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# United States Patent [19]

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Lelong et al.

[45] Date of Patent: **Aug. 22, 1995**

[54] **IMAGE PROCESSING METHOD AND DEVICE FOR CONSTRUCTING AN IMAGE FROM ADJACENT IMAGES**

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5,262,867 11/1993 Kojima ..... 348/39

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### [57] ABSTRACT

[21] Appl. No.: **174,091**

[22] Filed: **Dec. 28, 1993**

A method of processing images for constructing a target image (Io) from adjacent images having a fixed frame line and referred to as source images (I1, . . . , Ii, Ij, . . . , In), the source and target images having substantially common view points. This method includes the steps of: digitizing the images, determining, for one of the pixels of the target image (Io), the address (Aq) of a corresponding point in one of all source images (Ij), determining the luminance value (F) at this corresponding point, assigning the luminance value (F) of this corresponding pixel to the initial pixel in the target image (Io), and repeating these steps for each pixel of the target image (Io). A device for performing this method includes a system of n fixed real cameras (C1, . . . , Cn) which provide n adjacent source images (I1, . . . , In) covering a wide-angle field of view and which have common view points (P), and an image reconstruction system (100) simulating a mobile camera referred to as target image (Co) for providing a sub-image referred to as target image (Io) of the wide-angle field of view, and constructed on the basis of source images having the same view point (P).

### [30] Foreign Application Priority Data

Dec. 29, 1992 [FR] France ..... 92 15836

[51] Int. Cl.<sup>6</sup> ..... **H04N 7/18**

[52] U.S. Cl. .... **348/39; 348/38**

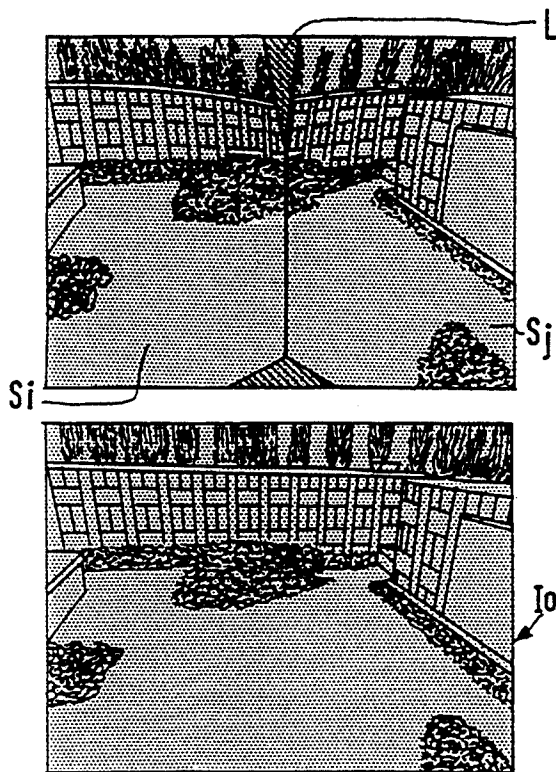
[58] Field of Search ..... 348/36, 39, 580, 383, 348/37, 38; 382/41

