WHAT IS CLAIMED IS:

1. A fluid lens assembly, comprising:

a front rigid lens;

a semi-flexible membrane; and

a fluid layer therebetween,

wherein the front lens is configured to compensate for an astigmatism that develops in the fluid lens assembly upon inflation of the membrane, and

wherein the membrane includes thickness contours, and wherein at least one such contour is within an optical zone of the fluid lens assembly.

2. The fluid lens assembly of claim 1, wherein the front lens is configured to substantially cancel out an asphericity of the membrane at a particular stage of inflation of the membrane, wherein the particular stage of inflation is within an overall range of desired power.

3. The fluid lens assembly of claim 2, wherein the particular stage of inflation is at one third of full inflation of the membrane.

4. The fluid lens assembly of claim 2, wherein the membrane includes a hinge section having a thickness in the range of 0.01 mm to 0.35 mm.

5. The fluid lens assembly of claim 4, wherein the hinge section has a thickness in the range of 0.07 mm to 0.25 mm.

6. The fluid lens assembly of claim 2, wherein the membrane includes a hinge section having an aspect ratio in the range of 2.0 to 100.0.

7. The fluid lens assembly of claim 6, wherein the hinge section has an aspect ratio between 3.0 and 30.0.

8. The fluid lens assembly of claim 2, wherein the thickness of the membrane increases along the x axis towards the distal end of the fluid lens.

9. The fluid lens assembly of claim 1, wherein the front lens has a refractive index within 0.02 units of the refractive index of the fluid.

10. The fluid lens assembly of claim 1, wherein the membrane has a refractive index within 0.02 units of the refractive index of the fluid.

11. The fluid lens assembly of claim 1, wherein the membrane includes a plurality of hinge-like sections.

12. The fluid lens assembly of claim 12, wherein the plurality of hinge-like sections includes two horizontally aligned sections and two vertically aligned sections.

13. A corrective eyepiece comprising two fluid lens assemblies, each fluid lens assembly comprising:

a front rigid lens;

a semi-flexible membrane; and

a fluid layer therebetween,

wherein the front lens is configured to compensate for an astigmatism that develops in the fluid lens assembly upon inflation of the membrane, and

wherein the membrane includes thickness contours, and wherein at least one such contour is within an optical zone of the fluid lens assembly.

14. The fluid lens of claim 13, wherein the front lens is configured to substantially cancel out an asphericity of the membrane at a particular stage of inflation of the membrane, wherein the particular stage of inflation is within an overall range of desired power.

15. The fluid lens of claim 14, wherein the particular stage of inflation is at one third of full inflation of the membrane.

16. The fluid lens of claim 14, wherein the membrane includes a hinge section having a thickness in the range of 0.01 mm to 0.35 mm.

17. The fluid lens of claim 16, wherein the hinge section has a thickness in the range of 0.07 mm to 0.25 mm.

18. The fluid lens of claim 14, wherein the membrane includes a hinge section having an aspect ratio in the range of 2.0 to 100.0.

19. The fluid lens of claim 18, wherein the hinge section has an aspect ratio between 3.0 and 30.0.

20. The fluid lens of claim 14, wherein the thickness of the membrane increases along the x axis towards the distal end of the fluid lens.

21. The fluid lens of claim 13, wherein the membrane includes a plurality of hinge-like sections.

What is claimed is:

1. A fluid lens assembly, comprising:

a front rigid lens;

an inflatable semi-flexible membrane; and

a fluid layer therebetween,

wherein the front lens is configured to compensate for an astigmatism that develops in the fluid lens assembly upon inflation of the membrane,

wherein the membrane includes thickness contours with each thickness contour being an area of differing thickness, and wherein at least one such contour is within an optical zone of the fluid lens assembly, and

wherein the front lens is configured to substantially cancel out an asphericity of the membrane at a particular stage of inflation of the membrane, wherein the particular stage of inflation is within an overall range of desired power.

