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Chen et al.

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(54) **IMAGING OPTICAL LENS ASSEMBLY**

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(57) **ABSTRACT**

(21) Appl. No.: **12/483,748**

The present invention provides an imaging optical lens assembly including, in order from the object side to the image side: a first lens group comprising a first lens element with positive refractive power, no lens element with refractive power being disposed between the first lens element and an imaged object, the first lens element being the only lens element with refractive power in the first lens group; and a second lens group comprising, in order from the object side to the image side: a second lens element with negative refractive power; a third lens element; and a fourth lens element; wherein focusing adjustment is performed by moving the first lens element along an optical axis, such that as a distance between the imaged object and the imaging optical lens assembly changes from far to near, a distance between the first lens element and an image plane changes from near to far; and wherein the number of the lens elements with refractive power in the imaging optical lens assembly is N, and it satisfies the relation: $4 \leq N \leq 5$. The abovementioned arrangement of optical elements and focusing adjustment method enable the imaging optical lens assembly to obtain good image quality and consume less power.

(22) Filed: **Jun. 12, 2009**

(30) **Foreign Application Priority Data**

Feb. 19, 2009 (TW) 98105232 A

(51) **Int. Cl.**
G02B 9/34 (2006.01)
G02B 13/18 (2006.01)

(52) **U.S. Cl.** **359/773; 359/715; 359/740**

(58) **Field of Classification Search** 359/715,
359/738, 740, 773

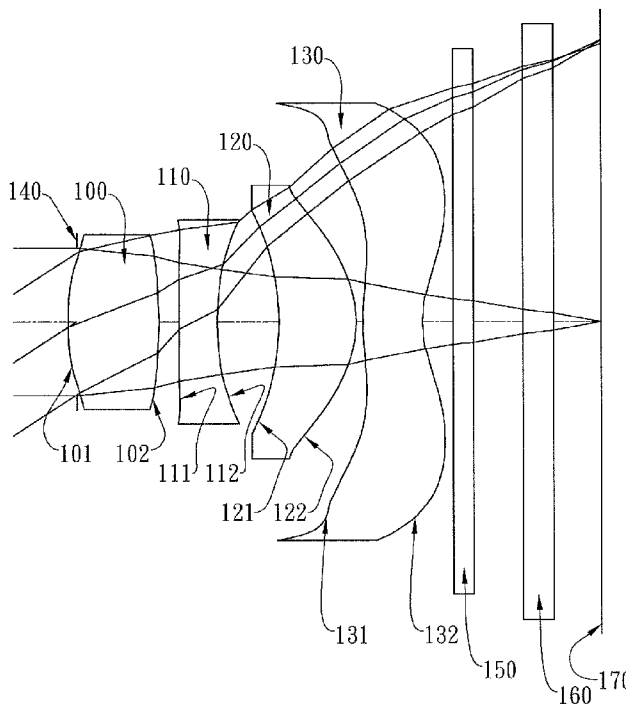
See application file for complete search history.

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19 Claims, 16 Drawing Sheets



