



US006844990B2

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

(10) **Patent No.:** US 6,844,990 B2
(45) **Date of Patent:** Jan. 18, 2005

(54) **METHOD FOR CAPTURING AND DISPLAYING A VARIABLE RESOLUTION DIGITAL PANORAMIC IMAGE**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/706,513**

(22) Filed: **Nov. 12, 2003**

(65) **Prior Publication Data**

US 2004/0136092 A1 Jul. 15, 2004

Related U.S. Application Data

(63) Continuation of application No. PCT/FR02/01588, filed on May 10, 2002.

(30) **Foreign Application Priority Data**

May 11, 2001 (FR) 01 06261

(51) **Int. Cl.**⁷ **G02B 13/06; G02B 13/18**

(52) **U.S. Cl.** **359/725; 359/718**

(58) **Field of Search** **359/718, 719, 359/725, 728**

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,953,111 A	4/1976	Fisher et al.	
5,880,896 A	3/1999	Ishii et al.	
6,031,670 A	2/2000	Inoue	
6,333,826 B1 *	12/2001	Charles	359/725
6,449,103 B1 *	9/2002	Charles	359/725

FOREIGN PATENT DOCUMENTS

EP	0 695 085 A1	1/1996
EP	1 004 915 A1	5/2000
WO	WO 00/42470 A1	7/2000

* cited by examiner

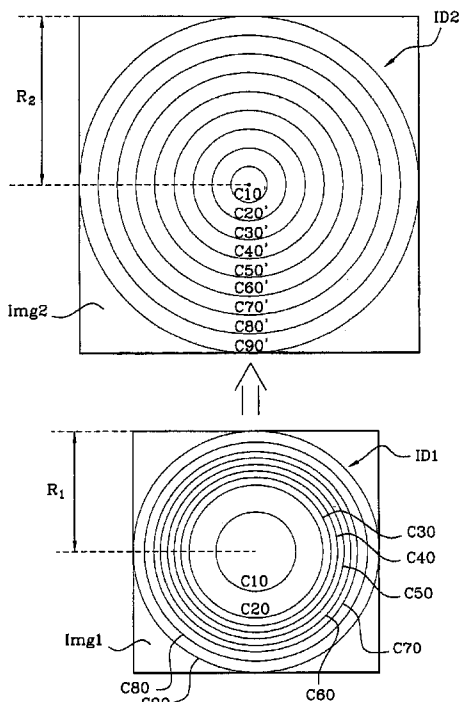
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(57) **ABSTRACT**

A method for capturing a digital panoramic image includes projecting a panorama onto an image sensor by means of a panoramic objective lens. The panoramic objective lens has a distribution function of the image points that is not linear relative to the field angle of the object points of the panorama, such that at least one zone of the image obtained is expanded while at least another zone of the image is compressed. When a panoramic image obtained is then displayed, correcting the non-linearity of the initial image is required and is performed by means of a reciprocal function of the non-linear distribution function of the objective lens or by means of the non-linear distribution function.

