



US005546236A

United States Patent [19]

[11] Patent Number: **5,546,236**

Ogata et al.

[45] Date of Patent: **Aug. 13, 1996**

[54] **WIDE-ANGLE PHOTOGRAPHIC LENS SYSTEM**

56-91206	7/1981	Japan .
57-116313	7/1982	Japan .
59-147312	8/1984	Japan .
60-176011	9/1985	Japan .
64-90409	4/1989	Japan .
2208616	8/1990	Japan .

[75] Inventors: **Yasuji Ogata; Toshiro Baba**, both of Hachioji, Japan

[73] Assignee: **Olympus Optical Co., Ltd.**, Tokyo, Japan

Primary Examiner—David C. Nelms
Assistant Examiner—Vu A. Le
Attorney, Agent, or Firm—Cushman, Darby & Cushman

[21] Appl. No.: **208,836**

[22] Filed: **Mar. 11, 1994**

[30] **Foreign Application Priority Data**

Mar. 12, 1993	[JP]	Japan	5-077420
Mar. 12, 1993	[JP]	Japan	5-077456
Jul. 16, 1993	[JP]	Japan	5-197704

[51] Int. Cl.⁶ **G02B 15/02**

[52] U.S. Cl. **359/794; 359/795; 359/784; 359/785; 359/793**

[58] Field of Search 359/794, 690, 359/795, 793, 691, 692, 689, 784, 785

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,666,257 5/1987 Tanaka et al. 359/690

FOREIGN PATENT DOCUMENTS

55-105216 8/1980 Japan .

[57] **ABSTRACT**

A wide-angle photographic lens system comprising a front lens unit having a positive refractive power, an aperture stop and a rear lens unit having a positive refractive power or a negative refractive power; the front lens unit comprising at least one positive lens component and at least one negative lens component, whereas said rear lens unit consisting of a positive lens component having a convex surface on the image side. This photographic lens system has a short total length (a length as measured from a first surface to an image side surface of the lens system and a small value of Σd (a distance as measured from the first surface to a final surface thereof), and is suited for use with collapsible mount type cameras.

