US008500806B1

(12) **United States Patent**
Phillips

(10) **Patent No.: US 8,500,806 B1**
(45) **Date of Patent: Aug. 6, 2013**

(54) **ACCOMMODATING INTRAOCULAR LENS**

(76) Inventor: **Andrew F. Phillips**, La Canada, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 16 days.

(21) Appl. No.: **13/362,348**

(22) Filed: **Jan. 31, 2012**

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

(52) **U.S. Cl.**
USPC **623/6.37**; 623/6.22; 623/6.27; 623/6.34; 623/6.45; 623/6.56

(58) **Field of Classification Search**
USPC 623/6.37, 6.13, 6.22, 6.27, 6.34, 623/6.45, 6.46, 6.5, 6, 56, 58, 62
See application file for complete search history.

(56) **References Cited**

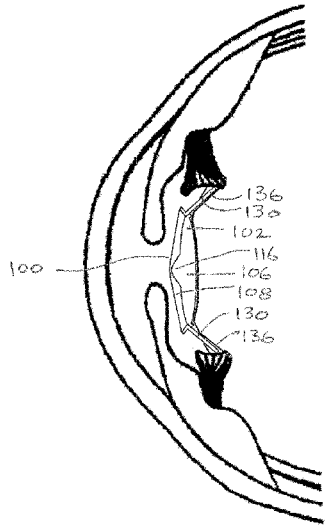
U.S. PATENT DOCUMENTS

4,304,012	A		12/1981	Richard
4,373,218	A		2/1983	Schachar
4,409,691	A		10/1983	Levy
4,463,457	A		8/1984	Kelman
4,527,294	A		7/1985	Heslin
4,534,069	A		8/1985	Kelman
4,575,373	A		3/1986	Johnson
4,575,878	A		3/1986	Dubroff
4,586,930	A		5/1986	Kelman
4,666,446	A		5/1987	Koziol et al.
4,685,922	A		8/1987	Peyman
4,693,717	A		9/1987	Michelson
4,718,904	A		1/1988	Thornton
4,781,719	A		11/1988	Kelman
4,842,601	A		6/1989	Smith
4,888,012	A		12/1989	Horn et al.
4,888,015	A		12/1989	Domino
4,892,543	A		1/1990	Turley
4,932,966	A		6/1990	Christie et al.
4,994,082	A		2/1991	Richards
5,026,393	A		6/1991	Mackool
5,108,429	A		4/1992	Wiley et al.
5,282,851	A		2/1994	Jacob-LaBarre
5,288,293	A		2/1994	O'Donnell, Jr.
5,376,115	A		12/1994	Jansen
5,476,514	A		12/1995	Cumming
5,496,366	A		3/1996	Cumming
5,549,668	A	*	8/1996	O'Donnell, Jr. 623/6.22
5,571,177	A		11/1996	Deacon et al.
5,607,472	A		3/1997	Thompson
5,728,156	A		3/1998	Gupta et al.
5,769,890	A		6/1998	McDonald
6,027,531	A		2/2000	Tassignon
6,051,024	A		4/2000	Cumming
6,117,171	A		9/2000	Skottun
6,197,059	B1		3/2001	Cumming
6,200,342	B1		3/2001	Tassignon
6,217,612	B1		4/2001	Woods

(Continued)

Primary Examiner — Paul Prebilic
(74) *Attorney, Agent, or Firm* — Gordon & Jacobson, PC

(57) **ABSTRACT**

An intraocular lens has a polymeric optic defined by a harder posterior layer and a softer anterior layer. Haptics having a fulcrum attached to the posterior layer and a resistance arm attached to the anterior layer are provided. A bias is provided to the haptic to rotate the haptics about the fulcrum and cause the resistance arm to deform the softer anterior layer about the harder posterior layer to increase the optical power of the lens. As the haptic rotates, it axially displaces the optic anteriorly to additionally increase the optical power. The optical power is adjustable in response to stresses induced by the eye. The haptics are subject to a pre-bias that urges the haptics to rotate or bend about the fulcrum. Temporary restraints are provided to the haptics to retain a stressed shape of the lens against the bias during a post-implantation healing period.

30 Claims, 4 Drawing Sheets