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Jiao et al.

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(54) **DEVICE FOR ASSISTING VISUALLY
IMPAIRED PATIENTS**

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(57) **ABSTRACT**

(51) **Int. Cl.**

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H04N 5/232	(2006.01)
A61F 2/14	(2006.01)
A61F 2/16	(2006.01)

The invention pertains to devices and methods that allow a subject having a diseased retina to see a more complete image of the subject's field-of-view. The invention provides a device comprising one or more windows comprising a plurality of optical components that redirect the light transmitting through the regions of the windows corresponding to the non-functional areas of the retina onto the functional areas of the retina in a manner such that the subject perceives a more complete field-of-view through the functional areas of the retina. The invention also provides a device comprising one or more cameras, a microprocessor, and one or more display screens, wherein the microprocessor comprises an algorithm programmed to remove portions of the image corresponding to non-functional areas of the subject's retina and compressing the portions so removed into the areas of the image corresponding to the functional areas of the subject's retina.

(52) **U.S. Cl.**

CPC **G02B 27/017** (2013.01); **A61F 2/15** (2015.04); **G02B 27/0081** (2013.01); **G02C 7/00** (2013.01); **H04N 5/225** (2013.01); **H04N 5/23229** (2013.01); **A61F 2002/1696** (2015.04)

(58) **Field of Classification Search**

CPC G02B 27/01; A61F 9/08
See application file for complete search history.

19 Claims, 5 Drawing Sheets

