# United States Patent [19]

**Pfoff**

[11] **Patent Number: 4,816,031**

[45] **Date of Patent: Mar. 28, 1989**


[54] **INTRAOCULAR LENS SYSTEM**


[76] Inventor: **David S. Pfoff,** 950 E. Harvard Ave., 190 350, Denver, Colo. 80210



[21] Appl. No.: **150,042**

[22] Filed: **Jan. 29, 1988**

[51] **Int. Cl.**[4] ..... **A61F 2/16**

[52] **U.S. Cl.** ..... **623/6**

[58] **Field of Search** ..... 623/6



[56] **References Cited**

U.S. PATENT DOCUMENTS

| | | | |
|---|---|---|---|
| 4,253,199 | 3/1981 | Banho | 623/6 |
| 4,373,218 | 2/1983 | Schachan | 623/6 |
| 4,435,856 | 3/1984 | L'Esperance | 623/6 |
| 4,512,040 | 4/1985 | McClove | 623/6 |
| 4,585,457 | 4/1986 | Kalb | 623/6 |
| 4,619,662 | 10/1986 | Juergens | 623/6 |
| 4,709,996 | 12/1987 | Michelson | 623/6 |

FOREIGN PATENT DOCUMENTS

| | | | |
|---|---|---|---|
| 0162573 | 11/1985 | European Pat. Off. | 623/6 |

OTHER PUBLICATIONS

"Silicon Micromechanical Devices", *Scientific American,* Apr. 1983, pp. 44–55, Angell et al.

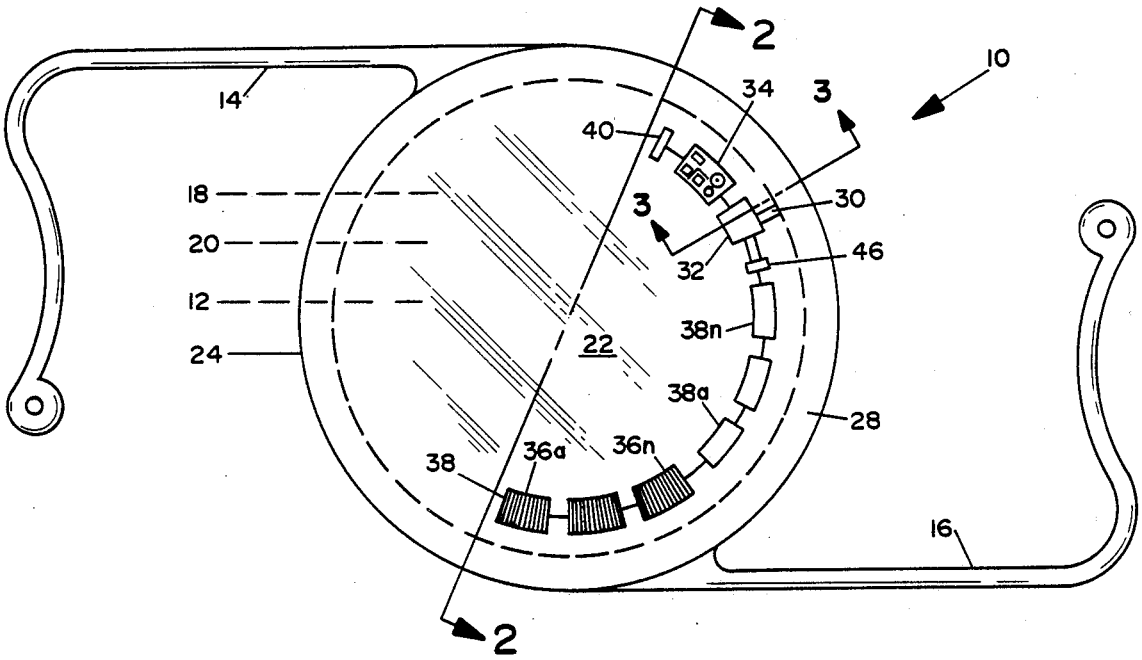


*Primary Examiner*—Richard J. Apley
*Assistant Examiner*—James Prizant
*Attorney, Agent, or Firm*—Hugh D. Jaeger



[57] **ABSTRACT**

An intraocular lens including a PMMA intraocular lens implant, a second soft and pliable lens disposed thereover such as that of silicon, and electromechanical circuitry for regulating the distance between the soft silicon lens and the hard PMMA lens. The electromechanical circuitry can include a microsolar power cell, a microprocessor, a microfluid pump, a micro reservoir for fluid, and a micro DC storage cell. The electromechanical circuitry provides for adjustment of the focal point of the lens system for accommodation from distance to near vision.


**13 Claims, 13 Drawing Sheets**