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**Hacker**

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(54) **COMPUTER CONTROLLED SYSTEM FOR LASER ENERGY DELIVERY TO THE RETINA**

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**G06K 9/00** (2006.01)

(52) **U.S. Cl.**  
USPC ..... **382/128**; 250/559.13; 600/318; 604/294

(58) **Field of Classification Search** ..... 382/100, 382/128, 130, 117; 250/559.13; 600/318, 600/356, 383; 604/294

See application file for complete search history.

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(57) **ABSTRACT**

An embodiment of the invention provides a method that captures a diagnostic image of a retina having at least one lesion, wherein the lesion includes a plurality of spots to be treated. Information is received from a user interface, wherein the information includes a duration, intensity, and/or wavelength of treatment for each of the spots. A real-time image of the retina is captured; and, a composite image is created by linking the diagnostic image to the real-time image. At least one updated real-time image of the retina is obtained using eye tracking and/or image stabilization; and, an annotated image is created by modifying the composite image based on the updated real-time image. A localized laser beam is delivered to each of the spots according to the information, the composite image, and the annotated image.

**25 Claims, 6 Drawing Sheets**

