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United States Patent [19]

Edgar

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[54] **IMAGE RESIZE USING SINC FILTER IN LINEAR LUMEN SPACE**

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[73] Assignee: **International Business Machines Corporation**, Armonk, N.Y.

[*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,572,608.

[21] Appl. No.: **661,287**

[22] Filed: **Jun. 10, 1996**

Related U.S. Application Data

[63] Continuation of Ser. No. 295,317, Aug. 24, 1994, Pat. No. 5,572,608.

[51] **Int. Cl.**[6] **G06K 9/40**

[52] **U.S. Cl.** **382/260**

[58] **Field of Search** 382/268, 269, 382/260, 279, 298, 299, 300; 348/61, 581, 597; 358/474, 488; 367/45; 360/45; 359/189; 364/413.13, 724.2; 324/142

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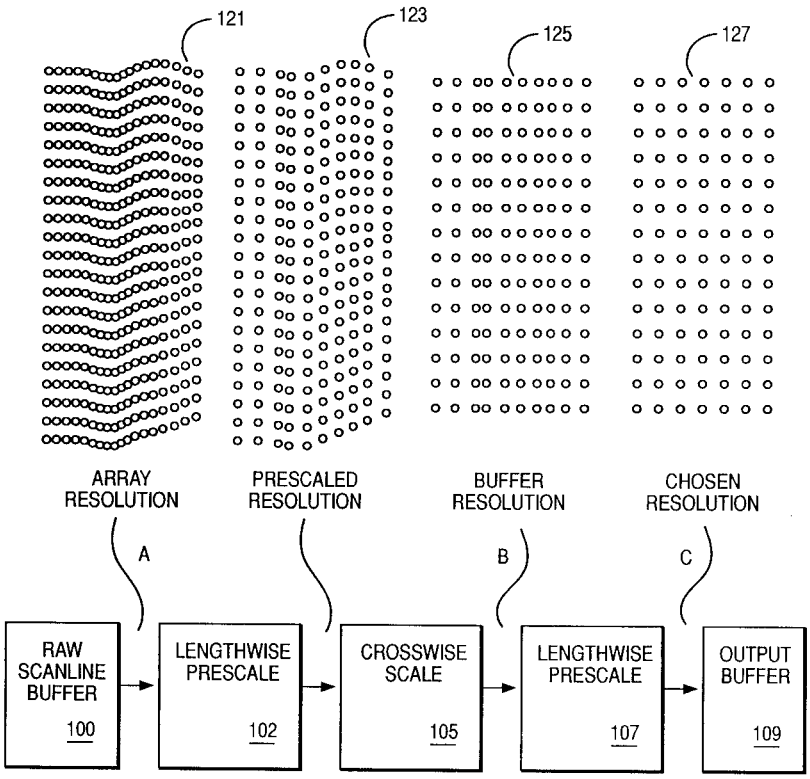
[57] **ABSTRACT**

a scanner which converts an oversampled substrate image into a digital pixel array which may be at an arbitrary sampling frequency lower than the first sampling frequency. The scanner sensor converts the substrate image into an array of analog pixel at a first sampling frequency. Preferably the first sampling frequency substantially oversamples the image from the actual frequency desired in the final digital image. The analog pixels are converted into a first array of digital pixels. The first digital pixel array is converted by a sinc filter in the linear lumen domain, i.e. the digital pixels are linearly representative of the brightness of light sensed by the sensor, to a second array of pixels at a second sampling frequency. The second sampling frequency should be much lower than the first sampling frequency to produce high quality images with substantially fewer pixels than required by the prior art.

18 Claims, 30 Drawing Sheets



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