

United States Patent [19]

[11] Patent Number: **4,482,219**

Canzek

[45] Date of Patent: * **Nov. 13, 1984**

[54] HIGH SPEED CATADIOPTRIC OBJECTIVE LENS SYSTEM

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[*] Notice: The portion of the term of this patent subsequent to Jun. 16, 1998 has been disclaimed.

[21] Appl. No.: **193,429**

[22] Filed: **Oct. 3, 1980**

Related U.S. Application Data

[63] Continuation of Ser. No. 967,973, Dec. 8, 1978, abandoned.

[30] Foreign Application Priority Data

Dec. 8, 1977 [CH] Switzerland 015052/77

[51] Int. Cl.³ **G02B 17/08**

[52] U.S. Cl. **350/444; 350/503**

[58] Field of Search **350/444, 442, 443, 503, 350/505**

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[57] ABSTRACT

This invention provides a high speed compact catadioptric, i.e. reflecting-refracting objective system of F/1.2. The lens system comprises, in accordance with the advance of the light rays, a positive lens with a convex surface toward the object, a lens with front and back surface concave toward the object and with a main mirror surfaced on the peripheral portion of said back surface. A counter-mirror is surfaced to the central portion of said positive lens and a field lens is cemented to the central portion of said lens with the main mirror surfaced thereon. Small zonal errors of spherical aberration, economical production and a reduced sensitivity to machining and mounting errors result from employing only two optical members which carry the mirrors and lens elements.

5 Claims, 4 Drawing Figures