26 Claims, 11 Drawing Sheets



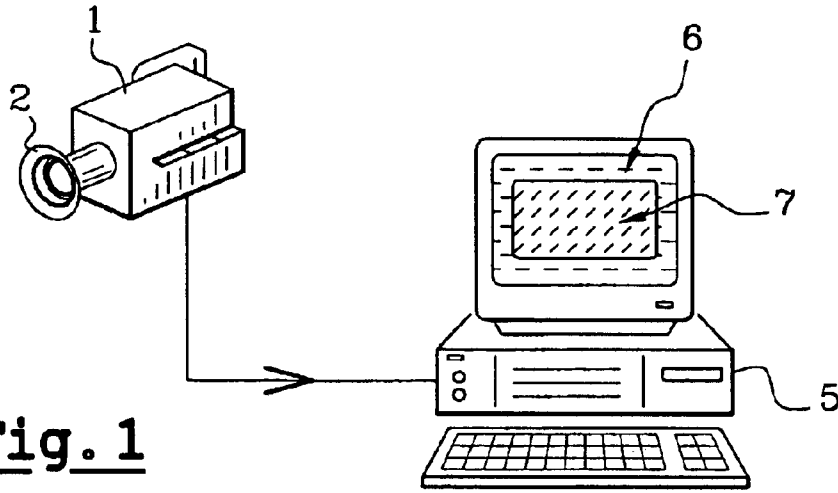


Fig. 1

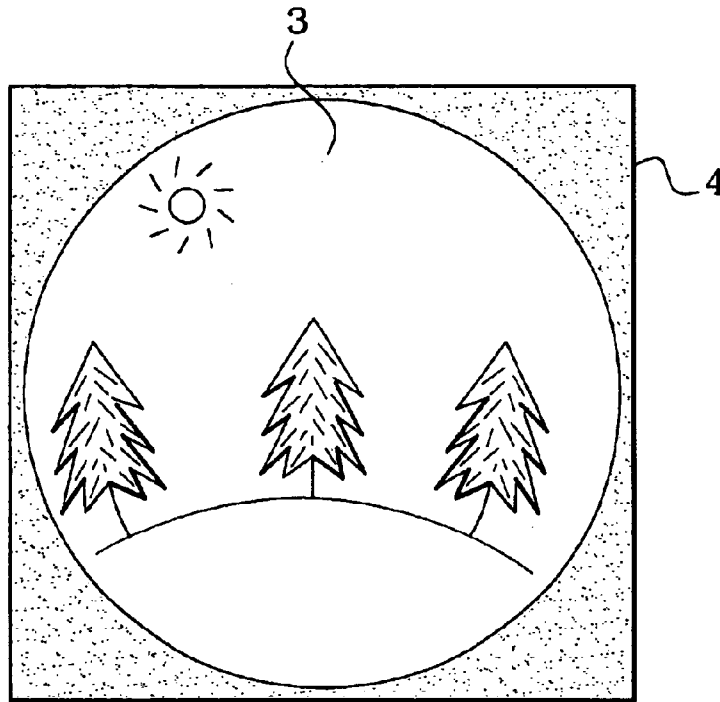
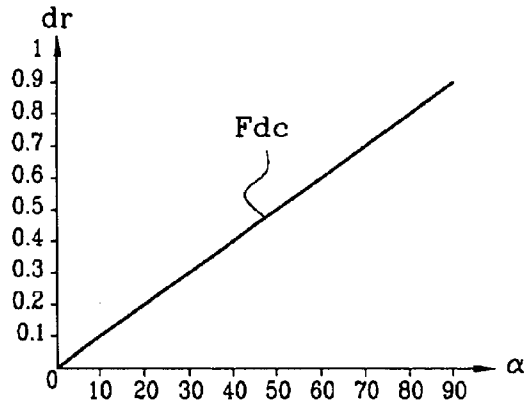
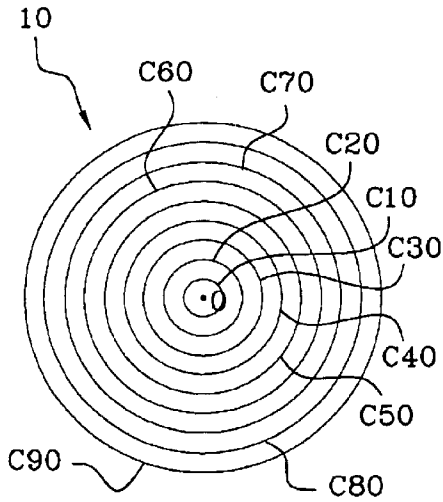
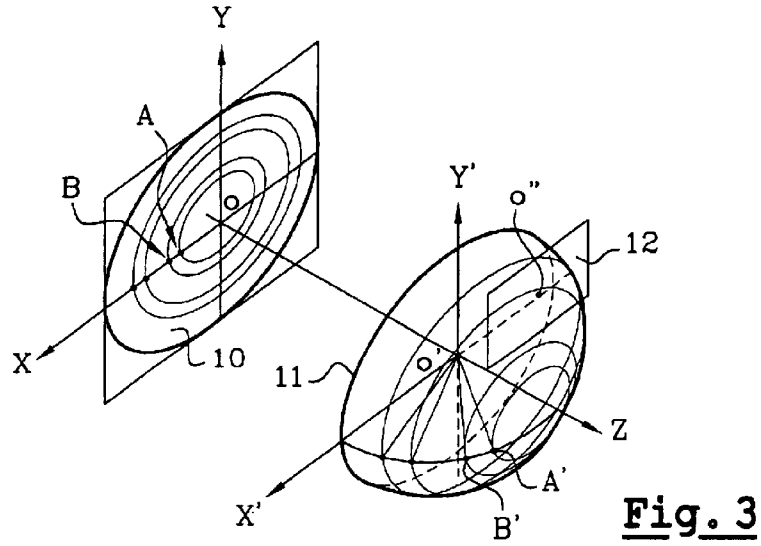


