

tinuous. Instead, it includes both a generally planar first portion 76 that is part of the converging portion 72 of the optic 71, and a generally concave second portion 77 that is part of the diverging portion 73 of the optic 71. This arrangement introduces discontinuities in the rearward surface 74 that can affect optical properties of the lens 11.

In addition, this arrangement may reduce off-axis vision because it reduces the size of the converging portion 72. In other words, the second portion 77 occupies a portion of the rearward surface 74 that is in the path of light rays that could otherwise be converged toward the retina 13 of the eye 14 in FIG. 1.

The intraocular lens 11 of this invention results in better off-axis vision because the rearward surface 61 is generally continuous, with a concave configuration that functions as the rearward surface of both the converging portion 16 and the diverging portion 17.

In order to treat a low vision condition such as macular degeneration according to the invention, the intraocular lens 11 is implanted and a multiple-element spectacles applied to result in the ocular telescopic system 10. In line with this, the method of the invention includes the steps of implanting in a patient an intraocular lens having a converging lens portion and a diverging lens portion, and then applying multiple-element spectacles to the patient so that light passes through the multiple-element spectacles to the diverging lens portion of the intraocular lens, with the multiple-element spectacles functioning as an objective lens.

Thus, this invention solves many problems associated with the prior art. It provides an intraocular lens and a spectacle arrangement that combine in a new and improved ocular telescopic lens system for low-vision conditions such as macular degeneration. These components result in less peripheral distortion. The lenses are less heavy and easier to fabricate. Adjustment can proceed without varying the vertex distance, and the novel intraocular lens provides improved optical and physiological properties.

Although an exemplary embodiment of the invention has been shown and described, many changes, modifications, and substitutions may be made by one having ordinary skill in the art without necessarily departing from the spirit and scope of this invention.

What is claimed is:

1. An ocular telescopic lens system, comprising: an intraocular lens having a negative lens portion; and multiple-element spectacles having anterior and posterior lenses to provide a positive lens system to direct light toward the negative lens portion of the intraocular lens.
2. A system as recited in claim 1, wherein: the anterior and posterior lenses are arranged so that light passes in sequence through the anterior lens, the posterior lens, and the intraocular lens; and said anterior and posterior lenses combine to serve as an objective lens.
3. A system as recited in claim 1, wherein the multiple-element spectacles include: a spectacle frame; mounting means for mounting the anterior and posterior lenses on a spectacle frame so that light passes first through the anterior lens and then through the posterior lens in traveling to the eye of a user; and the anterior and posterior lenses combining to provide at least +8 diopter power.
4. A system as recited in claim 1, wherein the multiple-element spectacles include: mounting means for mounting the anterior and posterior lenses on a spectacle frame so that light passes first through the anterior lens and then through the posterior lens in traveling to the eye of a user; and each one of the anterior and posterior lenses exhibiting positive diopter power.
5. A system as recited in claim 1, wherein the multiple-element spectacles include: mounting means for mounting the anterior and posterior lenses on a spectacle frame so that light passes first through the anterior lens and then through the posterior lens in traveling to the eye of a user; said mounting means including means for mounting the anterior and posterior lenses for relative movement toward and away from each other to any of a plurality of positions, and means for fixing the anterior and posterior lenses in any of said positions.
6. A system as recited in claim 1, wherein the multiple-element spectacles include: a lens system having said anterior lens and said posterior lens as the only refractive elements of the lens system; mounting means for mounting the anterior and posterior lenses on a spectacle frame so that light passes first through the anterior lens and then through the posterior lens in traveling to the eye of a user; and said posterior lens having front and back surfaces and said front surface being convex.
7. A system as recited in claim 1, wherein the multiple-element spectacles include: a lens system having said anterior lens and said posterior lens as the only refractive elements of the lens system; mounting means for mounting the anterior and posterior lenses on a spectacle frame so that light passes first through the anterior lens and then through the posterior lens in traveling to the eye of a user; said posterior lens having front and back surfaces and said back surface being concave.
8. A system as recited in claim 1, wherein the intraocular lens includes: an optic dimensioned and arranged to be retained in an eye in the optical path of the eye; a generally continuous rearward surface of the optic; a forward surface of the optic having a generally convex portion and a generally concave portion; a converging lens portion of the optic extending between the rearward surface and the convex portion of the forward surface; and a diverging lens portion of the optic extending between the rearward surface and the concave portion of the forward surface.
9. A system as recited in claim 8, wherein: the rearward surface is concave.
10. An ocular telescopic lens system comprising: an intraocular lens having a diverging lens portion; multiple-element spectacles having anterior and posterior lenses arranged to converge light toward the diverging lens portion of the intraocular lens; and means for adjusting a distance by which the anterior lens and the posterior lens are separated.
11. A system as recited in claim 10, wherein the means for adjusting includes: means for adjusting the position of the anterior lens while the posterior lens remains generally fixed in position so that adjusting the distance by which the