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

(71) Applicant: **Corephotonics Ltd.**, Tel-Aviv (IL)

(72) Inventors: **Ephraim Goldenberg**, Ashdod (IL); **Gal Shabtay**, Tel Aviv (IL); **Gal Avivi**, Haifa (IL); **Michael Dror**, Nes Ziona (IL); **Gil Bachar**, Tel-Aviv (IL); **Itay Jerby**, Netanya (IL); **Itay Yedid**, Karne Yosef (IL)

(73) Assignee: **Corephotonics Ltd.**, Tel Aviv (IL)

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Primary Examiner — Arnel C Lavarias

(74) *Attorney, Agent, or Firm* — Nathan & Associates; Nathan Menachem

(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.

14 Claims, 15 Drawing Sheets

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