and with reading addition 2.00 diopters. Power jumps of 0.5 diopters will be introduced at the upper and lower boundaries of the intermediate area. Using the same glass slumping blank as was used for the example of the continuous progressive power lens, the following values of the input parameters are required to produce a CR-39 lens with the stated optical characteristics:

$r_D = 88.113$ mm
$r_R = 68.440$ mm
$\delta K_1 = (0.815)\ 10^{-3}\ \text{mm}^{-1}$
$\delta K_2 = (0.815)\ 10^{-3}\ \text{mm}^{-1}$
$h = 10$ mm

Thus, the meridional curvature law becomes

$$\frac{1}{r} = 11.3491 \times 10^{-3}\ (\text{mm}^{-1}) \text{ distance zone}$$

$$= (12.1641 + 0.1632x)\ 10^{-3}\ (\text{mm}^{-1})$$

intermediate zone

$$= (14.6113)\ 10^{-3}\ (\text{mm}^{-1}) \text{ reading zone}$$

and as before

$$Y_1 = 7.00 + 0.21 \times (\text{mm})$$

$$H_2 = 14.0 + 0.42 \times (\text{mm})$$

These values of r_D, r_R, r, y_1 and Y_2 are now provided to a computer which has been programmed to compute the surface elevation of the ceramic block at 4 mm intervals over the area of a block 0.86 in diameter. The computations are performed using the simplified set of equations defined previously. FIG. **26** shows the results of the computation.

While there have been shown and described what are considered to be referred embodiments of the present invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention as defined in the appended claims.

I claim:

1. An ophthalmic lens comprising a lens body having a first refractive surface viewing zone thereon characterized by

a smooth, unbroken principal meridional curve having continuously varying slope lying along the refractive surface viewing zone in a generally vertical direction and dividing the refractive surface viewing zone into two similar lateral portions, the curvature of the principal meridional curve varying progressively from point to point therealong to provide a predetermined dioptric focal power at each such point according to a predetermined law, the dioptric focal power increasing generally from top to bottom of the viewing zone along the principal meridional curve, and being characterized further by having cross curves defined on the refractive surface viewing zone by planes perpendicular to the principal meridional curve, the curvatures of the cross curves at their points of intersection with the principal meridional curve being respectively equal to the curvature of the meridional curve at the point of intersection,

the first refractive surface viewing zone defined by a power range varying from a first dioptric focal power at the top of the viewing zone to a second, higher dioptric focal power at the bottom of the viewing zone, the viewing zone being divided into at least three laterally disposed areas,

a first one of the three areas being centrally disposed in the viewing zone, extending vertically therethrough, and having the principal meridional curve passing through the center thereof,

the two outermost of the three areas being disposed at the lateral peripheries of the viewing zone and each having a surface which comprises a portion of a surface of revolution whose axis of revolution is vertical and lies in the meridional plane whereby said lateral periphery surface is so curved that the condition $\delta^2 f/\delta x\ \delta y = 0$ is fulfilled when x and y are the coordinates in the vertical and horizontal directions respectively of said outermost areas and f is the distance of the refractive surfaces from the x-y plane whereby skew distortion is so optically compensated that at all points on said outermost areas the principal axes of astigmatism lie in vertical and horizontal planes which are parallel to the x and y axes respectively to permit a wearer of the lens to perceive horizontal and vertical lines in the visual environment as being horizontal and vertical; and

a second viewing zone in vertical juxtaposition to the first viewing zone, the second one of the viewing zones having a constant dioptric focal power therethrough, there being a downwardly positive discontinuity in dioptric focal power of less than about 0.5 diopters at the boundary between the two viewing zones.

2. An ophthalmic lens according to claim **1**, in which a third viewing zone is defined on the refractive surface in other vertical juxtaposition to the first one of the refractive surface viewing zones, the third viewing zone having a constant dioptric focal power therethrough, the constant dioptric focal power in the third viewing zone being equal to the dioptric focal power at the other juxtaposed end of the range of dioptric focal power in the first viewing zone.

3. An ophthalmic lens according to claim **1**, in which a third viewing zone is defined on the refractive surface in other vertical juxtaposition to the first one of the refractive surface viewing zones, the third viewing zone having a constant dioptric focal power therethrough, there being a second downwardly positive discontinuity in dioptric focal power of less than about 0.5 diopters at the boundary between the first and third viewing zones.

4. A progressive power ophthalmic lens according to claim **3**, in which the predetermined law defines a constant rate of change of dioptric focal power through the first viewing zone along the principal meridional curve.

5. An ophthalmic lens comprising a single piece of lens material of a preselected index of refraction having a plurality of refractive surface viewing zones characterized by:

a first viewing zone having a substantially uniform predetermined dioptric focal power throughout and a surface so curved that the principal axes of astigmatism at all points thereon lie substantially in vertical and horizontal planes to permit a user of the lens to perceive horizontal and vertical lines in the visual environment as being respectively vertical and horizontal as viewed through said first zone;

a second viewing zone of greater dioptric focal power than that of said first viewing zone and a positive discontinuity of less than approximately 0.5 diopters of focal power between said first and second viewing zones;