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(71) Applicant: **BAUSCH & LOMB INCORPORATED**
[US/US]; One Bausch & Lomb Place, Rochester, NY
14604 (US).

(72) Inventor: **ALTMANN, Griffith, E.**; 88 Rock Creek, Pitts-
ford, NY 14534 (US).

(74) Agents: **LARSON, Craig, E.** et al.; Bausch & Lomb In-
corporated, One Bausch & Lomb Place, Rochester, NY
14604 (US).

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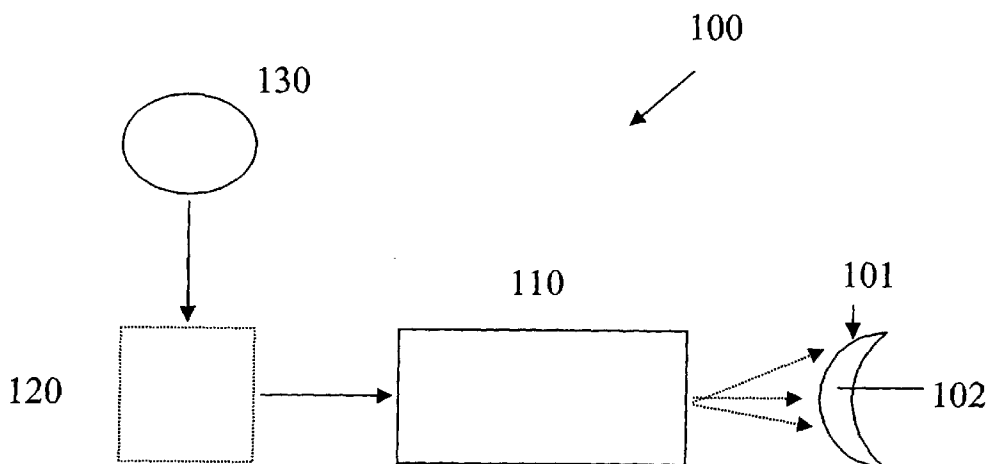
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(54) Title: METHOD AND APPARATUS RELATING TO THE OPTICAL ZONE OF AN OPTICAL ELEMENT



(57) **Abstract:** The invention relates to the determination of higher-order aberrations of an optical element over an optical zone that is larger than the typically limited measured zone over which the aberrations are measured. This is accomplished by apparatus, systems, and methods in which, preferably, the Zernike data from an aberration measurement is fit to a conic function. The conic function smoothly and continuously increases or decreases between the measured zone and the optical zone allowing the extrapolated data to accurately determine the aberrations over the optical zone. According to the invention, a plurality of independent conic plus piston sections that vary azimuthally can very accurately describe a wavefront aberration composed of defocus, astigmatism, spherical aberration, secondary astigmatism, and tetrafoil. The description of primary coma and trefoil will not be as good because they vary with the 3rd order of the radial component. However, the description error is relatively small. A tilt term can be added to account for the tilt component of the coma and trefoil terms.



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