Title (en)

FLAT OPHTHALMIC LENS SYNTHESIZED FROM ITS SPECIFICATIONS

Title (de)

AUF BASIS IHRER SPEZIFIKATIONEN HERGESTELLTE OPHTHALMISCHE LINSE

Title (fr)

VERRE OPHTALMIQUE PLAT SYNTHETISE A PARTIR DE SES SPECIFICATIONS

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Application

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Priority

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Abstract (en)

[origin: WO9918457A2] This invention relates to a thin novel arched prescription lens (58), mainly suited for ophthalmic applications, which is designed to be manufactured as a thin flat sheet, and after or while manufacturing be folded to the required predefined arched shape. There is almost no connection between the thickness and the macroscopic arched shape of the lens to its optical characteristics. The lens' designer defines the macroscopic surfaces of the arched lens (59, 60) as he wishes. The design process assumes that the locations of the object (50), the lens (51), and the required image (53) are known. By using Ray-tracing technique we calculate the microscopic normals to the lens that will form the required image. The arched shape is transformed to a flat shape. From the transformed microscopic normals we calculate the microscopic surface by a process of continuous summation of the slopes with geometric pattern conditions. The final surface is not smooth but contains plenty of dense microscopic shapes that look like saw-teeth. That rough surface enables the lens to have almost any desired shape and thickness. The lens may provide an alternative to conventional prescription lenses. The lens may be bonded or attached to arched unprescription eyewear in purpose to convert it to a prescription one. The lens may be thin and soft enough to enable people to cut and shape their lenses as they wish by using simple cutting accessories such as scissors. The lens may be very light-weight, elastic, inexpensively mass-produced, very large, with high power and very low aberrations, coated, tinted, or a combination thereof. The lens may be laminated. Disclosed, in addition, unifocal and multifocal arched mirrors, which can be made flexible.

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