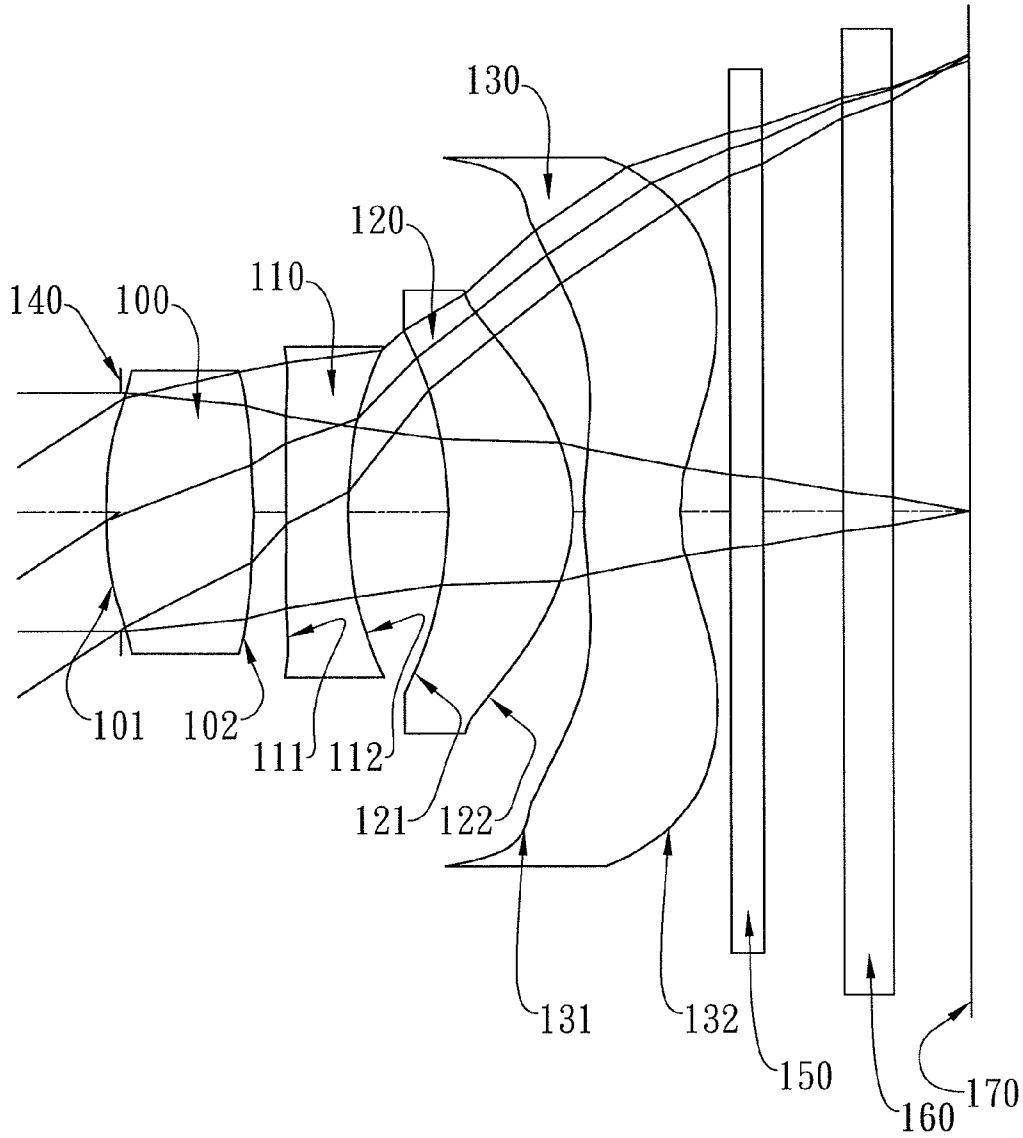


Fig. 1

Object Distance=Infinity

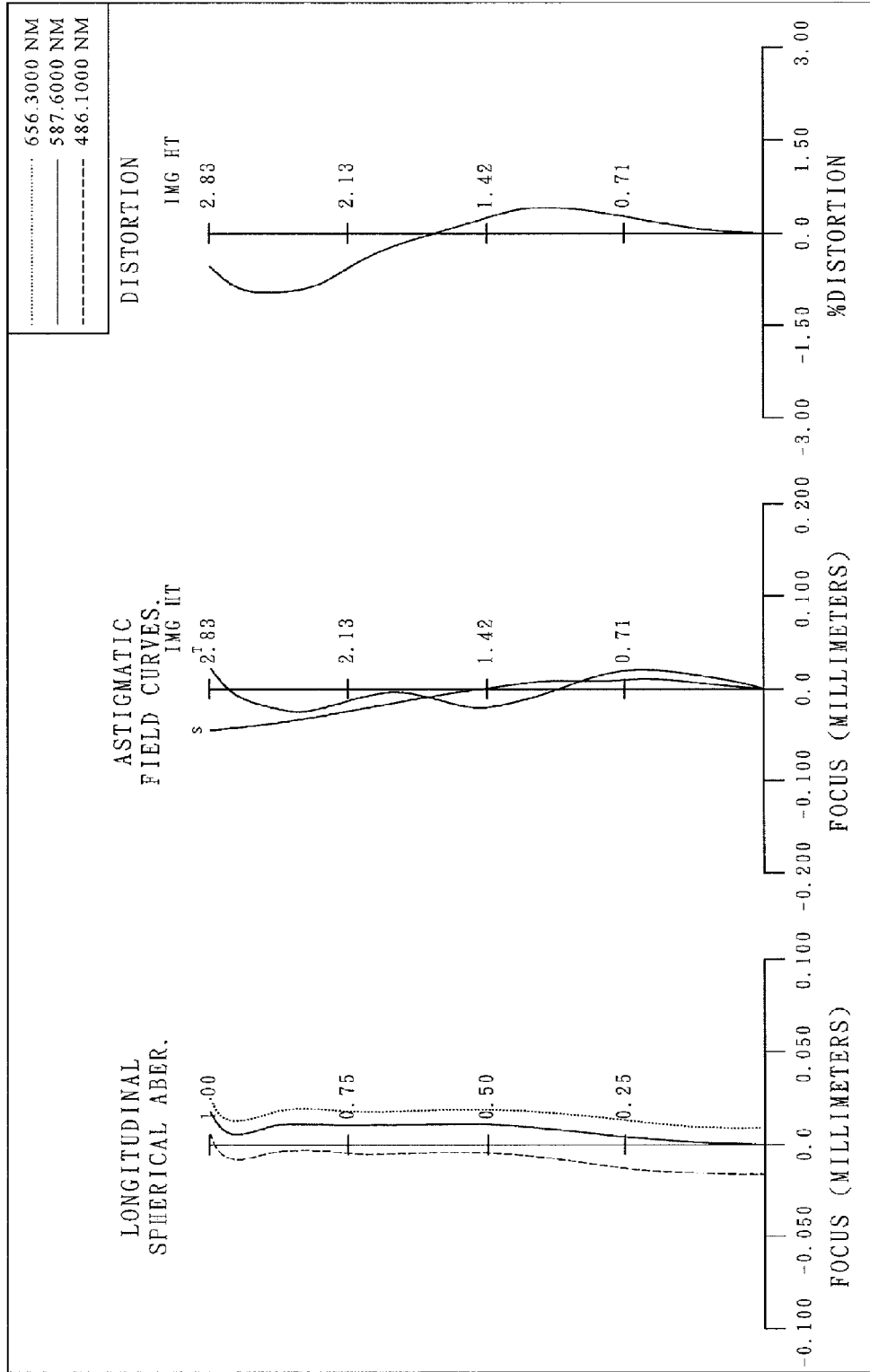


