



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : G02C 7/06	A1	(11) International Publication Number: WO 00/52517 (43) International Publication Date: 8 September 2000 (08.09.00)
(21) International Application Number: PCT/IL00/00082 (22) International Filing Date: 8 February 2000 (08.02.00) (30) Priority Data: 09/262,341 4 March 1999 (04.03.99) US (71) Applicant (for all designated States except US): SHAMIR OPTICAL INDUSTRY [IL/IL]; Kibbutz Shamir, 12135 Upper Galilee (IL). (72) Inventors; and (75) Inventors/Applicants (for US only): KATZMAN, Dan [IL/IL]; Haemek Street 14, 23800 Givat Ela (IL). RUBINSTEIN, Jacob [IL/IL]; Shehania, 20183 Misgav (IL). (74) Agent: EITAN, PEARL, LATZER & COHEN-ZEDEK; 2 Gav Yam Center, Shenkar Street 7, 46725 Herzlia (IL).		(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 <i>With international search report.</i>

(54) Title: METHOD FOR THE DESIGN OF MULTIFOCAL OPTICAL ELEMENTS

(57) Abstract

A method for designing a surface of a multifocal optical element, such as a progressive spectacle lens, includes the steps of partitioning a region into triangles, (τ_i) defining a set of functions, each representing a portion of the surface (l_i) over one of the triangles (τ_i), and optimizing the functions. A further embodiment includes the steps of partitioning a region into polygons (200), and defining a set of functions, each representing a portion of the surface over one of the polygons (202). Continuity constraints for values of the functions and values for the first derivatives of the functions at boundaries of the polygons are dictated. Continuity constraints for values of the second derivatives of the functions at boundaries of the polygons are not required. The functions are optimized subject to the dictated continuity constraints.