28 Claims, 11 Drawing Sheets

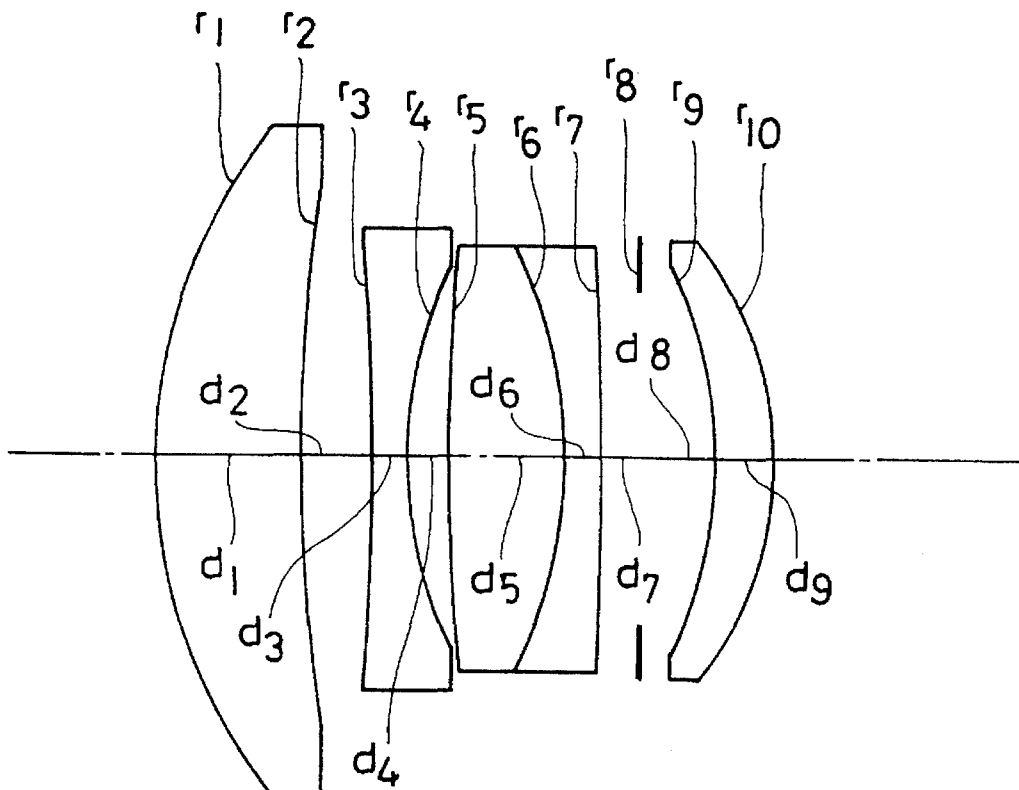


FIG. 1

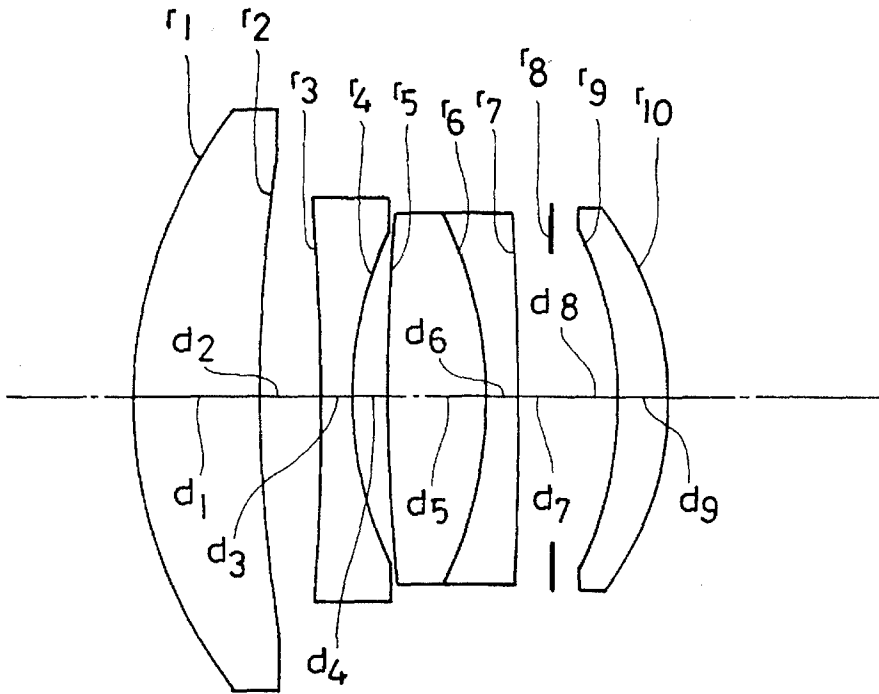


FIG. 2

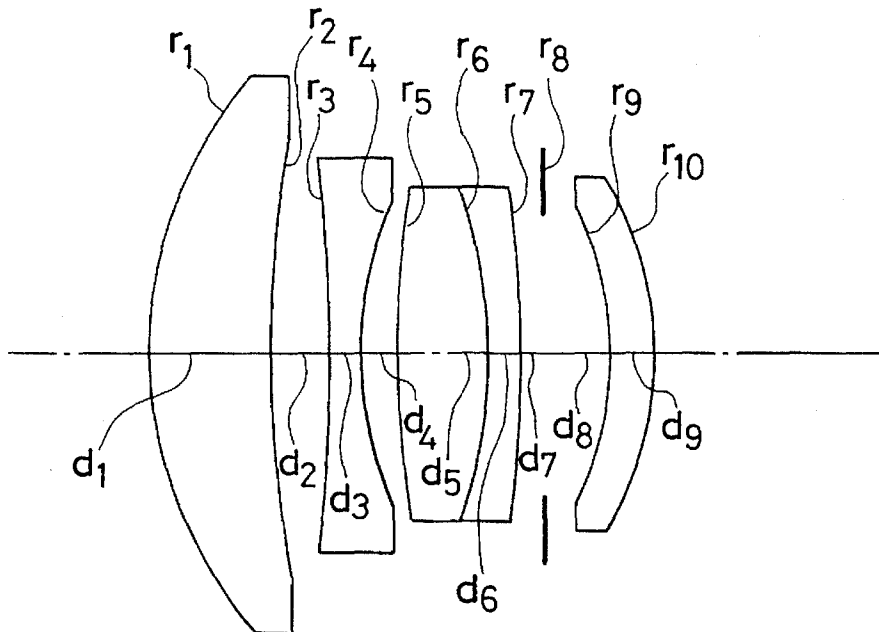


