

considered to represent its preferred embodiment. However, it should be noted that the invention can be practiced otherwise than as specifically illustrated and described without departing from its spirit or scope.

What is claimed is:

1. A passive stable variable focus intraocular lens apparatus, for implantation into an eye, comprising:
 - a transparent, generally circular envelope;
 - a transparent gel having a relatively high resistance to flow encased in said envelope; and
 - a plurality of light refracting particles suspended in a predetermined orientation in said gel, said particles being responsive to an external force for changing to a new orientation of said particles with respect to said envelope for selectively adjusting characteristics of said lens apparatus including the characteristics of power and astigmatism correction, whereby upon removal of the external force, said particles remain in said new orientation within said gel.
2. The lens apparatus according to claim 1 wherein said envelope is formed as an outer surface of said gel.
3. The lens apparatus according to claim 1 wherein said envelope is formed of plastic material.
4. The lens apparatus according to claim 1 wherein said light refracting particles are responsive to an electromagnetic external force for changing the orientation of said particles to a new position within said gel.
5. The lens apparatus according to claim 1 wherein said light refracting particles include a ferromagnetic material.
6. The lens apparatus according to claim 1 wherein said light refracting particles are formed of a ferromagnetic material and a plastic material.
7. The lens apparatus according to claim 1 wherein said light refracting particles are formed of a transparent material coated with a ferromagnetic material.
8. The lens apparatus according to claim 1 wherein said envelope has one of a convex, concave and plano surface facing a pupil of an eye and one of a convex, concave and plano rear surface.
9. A passive stable variable focus lens apparatus comprising:
 - a transparent, generally circular envelope;
 - a transparent gel having a relatively high resistance to flow encased in said envelope;
 - a plurality of light refractive particles suspended in a predetermined orientation in said gel; and
 - means for generating an electromagnetic field, said particles being responsive to an external force applied by the electromagnetic field for changing to a new orientation of said particles with respect to said envelope for selectively adjusting characteristics of said lens apparatus including the characteristics of power and astigmatism correction, whereby upon removal of the external force, said particles remain in said new orientation within said gel.

10. The lens apparatus according to claim 9 wherein said light refracting particles include a ferromagnetic material.

11. The lens apparatus according to claim 9 wherein said light refracting particles are formed of a ferromagnetic material and a plastic material.

12. The lens apparatus according to claim 9 wherein said light refracting particles are formed of a transparent material coated with a ferromagnetic material.

13. The lens apparatus according to claim 9 including a first area in said gel having a first plurality of said light refracting particles in a first orientation and a second area in said gel having a second plurality of said light refracting particles in a second orientation whereby the lens apparatus corrects for astigmatism.

14. The lens apparatus according to claim 9 including an electromagnetic shield for shielding a selected area of said gel from the electromagnetic field generated by said means for generating said electromagnetic field.

15. The lens apparatus according to claim 14 wherein said electromagnetic shield is formed of a material having a relatively low resistivity.

16. The lens apparatus according to claim 9 wherein said means for generating an electromagnetic field includes a sight guide for aligning said means for generating an electromagnetic field with said envelope.

17. The lens apparatus according to claim 9 including a control system for controlling at least one of the strength and duration of the electromagnetic field applied to said particles.

18. A passive stable variable focus lens apparatus comprising:

- a transparent, generally circular envelope;
- a transparent gel having a relatively high resistance to flow encased in said envelope;
- a plurality of light refractive particles suspended in a predetermined orientation in said gel;
- means for generating a force field; and
- a control system for controlling at least one of the strength and duration of the force field applied to said particles connected to said means for generating a force field, said particles being responsive to an external force applied by the force field for changing to a new orientation of said particles with respect to said envelope for selectively adjusting characteristics of said lens apparatus including at least one of the characteristics of power and astigmatism correction, whereby upon removal of the external force, said particles remain in said new orientation within said gel.

19. The lens apparatus according to claim 18 including means connected to said control means for generating an adjustment signal, said control means being responsive to said adjustment signal for applying the force field to said particles.

20. The lens apparatus according to claim 19 wherein said light refracting particles are formed of a ferromagnetic material and a plastic material and said force field is an electromagnetic field.

* * * * *