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17 Claims, 6 Drawing Sheets



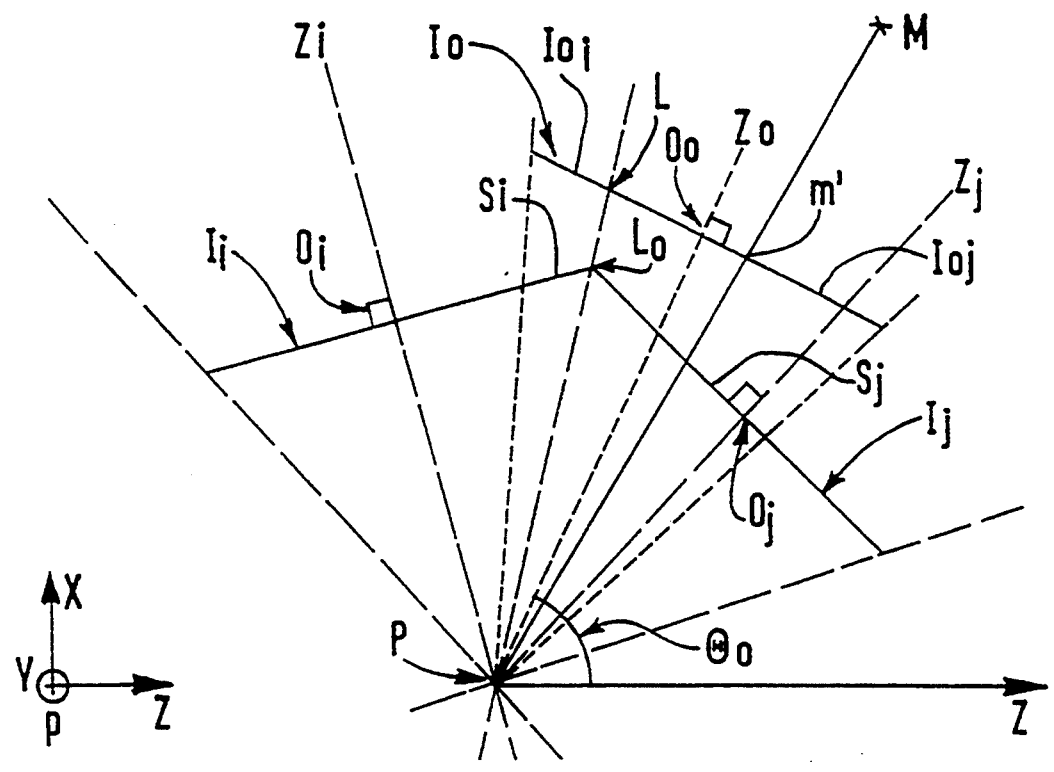


FIG. 1B

FIG. 1A

