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(12) **United States Patent**
Ding et al.

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(54) **ONE OPTICAL DESIGN PATTERN/METHOD OF A COST EFFECTIVE IR LENS**

(58) **Field of Classification Search**

CPC G02B 3/0062; G02B 3/02; G02B 3/04; G02B 3/08; G02B 1/00; G02B 5/18; (Continued)

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(57) **ABSTRACT**

An optical design pattern/method was invented to control the total cost including the material and the manufacturing of IR imaging lenses. This optical design pattern/method comprises a molded lens and an aberration correction lens. This design pattern/method leads to cost-effective IR imaging lenses because the unit cost of the molded lens is low for a volume production and the unit cost of the aberration correction lens is low for its very small manufacturing. This optical design pattern/method comprises any imaging and spectral applications for any partial band of 1 to 14 micron, such as (but not limited to) SWIR, MWIR, and LWIR.

21 Claims, 8 Drawing Sheets

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 38 days.

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(65) **Prior Publication Data**

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G02B 3/00 (2006.01)
G02B 1/00 (2006.01)

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