2. The fluid lens assembly of claim 1, wherein the particular stage of inflation is at one third of full inflation of the membrane.

3. The fluid lens assembly of claim 1, wherein the membrane includes a hinge section being a thinner portion of the membrane surrounded by a thicker portion having a thickness in the range of 0.01 mm to 0.35 mm.

4. The fluid lens assembly of claim 3, wherein the hinge section has a thickness in the range of 0.07 mm to 0.25 mm.

5. The fluid lens assembly of claim 1, wherein the membrane includes a hinge section being a thinner portion of the membrane surrounded by a thicker portion having an aspect ratio in the range of 2.0 to 100.0.

6. The fluid lens assembly of claim 5, wherein the hinge section has an aspect ratio between 3.0 and 30.0.

7. The fluid lens assembly of claim 1, wherein the thickness of the membrane increases along the x axis towards the distal end of the fluid lens.

8. The fluid lens assembly of claim 1, wherein the front lens has a refractive index within 0.02 units of the refractive index of the fluid.

9. The fluid lens assembly of claim 1, wherein the membrane has a refractive index within 0.02 units of the refractive index of the fluid.

10. A fluid lens assembly, comprising:

a front rigid lens;

an inflatable semi-flexible membrane; and

a fluid layer therebetween,

wherein the front lens is configured to compensate for an astigmatism that develops in the fluid lens assembly upon inflation of the membrane,

wherein the membrane includes thickness contours with each thickness contour being an area of differing thickness, and wherein at least one such contour is within an optical zone of the fluid lens assembly, and

wherein the membrane includes a plurality of hinge sections, each hinge section being a thinner portion of the membrane surrounded a thicker portion.

11. The fluid lens assembly of claim 10, wherein the plurality of hinge sections includes two horizontal sections and two vertical sections.

12. A corrective eyepiece comprising two fluid lens assemblies, each fluid lens assembly comprising:

a front rigid lens;

an inflatable semi-flexible membrane; and

a fluid layer therebetween,

wherein the front lens is configured to compensate for an astigmatism that develops in the fluid lens assembly upon inflation of the membrane,

wherein the membrane includes thickness contours with each thickness contour being an area of differing thickness, and wherein at least one such contour is within an optical zone of the fluid lens assembly, and

wherein the front lens of at least one of the lens assemblies is able to substantially cancel out an asphericity of its respective membrane at a particular stage of inflation of the respective membrane, wherein the particular stage of inflation is within an overall range of desired power.

13. The fluid lens of claim 12, wherein the particular stage of inflation is at one third of full inflation of the respective membrane.

14. The fluid lens of claim 12, wherein the respective membrane includes a hinge section being a thinner portion of the membrane surrounded by a thicker portion having a thickness in the range of 0.01 mm to 0.35 mm.

15. The fluid lens of claim 14, wherein the hinge section has a thickness in the range of 0.07 mm to 0.25 mm.

16. The fluid lens of claim 12, wherein the respective membrane includes a hinge section being a thinner portion of the membrane surrounded by a thicker portion having an aspect ratio in the range of 2.0 to 100.0.

17. The fluid lens of claim 16, wherein the hinge section has an aspect ratio between 3.0 and 30.0.

18. The fluid lens of claim 12, wherein the thickness of the respective membrane increases along the x axis towards the distal end of the fluid lens.

19. A corrective eyepiece comprising two fluid lens assemblies, each fluid lens assembly comprising:

a front rigid lens;

an inflatable semi-flexible membrane; and

a fluid layer therebetween,

wherein at least one of the front lenses is configured to compensate for an astigmatism that develops in a respective fluid lens assembly upon inflation of a respective membrane,

wherein the respective membrane includes thickness contours with each thickness contour being an area of differing thickness, and wherein at least one, such contour is within an optical zone of the respective fluid lens assembly,

wherein the respective membrane includes a plurality of hinge sections, each hinge section being a thinner portion of the respective membrane surrounded by a thicker portion.