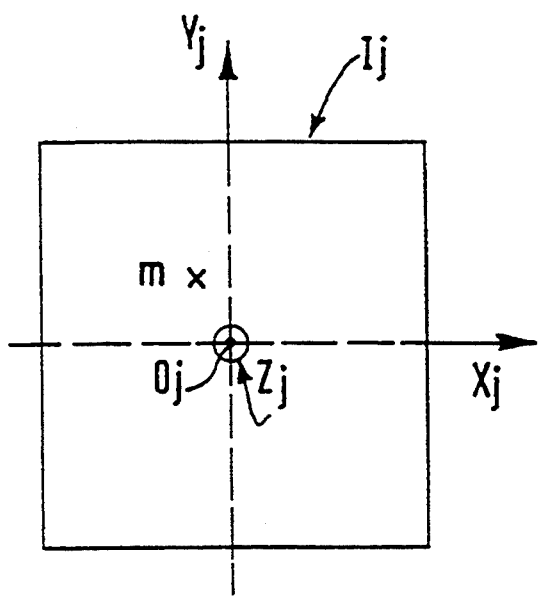


FIG. 1C

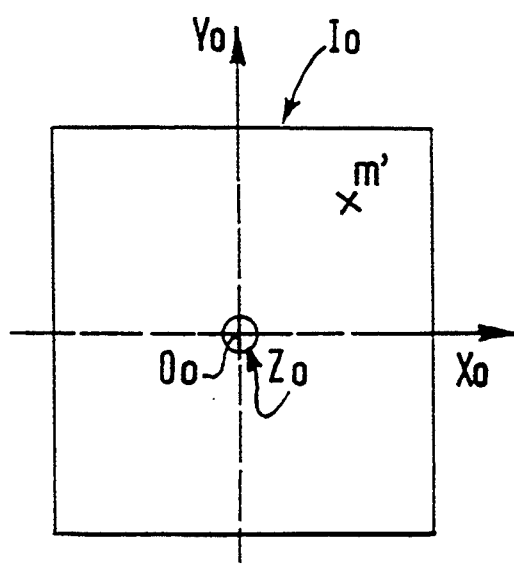


FIG. 1D

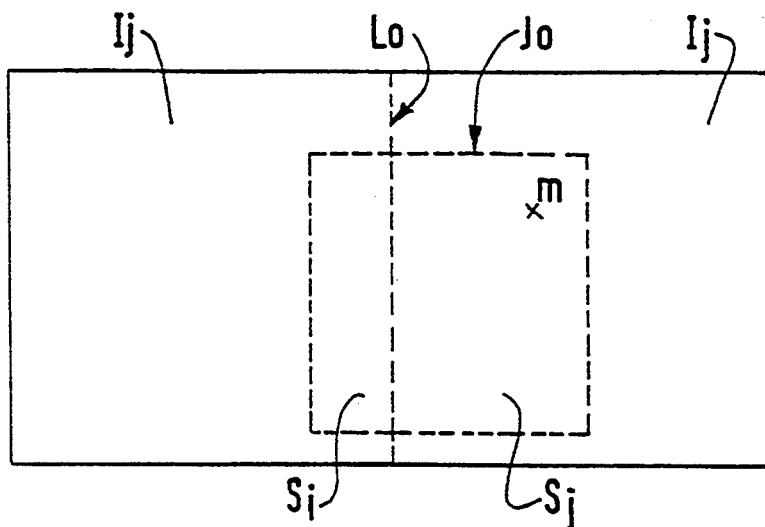


FIG. 1E

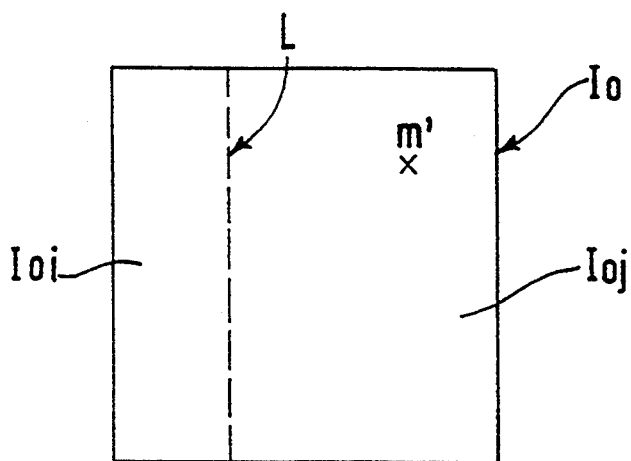


