INTRAOCULAR LENS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention pertains to an intraocular lens, and more particularly, pertains to an intraocular lens, with a hard optic and channeled soft skirt, where the skirt is foldable allowing for insertion of the lens through a small incision in the eye.

2. Description of the Prior Art

The prior art has not demonstrated the aspects of a foldable lens including a hard optic. The foldable lenses of the prior art has usually been all silicone or other soft pliable material, which sometimes provides for distortion at the optical zone about the center of the lens.

The present invention overcomes the disadvantages of the prior art by providing a lighter weight foldable yag space lens with a hard optic of high refractive index material secured within an annular channel of a soft pliable skirt.

SUMMARY OF THE INVENTION

The general purpose of the present invention is to provide an intraocular lens which is intended for placement in the capsular bag, and allows for insertion of the lens through a small incision in the eye. The yag space lens is self centering and does not require any additional supporting structures. The lens optic can is bi-convex. The channeled skirt of the lens can include an appropriate single or double barrier ridge about the edge of the soft skirt.

According to one embodiment of the present invention, there is provided a lighter weight intraocular laser yag space lens for placement in a capsular bag, including a small hard high refractive inner lens optic and a grooved soft pliable outer skirt surrounding the lens optic. The lens optic material can be high refractive such as PMMA, polysulfonce, polycarbonate, or like biocompatible material. The lens diameter is about 2–4 mm. The channeled soft pliable skirt can be silicone, hydrogel, or a like material which is bicompatible, and contains an annular channel for engagement about the edge of the lens optic. The diameter is about 8–9 mm. The skirt assumes a convex - concave cross-section and can include an edge as well as a continuous or intermittent downwardly extending ridge, and a single or dual barrier ridge, or the like to take up slack in the capsular bag.

Significant aspects and features of the present invention include a bi-convex yag space lens which does not require any supporting structure and centers within the capsular bag.

Another significant aspect and feature of the present invention is a lens skirt which is foldable, allowing for insertion through a small incision in the eye, such as with a phaeko operation.

Another significant aspect and feature of the present invention is a lens optic fitting within an interior circumference annular groove in the pliable skirt.

Having thus described embodiments of the present invention, it is the principle object hereof to provide a yag space bi-convex intraocular lens with a hard high refractive non-foldable plastic center optic and a soft internally grooved foldable skirt surrounding the lens optic.

One object of the present invention is a lens which is self-centering within the capsular bag, and does not have any external mounted supporting structure.

Another object of the present invention is a channeled skirt for accepting an edge of a bi-convex lens.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and many of the attendant advantages of the present invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings, in which like reference numerals designate like parts throughout the figures thereof and wherein.

FIG. **1** illustrates a top view of an intraocular lens, the present invention;

FIG. **2** illustrates a side view in partial cross section of FIG. **1**;

FIG. **3** illustrates an alternative embodiment of an intraocular lens including a barrier edge;

FIG. **4** illustrates a side view in partial cross section of FIG. **3**;

FIG. **5** illustrates an alternative embodiment of an intraocular lens including a dual barrier ridge; and,

FIG. **6** illustrates a side view in partial cross section of FIG. **5**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. **1** illustrates a top view of a light weight intraocular yag space lens **10**, the present invention, including a hard optic **12**, and a soft skirt **14**. The hard optic **12** is of a high refractive index material such as PMMA, polysulfone, polycarbonate, or the like, and is of a diameter of 2–4 mm. The lens optic can assumes a bi-convex optic configuration. A bi-convex lens optic **12** has been illustrated in FIG. **1**. Other lens configurations can include meniscus, plano-convex, or a reverse optic. The optic **12** of FIG. **1** includes an upper convex surface **14**, a lower convex surface **16**, and an edge **18**. The soft skirt **14**, is of a curved convex-concave rim cross-section configuration. The skirt **14** includes a configured annular channel or groove **20** including channel lips **22** and **24** and a channel bottom **26** in the inner circumference of the skirt **14**. The optic edge **18** of optic **12** engages between the annular lips **22** and **24** and the annular channel bottom **26** of annular channel **20** thus positively securing the soft skirt **14** about the lens optic **12**. The thickness of the skirt can be 0.05 to 0.5 mm. The edge of the skirt **28** is slightly rounded. The channeled skirt can be made of silicone, hydrogel, or other like biocompatible material. The outer diameter is 6–9 mm. The skirt can also be provided with positioning holes **30*a*–30*n*** about the outer circumference of the skirt **14** as so desired.

FIG. **2** illustrates a side view in partial cross section of the intraocular lens **10**, where all numerals correspond to those elements previously described. Particularly noted is the laser yag discission space **32** in the area immediately below the convex surface **16** of the hard optic **12** and above the plane of the bottom of the soft skirt **14**.

FIG. **3** illustrates a top view of an intraocular lens **50**, the first alternate embodiment of the present invention, including a hard optic **52** and an angulated soft skirt **54** including a barrier ridge as later described in detail. The hard optic **52** is of a high refractive index material such as PMMA, polysulfone, polycarbonate, or the like, and