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(54) **LOW PROFILE TRI-AXIS ACTUATOR FOR FOLDED LENS CAMERA**

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- (52) **U.S. Cl.**  
CPC ..... **G03B 17/17** (2013.01); **G02B 27/0075** (2013.01); **G02B 27/64** (2013.01);  
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- (58) **Field of Classification Search**  
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(57) **ABSTRACT**

Folded camera modules in which the camera module height is determined by a folded lens module diameter and by the lens module movement in a direction perpendicular to the lens optical axis, and dual-aperture cameras including such folded camera modules. A folded camera module includes OIS and AF actuators having dimensions smaller than the camera module height and therefore not adding to the camera module height.

**20 Claims, 4 Drawing Sheets**