FIG. 1F

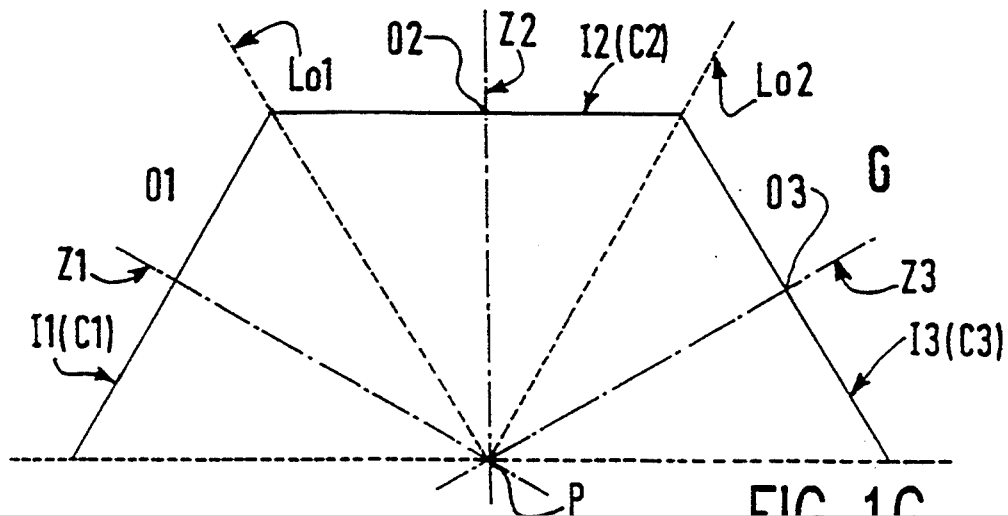


FIG. 1G

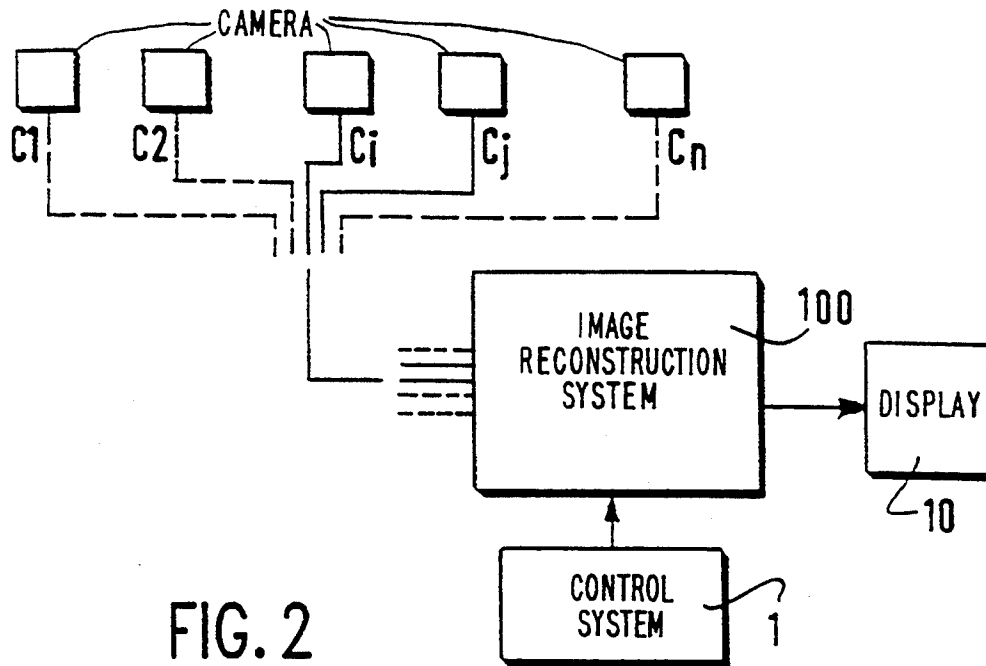
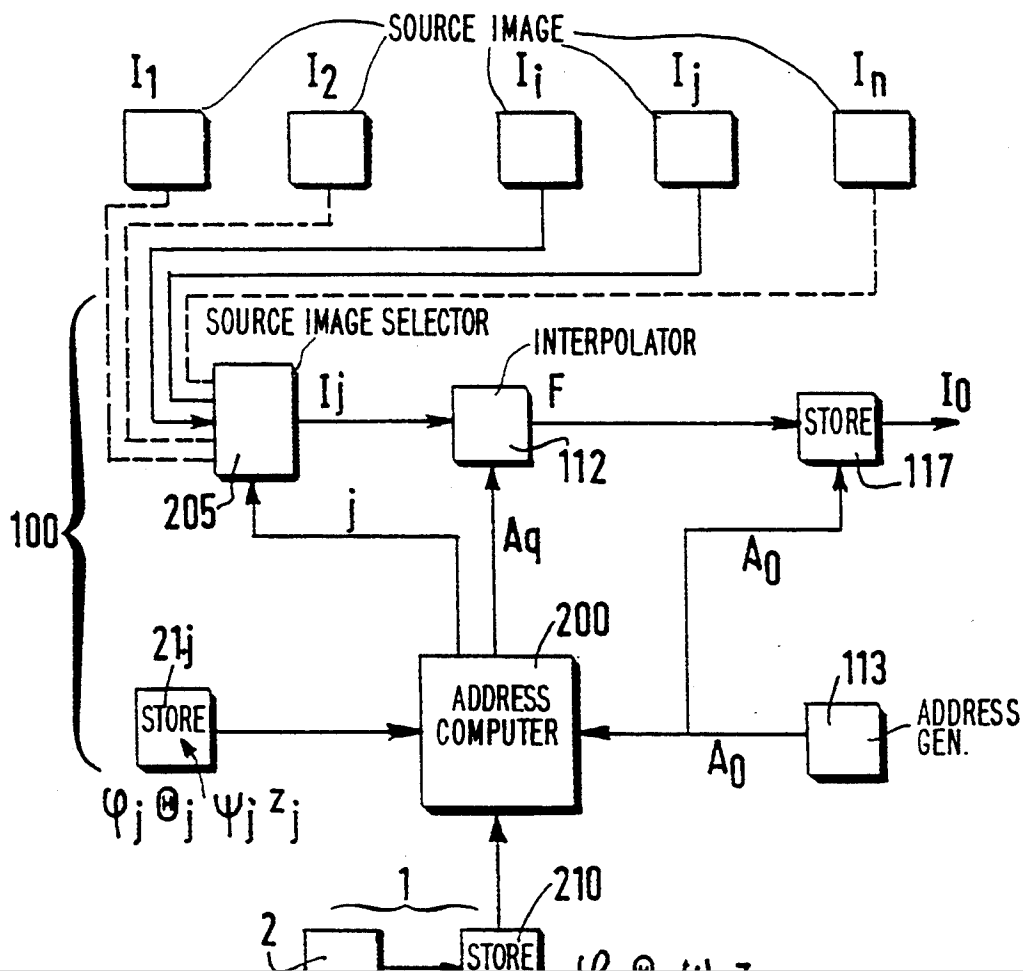


