

[54] INTRAOCULAR OPTICAL SYSTEM

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[57] ABSTRACT

The solution pertains to an intraocular optical system

consisting of a hollow elastically deformable insert (7), following the shape of capsula lentis (6) at least in main lines, leaning against the inner wall of capsula lentis and keeping it moderately tensioned, which insert (7) consists of a front element (1) and rear element (2) and an elastic element (3) placed between them, may be provided with openings (9) allowing the flow of liquid, and contains one to four lenses (4,5) placed in the main axis of eye, whereas at least one of these lenses is connected with the insert (7) in such a way, that it moves axially at the contraction and release of accommodation muscles and thus changes its position between the retina and cornea.

The insert (7) is made from biocompatible materials as are silicone elastomers, hydrogels, advantageously elastic and with the shape memory, for example, from partially dried hydrogels with the hydrophilized surface, or from material with the glass-transition temperature  $T_g$  from  $-5^\circ\text{C}$ . to  $45^\circ\text{C}$ . or with  $T_g$  adjusted to meet this requirement, for example, by swelling hydrogels into a non-equilibrium state. The insert (7) deformed into a rod-like form with the diameter less than 3 mm can be introduced into an eye through a very small incision.

23 Claims, 3 Drawing Sheets