FIG. 3

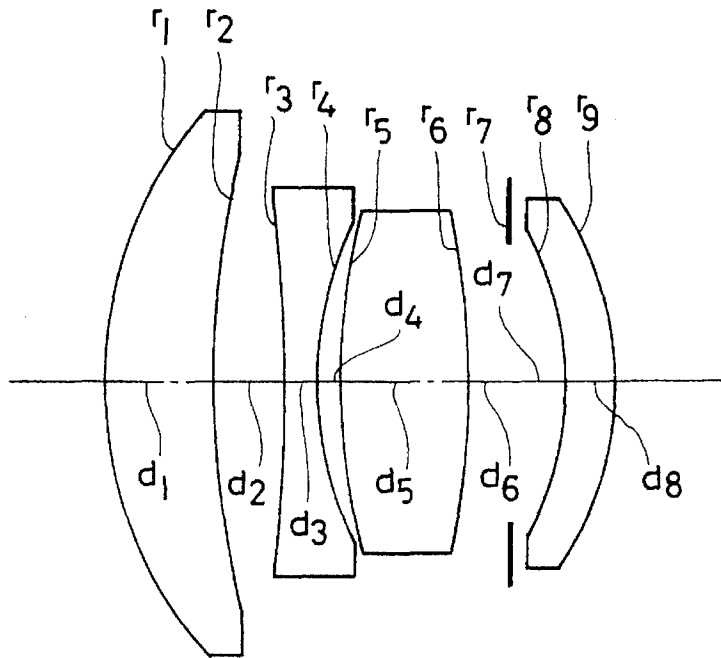


FIG. 4

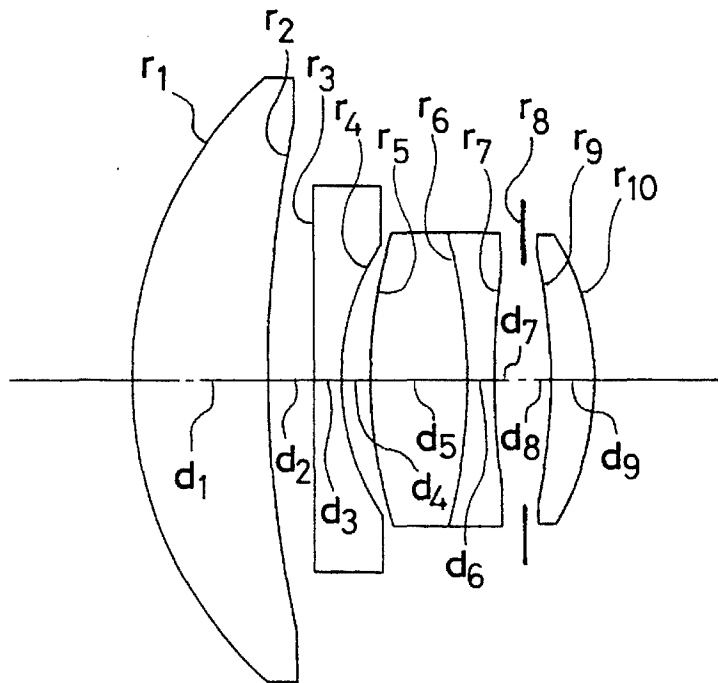


FIG. 5

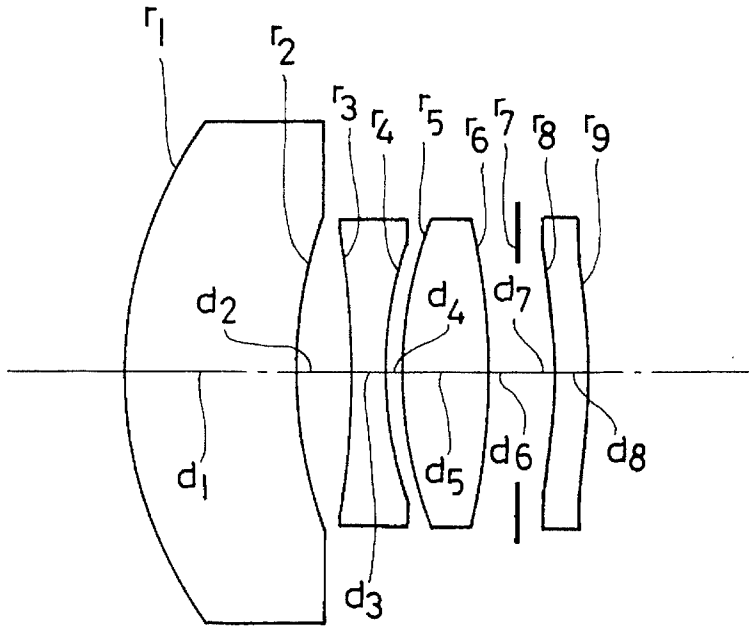


FIG. 6

