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(54) **AUTO FOCUS AND OPTICAL IMAGE STABILIZATION IN A COMPACT FOLDED CAMERA**

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(57) **ABSTRACT**

Compact folded camera modules having auto-focus (AF) and optical image stabilization (OIS) capabilities and multi-aperture cameras including such modules. In an embodiment, a folded camera module includes an optical path folding element (OPFE) for folding light from a first optical path with a first optical axis to a second optical path with a second optical axis perpendicular to the first optical axis, an image sensor and a lens module carrying a lens with a symmetry axis parallel to the second optical axis. The lens module can be actuated to move in first and second orthogonal directions in a plane perpendicular to the first optical axis, the movement in the first direction being for auto-focus and the movement in the second direction being for OIS. The OPFE can be actuated to tilt for OIS.

18 Claims, 14 Drawing Sheets