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*of Science and Useful Arts*

*The Director*

*of the United States Patent and Trademark Office has received  
an application for a patent for a new and useful invention. The title  
and description of the invention are enclosed. The requirements  
of law have been complied with, and it has been determined that  
a patent on the invention shall be granted under the law.*

*Therefore, this United States*

*Patent*

grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.

*Coke Moya Smead*

ACTING DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

(12) **United States Patent**  
**Mehravarán**

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(54) **METHOD AND DEVICE FOR FELLOW-EYE CORNEAL TOPOGRAPHY**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 442 days.

(21) Appl. No.: **18/060,233**

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(65) **Prior Publication Data**  
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**A61B 3/107** (2006.01)  
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(52) **U.S. Cl.**  
CPC ..... **A61B 3/107** (2013.01); **A61B 3/0025** (2013.01); **A61B 3/102** (2013.01)

(58) **Field of Classification Search**  
CPC ..... A61B 3/0025; A61B 3/13; A61B 3/102; A61B 3/107; A61B 3/117  
See application file for complete search history.

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(57) **ABSTRACT**  
A device and method for early detection of eye disease including a corneal topography device including a camera, such as a rotating Scheimpflug camera, configured to measure the elevation of a patient's two anterior corneas sequentially or simultaneously; a computer processor; and non-transitory computer readable media including computer readable instructions, which, when executed by the computer processor, causes the device to measure and store elevation data at a plurality of points on the patient's anterior corneal surfaces; organize the elevation data for each cornea into a two-dimensional matrix where the center of the cornea is in the center of the data frame, rotate the data for a first eye 180 degrees around the Y axis relative to a second eye, subtract data on each corresponding corneal point, and generate an elevation difference matrix showing the degree of symmetry or asymmetry between the patient's left and right eye corneal topography.

**4 Claims, 5 Drawing Sheets**

