

28 MAR 2002



162162

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

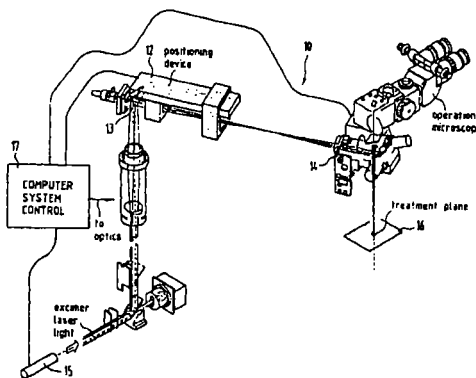
(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
26 April 2001 (26.04.2001)

PCT

(10) International Publication Number
WO 01/28478 A3

- (51) International Patent Classification⁷: **A61F 9/01** (74) Agent: VOSSIUS & PARTNER; Siebertstrasse 4, 81675 München (DE).
- (21) International Application Number: PCT/EP00/10379
- (22) International Filing Date: 20 October 2000 (20.10.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
199 50 788.0 21 October 1999 (21.10.1999) DE
100 14 482.9 23 March 2000 (23.03.2000) DE
- (71) Applicant (for all designated States except US): **TECHNOLAS GMBH OPHTHALMOLOGISCHE SYSTEME** [DE/DE]; Max-Planck-Strasse 6, 85609 Dornach (DE).
- (72) Inventors; and
(75) Inventors/Applicants (for US only): **HOHLA, Kristian** [DE/DE]; Johann-Strauss-Strasse 15, 85591 Vaterstetten (DE). **YOUSSEFI, Gerhard** [DE/DE]; Reichardtstrasse 1, 84028 Landshut (DE). **TOENNIES, Roland, Günter, Norbert** [DE/DE]; Neufeldstrasse 55, 82110 Olching (DE).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, 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, MZ, 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.
- (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), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
- (88) Date of publication of the international search report:
27 December 2001
- 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.

(54) Title: METHOD AND APPARATUS FOR OPHTHALMIC REFRACTIVE CORRECTION



(57) Abstract: An aperture card is provided for insertion into a laser refractive ablation system for use in laser ablating the cornea. The aperture card is designed for single surgical use for surgical precautionary considerations and to achieve the highest quality ablations, in addition to reproducibility. The aperture card is loaded into the laser refractive ablation system in a path between the laser system and the eye. The aperture card is precisely located by positioning means and ablative lasing action is inhibited if the card is not positioned within tolerance. Alternatively, the laser system can determine the position of the aperture card and adjust a computed ablation profile or otherwise adjust the optical system to adapt for any misalignment of the apertures in the aperture card. The card contains a "soft spot" aperture capable of shaping a spatial intensity distribution with a unique profile. The profile has a substantially flat top while the sides of the profile slope until an ablation intensity threshold is reached, at which point the sides become substantially vertical. The card can contain more than one soft spot aperture along with a "hard spot" aperture that creates a square-shaped profile used for testing fluence. Each soft spot aperture is formed by a central aperture and a plurality of holes of different sizes surrounding the central aperture and arranged such that the overall diffractive effect produces a soft spot spatial intensity profile compared to the hard, square-sided profile.

WO 01/28478 A3



ACTION