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(54) Title: MULTIFOCAL LENS

$$\phi(\xi) = 2\pi \times \begin{cases} p_1 \xi, & 0 \leq \xi < w_1 \\ p_1 \xi + q_1, & w_1 \leq \xi < w_2 \\ p_2 \xi + q_2, & w_2 \leq \xi < 1 \end{cases} \quad (1)$$

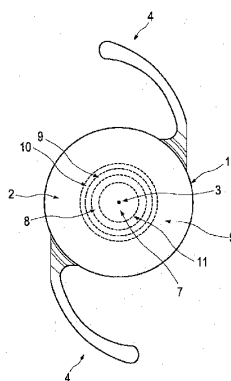


FIG. 1

(57) **Abstract:** The invention relates to a multifocal lens 1 having several concentric diffractive zones 7, 8, 9, 10 on a lens surface 2, wherein in each diffractive zone a diffraction phase structure is defined, which is expressible by the following function or by a smoothed version of the function: (1) wherein ξ indicates a position within the respective diffractive zone in a radial direction, $\phi(\xi)$ indicates a phase shift experienced by light passing through the position indicated by ξ , w_1 and w_2 define a spatial partitioning of the respective diffractive zone in the radial direction, p_1 , p_2 and p_3 indicate gradients and q_2 and q_3 are constants. The position ξ depends quadratically on a radial distance to the center of the lens surface and is normalized with respect to the radial width of the respective diffractive zone and the gradients p_1 , p_2 and p_3 are negative.

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