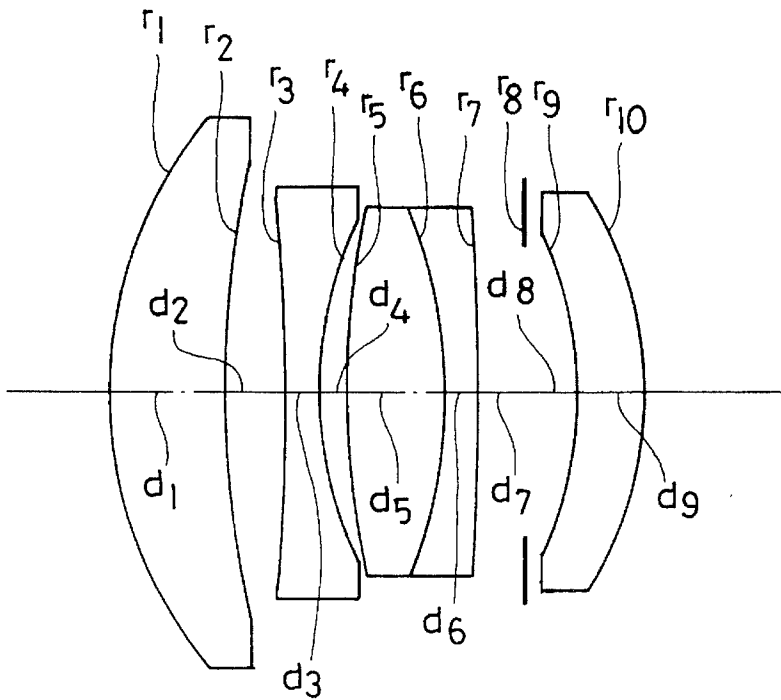


FIG. 7

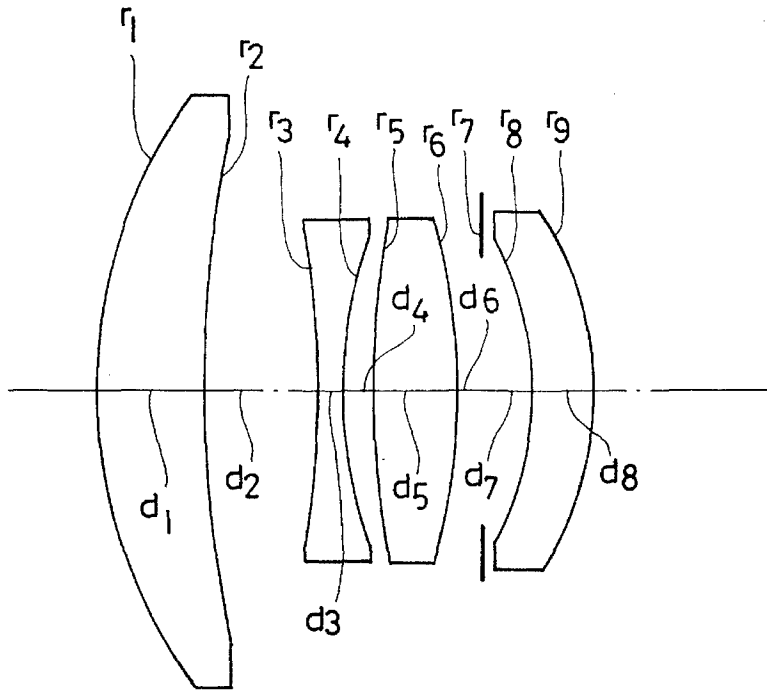
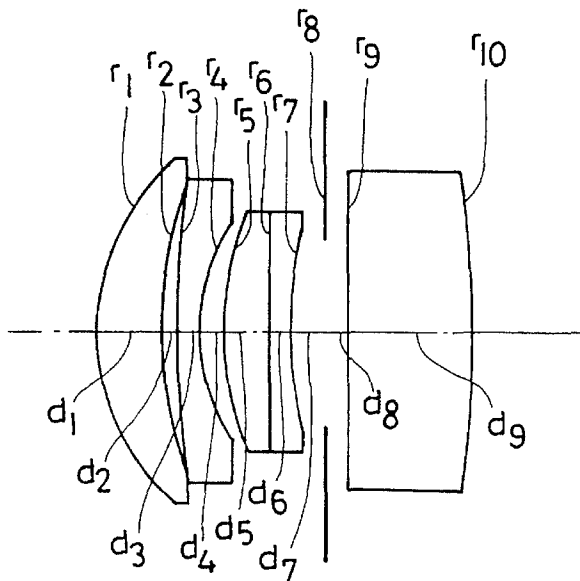


FIG. 8



Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.