- a first segment which extends concentrically with respect to the central area, radially with respect to the geometric center which defines the curvature of the posterior side, towards the incurved anterior side up to an annular border line; and
- a second segment which extends from said annular border line, concentrically with respect to the central area, the second segment being configured to extend, during use, in a direction of a point of contact with the surface of the cornea;

wherein the first segment and the second segment form a broken line, such that the annular border line defines a ridge for the teardrops accumulation area having a teardrops height.

Hence, the ridge is an intersection of two line segments.

The first and second segments form the ridge whose apex is a singular point.

The teardrops height corresponds to the length of the segment of the annular broken line comprised between the apex of the ridge and the cornea, when the lens is in the use position.

In this manner, the position and the amount of corneal power to be applied may be controlled, which translates in the exact modification of the focusing of the image on the peripheral retina, by maintaining the optical correction necessary to each user or patient. With said lens, images originating from some visual fields of the eye are projected on the peripheral retina, in front of the retina of said eye.

The optical area of the eye may be called visual area or vision area of the eye.

Furthermore, a broken line is also called polygonal or polyline line.

Moreover, the surface of the cornea may also be called corneal epithelium.

Preferably, the value of the teardrops height is within a range from 30 to 150 microns. Consequently, the teardrops accumulation area may acquire different heights according to the amount of corneal power to be applied, such that it allows deforming the surface of the cornea of the eye, by increasing the negative hydrodynamic pressure inside the teardrops accumulation, thus creating the positive power amp-up ring.

Advantageously, the broken line is formed by the first segment, the second segment and the central area.

Thus, the teardrops height may be modified and controlled without modifying the curvature of the central area.

The peripheral area, and more specifically the annular portion, is modified independently of the central area.

According to this configuration, the central area and the first segment have an intersection formed by a singular point.

Thus, the teardrops height may be modified and controlled in an accurate manner.

CLAIMS

1. An orthokeratology contact lens for controlling myopia said lens being a reverse-geometry rigid lens comprising an incurved anterior side and a posterior side which is intended to be applied to an eye, where said posterior side defines:

– a central area adapted to coincide with the optical or visual area of the eye, and to conform the surface of the cornea by exerting a positive hydrodynamic pressure on the corneal epithelium; and

– a peripheral area, concentric with said central area, which comprises an annular portion defining a teardrops accumulation area configured to exert a negative hydrodynamic pressure on the surface of the cornea by conforming the surface of the cornea and by creating a positive power amp-up ring;

wherein the annular portion includes:

- a first segment which extends concentrically with respect to the central area, radially with respect to the geometric center which defines the curvature of the posterior side, towards the incurved anterior side up to an annular border line; and
- a second segment which extends from said annular border line, concentrically with respect to the central area, the second segment being configured to extend, during use, in the direction of a point of contact with the surface of the cornea;

wherein the first segment and the second segment form a broken line, such that the annular border line defines a ridge for the teardrops accumulation area having a teardrops height.

2. The contact lens according to claim 1, wherein the first and second segments form the ridge whose apex is a singular point.

3. The contact lens according to any one of the preceding claims, wherein said teardrops height has a value within the range from 30 to 150 microns.

4. The contact lens according to any one of the preceding claims, wherein the broken line is formed by the first segment, the second segment and the central area.

5. The contact lens according to the preceding claim, wherein the central area and the first segment have an intersection formed by a singular point.

6. The contact lens according to any one of the preceding claims, wherein the annular border line is located at a radial distance comprised between 1.5 mm and 3.5 mm from the geometric center of the central area.

7. The contact lens according to any one of the preceding claims, wherein the annular portion is configured to induce a positive power amp-up in a region comprised between 10° and 30°, creating a refraction of the peripheral image in said region in front of the retina of said eye.

8. The contact lens according to any one of the preceding claims, wherein said central area is essentially flat.

9. The contact lens according to any one of claims 1 to 7, wherein said central area is essentially incurved.

10. The contact lens according to any one of the preceding claims, wherein said peripheral area also comprises:

a supplemental annular portion defining a supplemental teardrops accumulation area configured to exert a negative hydrodynamic pressure on the surface of the cornea by conforming the surface of the cornea and by creating a supplemental positive power amp-up ring, which includes:

– a first segment which extends concentrically with respect to the central area, radially with respect to the geometric center which defines the curvature of the posterior side, towards the incurved anterior side up to a supplemental annular border line; and

– a second segment which extends from said annular border line, concentrically with respect to the central area, the second segment being configured to extend up to a point of contact with the surface of the cornea;

wherein the first segment and the second segment form a broken line, such that the supplemental annular border line defines a ridge for the supplemental teardrops accumulation area having a teardrops height.

11. The contact lens according to the preceding claim, wherein the supplemental teardrops accumulation area has a teardrops height smaller than the teardrops height of the teardrops accumulation area of the annular portion.

12. The contact lens according to any one of claims 10 to 11, wherein the supplemental annular border line is located at a radial distance comprised between 2.5 mm and 5 mm with respect to the geometric center of the central area.

13. The contact lens according to any one of claims 10 to 12, which comprises in the peripheral area a segment adjacent to the supplemental

annular portion which extends towards the incurved anterior side up to an annular edge for connection with the latter, forming the edge lacrimal meniscus which enables the teardrops exchange beneath the lens when winking.

14. The contact lens according to the preceding claim, which comprises one or several supplemental annular portion(s) disposed between the supplemental annular portion and the segment that forms the lacrimal meniscus.

15. The contact lens according to any one of the preceding claims, wherein the central area comprises an inner circular portion and an outer annular portion, both disposed concentrically with one another and separated by an inner annular border line, wherein said inner circular portion is defined by a curve with a radius of curvature smaller than the incurved anterior side of the lens, with said inner annular border line being in contact with the corneal epithelium, such that the inner circular portion defines an inner teardrops accumulation area which exerts a negative hydrodynamic pressure on the corneal epithelium, conforming the surface of the cornea and creating a power amp-up hemisphere which defines a ridge for said inner teardrops accumulation area having a teardrops height.