FIG. 2



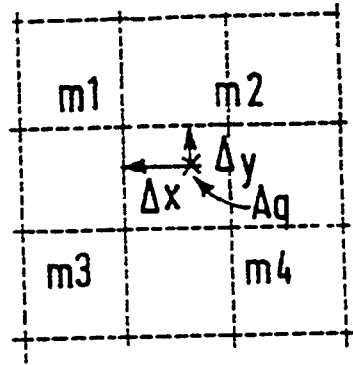


FIG. 4

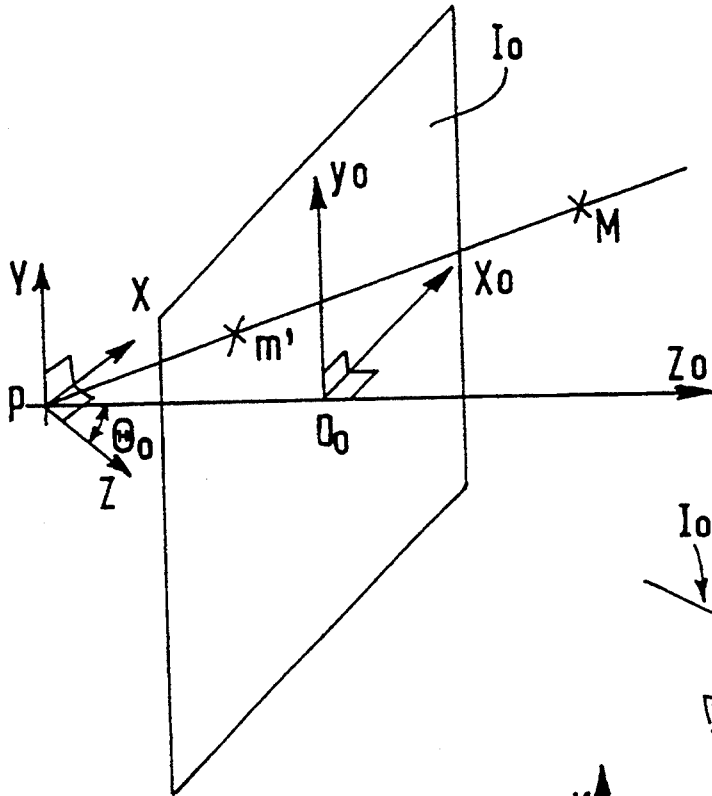


FIG. 5A

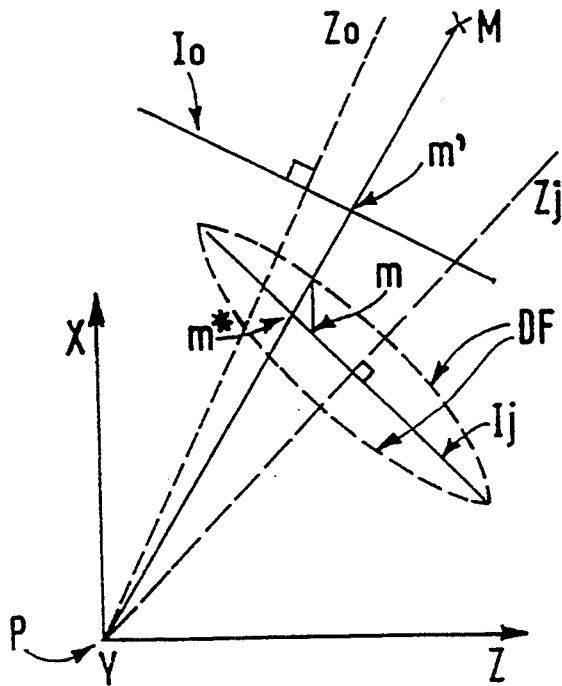


FIG. 5B

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