination from localized light sources, and system and method thereof for 2D, 3D, and/or autostereoscopic displays. An optical valve may include a stepped structure, in which the steps include separated extraction features which may be optically hidden to light propagating in a first direction. Light propagating in a second direction may be refracted, diffracted, or reflected by the features to provide illumination beams exiting from the top surface of the optical valve. Such controlled illumination may provide for efficient, multi-user autostereoscopic displays as well as improved 2D display functionality.



WO 2012/068532 A2