

(51) International Patent Classification:  
*G02C 7/04* (2006.01) *A61F 2/16* (2006.01)(21) International Application Number:  
PCT/US2010/047138(22) International Filing Date:  
30 August 2010 (30.08.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
61/238,774 1 September 2009 (01.09.2009) US

(72) Inventors; and

(71) Applicants : **BRADLEY, Arthur** [GB/US]; 1735 Durham Drive, Bloomington, IN 47401 (US). **KOLL-BAUM, Pete, S.** [US/US]; 1512 South High Street, Bloomington, IN 47401 (US). **THIBOS, Larry, N.** [US/US]; 1809 Windsor Dr., Bloomington, IN 47401 (US).(74) Agent: **ROBERTS, John**; 4155 West Reece Lane, Columbus, Indiana 47201 (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, RO, RS, RU, 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, 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, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Declarations under Rule 4.17:

- as to the identity of the inventor (Rule 4.17(i))
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
- of inventorship (Rule 4.17(iv))

## Published:

- with international search report (Art. 21(3))

(54) Title: MULTIFOCAL CORRECTION PROVIDING IMPROVED QUALITY OF VISION

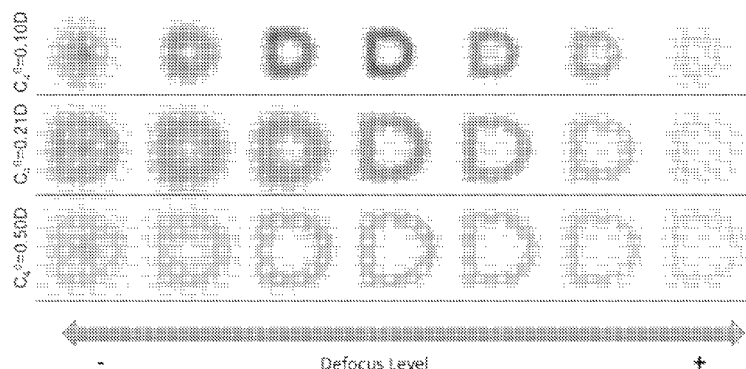


Fig. 3

(57) Abstract: This invention describes strategies and devices for improving the visual experience while expanding the depth of field of presbyopic and pseudophakic patients. The invention describes strategies and devices for providing improved image quality and improved visual quality of patients employing simultaneous vision bifocal, trifocal or multifocal corrections or monovision. The invention describes strategies and devices for reducing the visibility of the defocused part of the retinal image generated by simultaneous vision bifocal and multifocal ophthalmic corrections and monovision. The invention describes strategies and devices that employ control of spherical aberration or other similar asphericities to reduce the visibility of defocused ghost images. The invention describes strategies and devices that ensure that negative defocus is always coupled with negative spherical aberration (or similar asphericity), and that positive defocus is always coupled with positive SA (or similar asphericity) as a means to reduce the visibility of defocused ghostimages.