



(12) **United States Patent**  
**Wortz et al.**

(10) **Patent No.:** **US 9,358,103 B1**  
(45) **Date of Patent:** **Jun. 7, 2016**

(54) **PROSTHETIC CAPSULAR DEVICES, SYSTEMS, AND METHODS**

(71) Applicant: **Omega Ophthalmics LLC**, Lexington, KY (US)

(72) Inventors: **Gary N. Wortz**, Nicholasville, KY (US); **Rick William Ifland**, Versailles, KY (US)

(73) Assignee: **Omega Ophthalmics LLC**, Lexington, KY (US)

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/968,427**

(22) Filed: **Dec. 14, 2015**

**Related U.S. Application Data**

(60) Provisional application No. 62/216,591, filed on Sep. 10, 2015, provisional application No. 62/168,493, filed on May 29, 2015, provisional application No. 62/114,231, filed on Feb. 10, 2015.

(51) **Int. Cl.**  
**A61F 2/16** (2006.01)

(52) **U.S. Cl.**  
CPC ..... **A61F 2/1694** (2013.01); **A61F 2/16** (2013.01); **A61F 2002/169** (2015.04); **A61F 2002/1681** (2013.01); **A61F 2002/16901** (2015.04); **A61F 2002/16902** (2015.04)

(58) **Field of Classification Search**  
CPC ..... **A61F 2/1694**; **A61F 2002/1681**; **A61F 2002/169**; **A61F 2002/16901**; **A61F 2002/16902**  
USPC ..... **623/6.38**, **6.39**, **6.4**, **6.41**, **6.43**  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

4,073,014 A 2/1978 Poler  
4,435,856 A 3/1984 L'Esperance  
4,629,461 A 12/1986 Clayman et al.  
4,685,921 A 8/1987 Peyman  
4,731,078 A 3/1988 Stoy et al.

(Continued)

**FOREIGN PATENT DOCUMENTS**

EP 0 337 390 10/1989  
EP 0 294 039 7/1993

(Continued)

**OTHER PUBLICATIONS**

Becker et al., "Accuracy of lens power calculation and centration of an aspheric intraocular lens", *Ophthalmologel*, Oct. 2006, vol. 103, Issue 10, pp. 873-876.

(Continued)

*Primary Examiner* — Javier Blanco

(74) *Attorney, Agent, or Firm* — Knobbe Martens Olson & Bear, LLP

(57) **ABSTRACT**

A prosthetic capsular device configured to be inserted in an eye includes a housing structure and a ring structure. The housing structure includes a first side, a second side opposite the first side, a third side, a fourth side opposite the third side, a posterior side including a refractive surface, an anterior side opposite the posterior side, and a longitudinal axis. The first side, the second side, the third side, the fourth side, the posterior side, and the anterior side at least partially define a cavity configured to contain an intraocular device (e.g., an IOL). The anterior side includes an opening. The ring structure includes a ring structure portion extending radially outward from proximate one of an end of the first side and an end of the second side.

**25 Claims, 158 Drawing Sheets**