Fig. 2



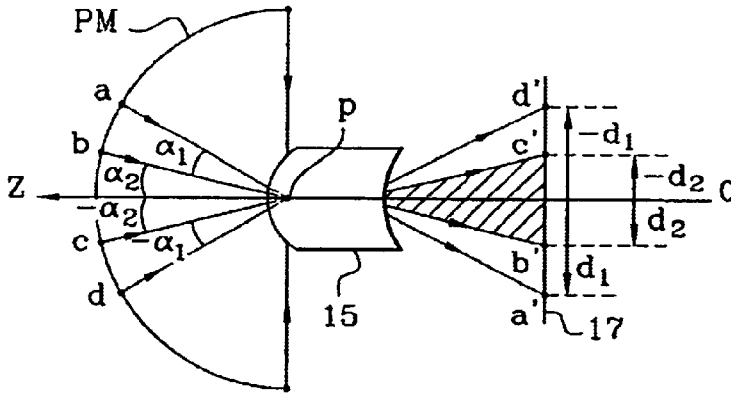


Fig. 5

PRIOR ART

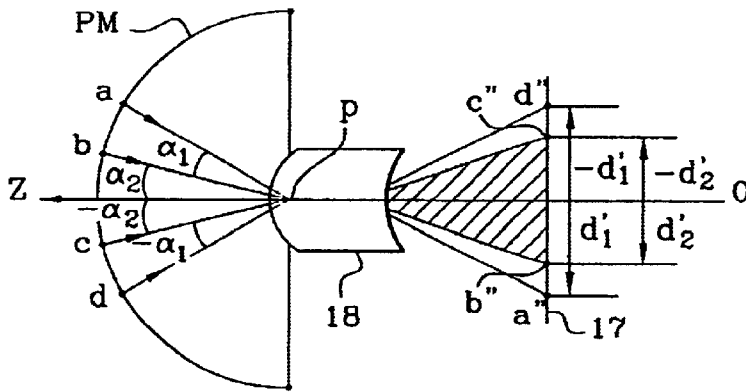


Fig. 6

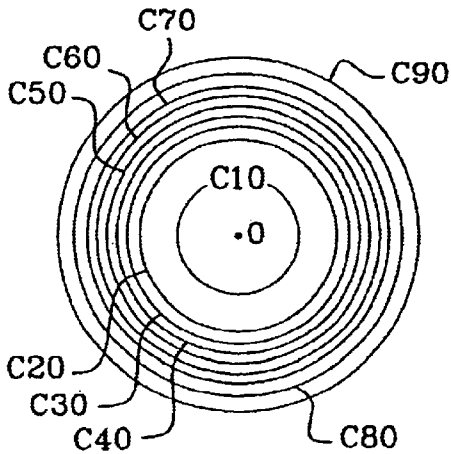


Fig. 7A