Fig. 2A

Object Distance=100mm

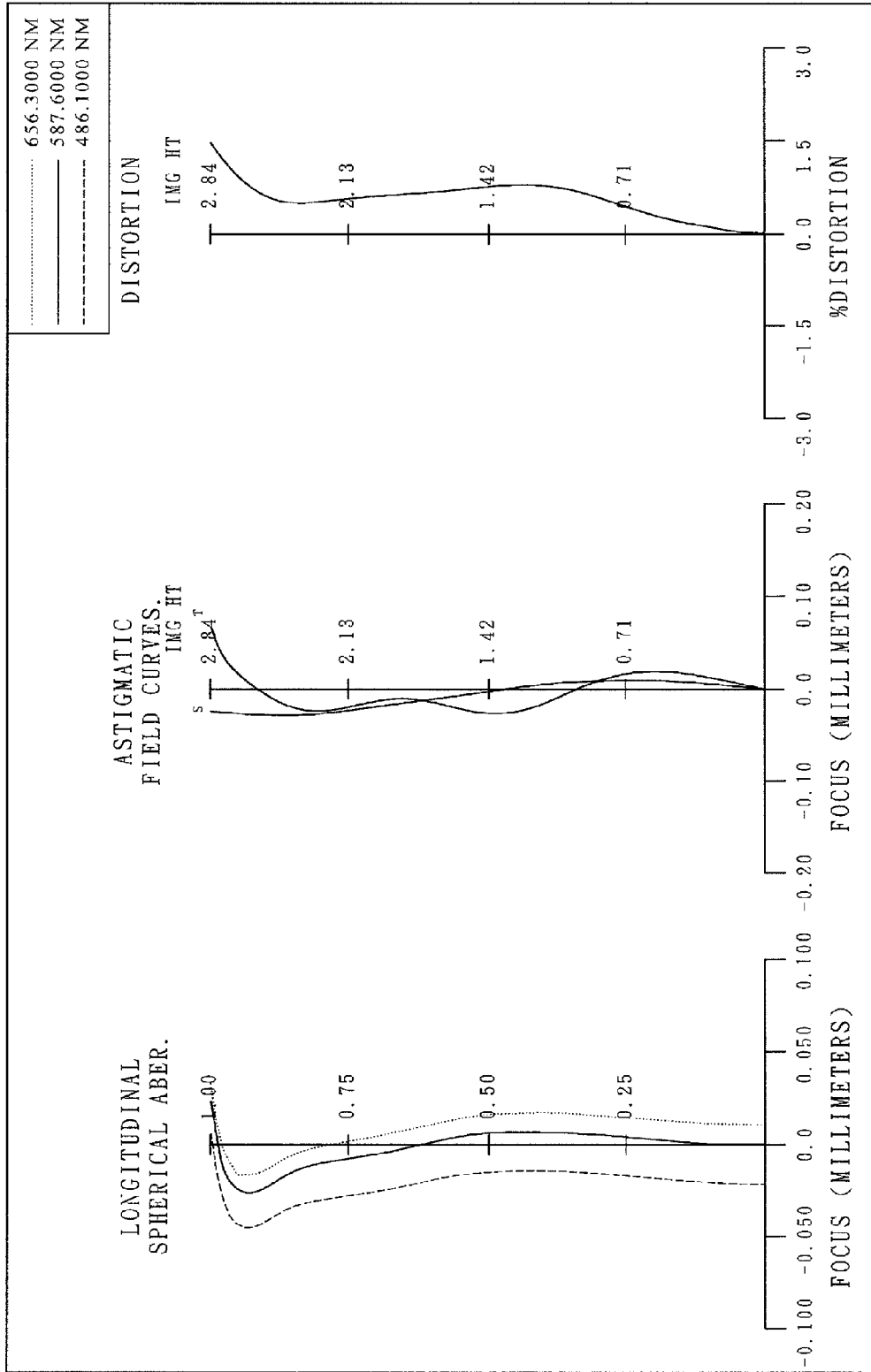


Fig. 2B

