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Floyd

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[54] **FLUID FILLED AND PRESSURIZED LENS WITH FLEXIBLE OPTICAL BOUNDARY HAVING VARIABLE FOCAL LENGTH**

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[52] **U.S. Cl.** **359/666**

[58] **Field of Search** 359/666, 667, 359/665

[57] ABSTRACT

A flexible boundary fluid lens cell is disclosed. The fluid lens cell has a membrane edge retention arrangement which retains flexible lens membranes so the membranes may freely change slope about the membrane edge portions in response to varying fluid pressure within the lens cell, thereby precluding optical aberrations due to fixed membrane boundaries. The edge portions are clamped between lips in a frame an a ring that is interposed between two membranes. The flexible boundary fluid lens cell is particularly useful in eyewear to compensate for the eye's loss of accommodation. Eyewear incorporating the flexible boundary fluid lens cell are capable of continuously variable focal power so that the lens may be adjusted to focus on objects at varying distances. In addition, certain systems and system components are disclosed for application of the lens cell to eyewear.

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32 Claims, 12 Drawing Sheets