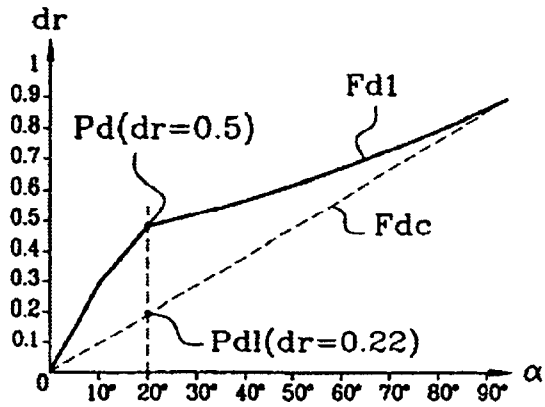


Fig. 7B

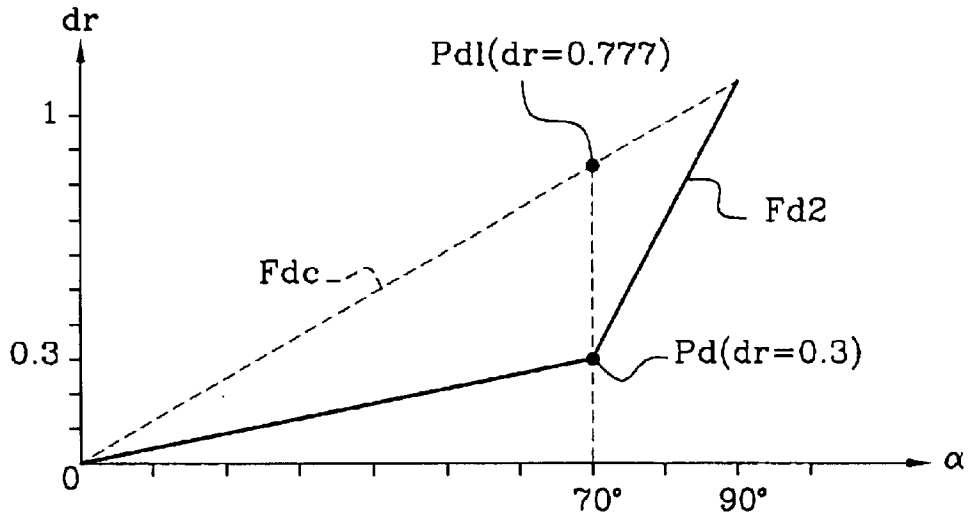


Fig. 8

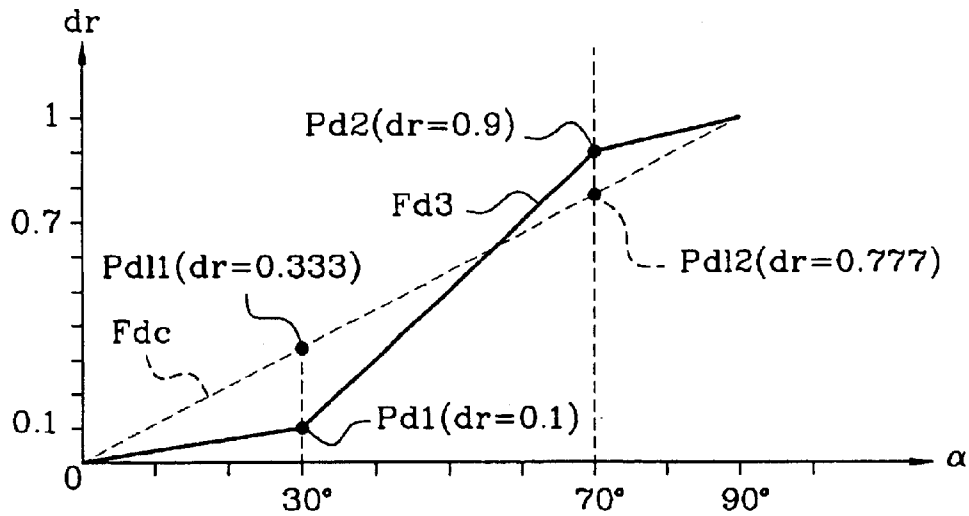


Fig. 9

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