United States Patent [19]

Ishida et al.

[54] AUTOMATIC FOCUS DETECTION SYSTEM [56]

- [75] Inventors: Tokuji Ishida, Daito; Masataka Hamada, Minamikawachi; Kenji Ishibashi, Sakai; Nobuyuki Taniguchi, Nishinomiya; Hiroshi Ootsuka, Sakai; Toshio Norita, Sakai; Toshihiko Karasaki, Sakai, all of Japan
- [73] Assignee: Minolta Camera Kabushiki Kaisha, Osaka, Japan
- [21] Appl. No.: 51,138
- [22] Filed: May 15, 1987

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 946,578, Dec. 22, 1986, abandoned.

[30] Foreign Application Priority Data

Dec. 27, 1985	[JP]	Japan	 60-298035
Dec. 27, 1985	[JP]	Japan	 60-298036
May 16, 1986	[JP]	Japan	 60-113315

- [51] Int. Cl.⁴ G03B 3/00; G03B 1/00

[11] Patent Number: 4,831,403

[45] Date of Patent: May 16, 1989

References Cited

U.S. PATENT DOCUMENTS

4,523,829	6/1985	Eguchi et al 354/406
4,561,749	12/1985	Utagawa 354/406
4,573,784	3/1986	Suzuki 354/406
4,633,073	12/1986	Horikawa 354/406
4,636,624	1/1987	Ishida et al 250/204 X
4,734,571	3/1988	Hamada et al 354/406 X

FOREIGN PATENT DOCUMENTS

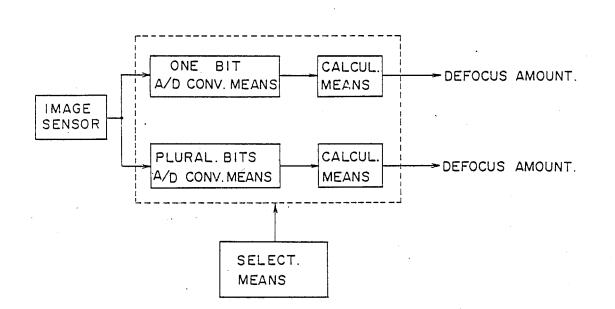
60-4913 1/1985 Japan .

Primary Examiner-W. B. Perkey Attorney, Agent, or Firm-Price, Gess & Ubell

[57] ABSTRACT

A camera with an automatic focusing device has an objective lens mounted on a camera. An image formed by the objective lens is divided into a plurality of zones. In each zone, a brightness distribution is obtained so as to detect a rough focusing condition in each zone, thereby producing a plurality of rough focusing condition data. Based on the result of the rough focusing condition data, one zone is selected. Furthermore, a precise focusing condition is detected in the selected zone based on the light contained in the selected zone, so as produce a precise focusing condition data. Based on the precise focusing condition data obtained from the selected zone, the object lens is driven to an infocus condition.

14 Claims, 42 Drawing Sheets



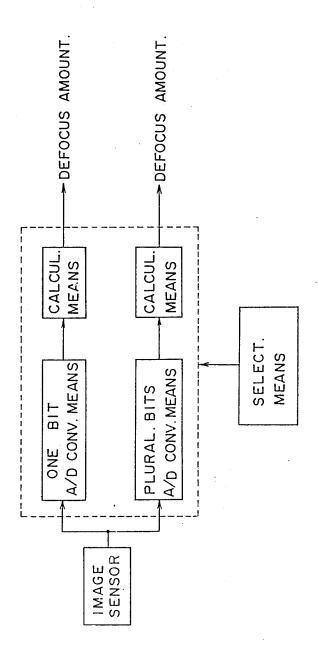
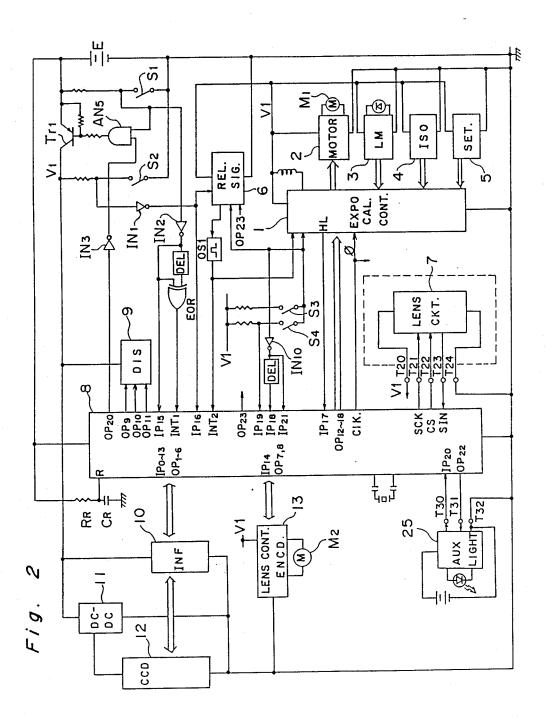


Fig.

Δ

Find authenticated court documents without watermarks at docketalarm.com.

Α



ARM Find authenticated court documents without watermarks at <u>docketalarm.com</u>.

Α

R

Fig. 3

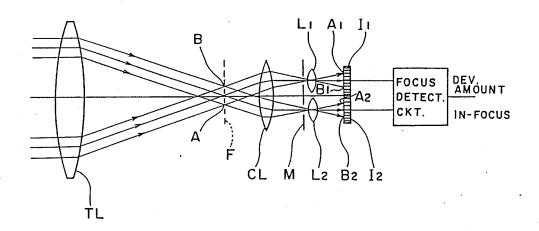
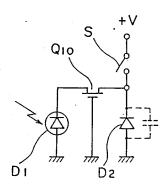


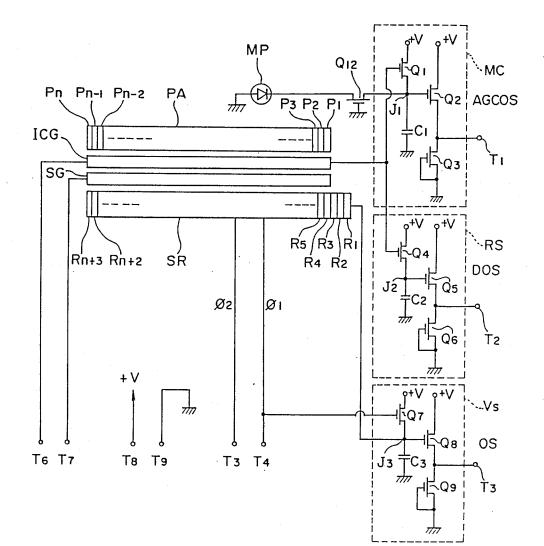
Fig. 5



Find authenticated court documents without watermarks at <u>docketalarm.com</u>.

Δ

Fig. 4



CKEI ARM Find authenticated court documents without watermarks at <u>docketalarm.com</u>.

DOCKET A L A R M



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.