

## ANTERIOR CHAMBER INTRAOCULAR LENS WITH FOUR POINT FIXATION

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

The present invention pertains to artificial lenses for the eye and, more particularly, to intraocular lenses for implant in the anterior chamber of the eye.

#### 2. Discussion of the Prior Art

The implantation of an artificial intraocular lens in an eye after removal of the natural lens due to a blindness-causing condition, such as cataract, has become an accepted practice. Such intraocular lenses are normally positioned in the posterior chamber of the eye, secured to the iris, or positioned in the anterior chamber of the eye. Many surgeons prefer anterior chamber intraocular lenses since implant in the anterior chamber is easier for the surgeon than implant in the posterior chamber; and, additionally, in many cases only anterior chamber intraocular lenses can be implanted due to medical considerations. Many intraocular lenses designed for implant in the anterior chamber have suffered the disadvantages of creating medical problems due to stiffness, requiring many sizes to be available for eyes of different sizes and causing too much pressure against the angle structure where the cornea and iris intersect inducing various elements of the UGH syndrome and unacceptably high incidence of cystoid macula edema.

U.S. Pat. No. 4,575,374 to Anis discloses a four point fixation intraocular lens for implant in the anterior chamber; however, the embodiment illustrated in FIG. 1 is insufficiently flexible inwardly and outwardly while being too flexible rearwardly and forwardly thereby providing increased opportunity for iritis and/or cornea damage to occur. To this end, it is noted that the foot portions are designed to flex independently of the leg portions with the leg portions being insufficiently flexible by design. With respect to the embodiments of FIGS. 4 and 7, projections extend laterally from opposite sides of the lens body creating a structure difficult to implant through a minimal incision; and, additionally, the holding members are provided with intermediate portions such that the foot portions flex independently of the leg portions. Additionally, the intraocular lenses of both embodiments are designed to be positioned within the anterior chamber in contact with the forward portion of the iris.

### SUMMARY OF THE INVENTION

Accordingly, it is a primary object of the present invention to overcome the above mentioned disadvantages of the prior art by providing an intraocular lens for positioning in the anterior chamber of the eye having four fixation members flexible along their entire lengths in response to forces applied to footplates at the ends of the fixation members for positioning in the angle of intersection of the cornea and the iris.

Another object of the present invention is to construct an intraocular lens for implant in the anterior chamber of an eye having four fixation members having continuous curving configurations throughout the lengths thereof to provide maximum flexibility inwardly and outwardly.

A further object of the present invention is to provide an anterior chamber intraocular lens having four fixation members flexibly independent of each other, the intraocular lens being positioned in the anterior cham-

ber so as to be spaced from the iris with minimal forward and rearward flexing.

The present invention has another object in that a four point fixation anterior chamber intraocular lens has four independently flexible fixation members and can be easily inserted in the anterior chamber through an incision having a length substantially the same as the width of the lens body of the intraocular lens.

Yet another object of the present invention is to provide an anterior chamber intraocular lens having a lens body with curved end peripheral edges disposed at opposed positions along a longitudinal axis to permit the longitudinal axis to be aligned with tears or irregularities in the iris.

Some of the advantages of the present invention over the prior art are that the anterior chamber intraocular lens of the present invention is extremely stable in the anterior chamber while permitting independent flexing of the fixation members, the anterior chamber intraocular lens can be easily implanted using simple maneuvers and an incision for implant of the lens need have a length only substantially the same as the width of the lens body.

The present invention is generally characterized in an intraocular lens for implant in the anterior chamber of an eye including a lens body having a configuration to define first and second opposed end peripheral edges, first and second opposed side peripheral edges connecting the first and second end peripheral edges and a longitudinal axis extending centrally through the first and second end peripheral edges, the first and second end peripheral edges being curved and the first and second side peripheral edges being curved with the radius of curvature of the first and second end peripheral edges being less than the radius of curvature of the first and second side peripheral edges; a first fixation member connected with the first side peripheral edge including a continuously curving proximal leg extending toward and beyond the first end peripheral edge and toward the longitudinal axis, a continuously curving junction portion connected with the proximal leg, and a continuously curving distal leg connected with the junction portion to extend in a direction substantially transverse to and away from the longitudinal axis to terminate at a footplate adapted to be received in the angle of intersection of the cornea and the iris in the anterior chamber of an eye; a second fixation member connected with the first side peripheral edge including a continuously curving proximal leg extending toward and beyond the second end peripheral edge and toward the longitudinal axis, a continuously curving junction leg connected with the proximal leg, and a continuously curving distal portion connected with the junction portion to extend in a direction substantially transverse to and away from the longitudinal axis to terminate at a footplate adapted to be received in the angle of intersection of the cornea and the iris in the anterior chamber of an eye; a third fixation member connected with the second side peripheral edge including a continuously curving proximal leg extending toward and beyond the first end peripheral edge and toward the longitudinal axis, a continuously curving junction portion connected with the proximal leg, and a continuously curving distal leg connected with the junction portion to extend in a direction substantially transverse to and away from the longitudinal axis to terminate at a footplate adapted to be received in the angle of intersection of the cornea