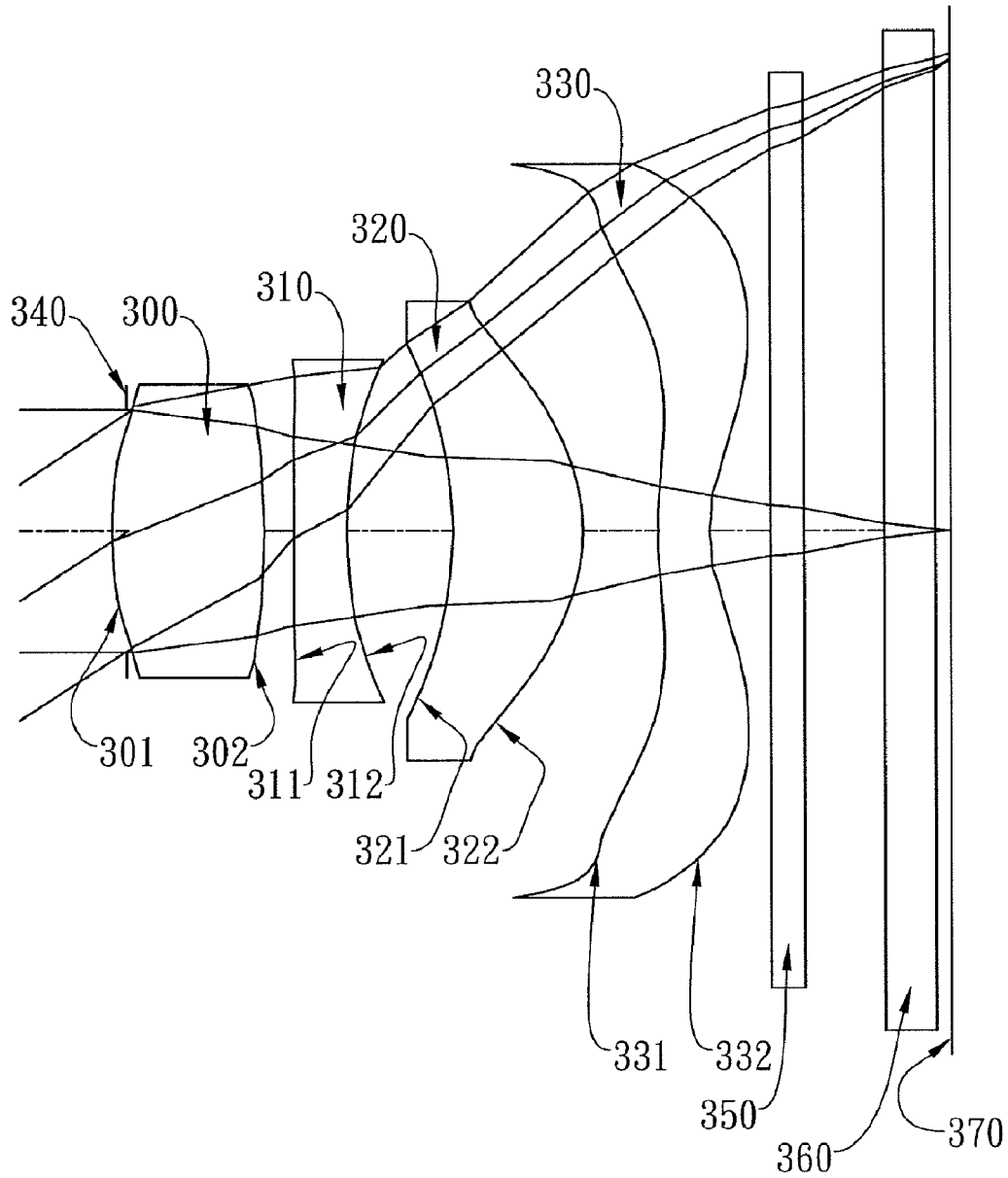


Fig. 3

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