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United States Patent [19]

Celi, Jr. et al.

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[54] **DYNAMIC OFF-SCREEN DISPLAY MEMORY MANAGER**

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

[21] Appl. No.: **513,710**

[22] Filed: **Aug. 11, 1995**

[51] **Int. Cl.**[6] **G06T 1/60**

[52] **U.S. Cl.** **395/507**; 395/497.01

[58] **Field of Search** 345/185, 189, 345/200, 201, 203; 395/507, 497.01, 497.02, 509, 520, 492, 497.04, 497.03

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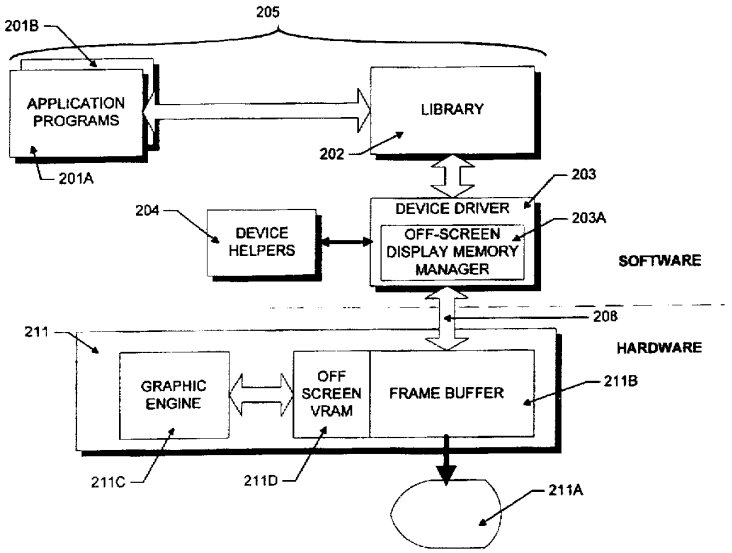
Attorney, Agent, or Firm—Mark S. Walker; Andrew J. Dillon

[57] **ABSTRACT**

A display memory manager allocates and deallocates off-screen video memory by dividing the memory space into a plurality of lapping and non-overlapping regions each capable of storing a different amount of digitized display data, and creating a linked list data structure indicative of the allocated and unallocated regions and various combinations of the unallocated regions. Upon receiving a request for off-screen display memory the display memory manager traverses the linked list data structure searching for a region, or combination of regions, large enough to store the requested amount of digitized display data. Once a region or combination of regions has been found and allocated, the linked list data structure is updated to indicate that the new regions are now allocated and hence unavailable to a subsequent requested allocation unless deallocated.

21 Claims, 7 Drawing Sheets



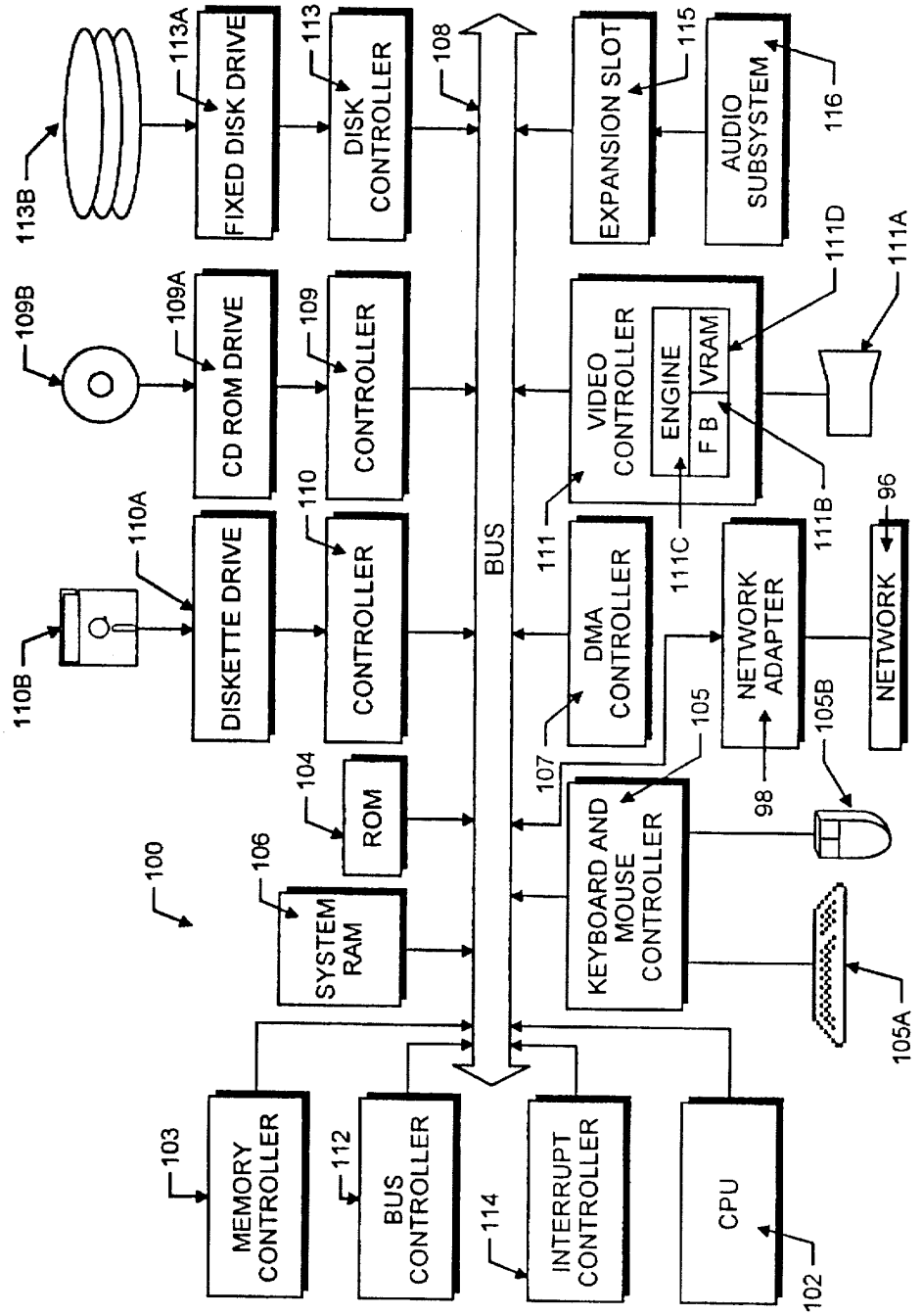


FIG. 1 (PRIOR ART)

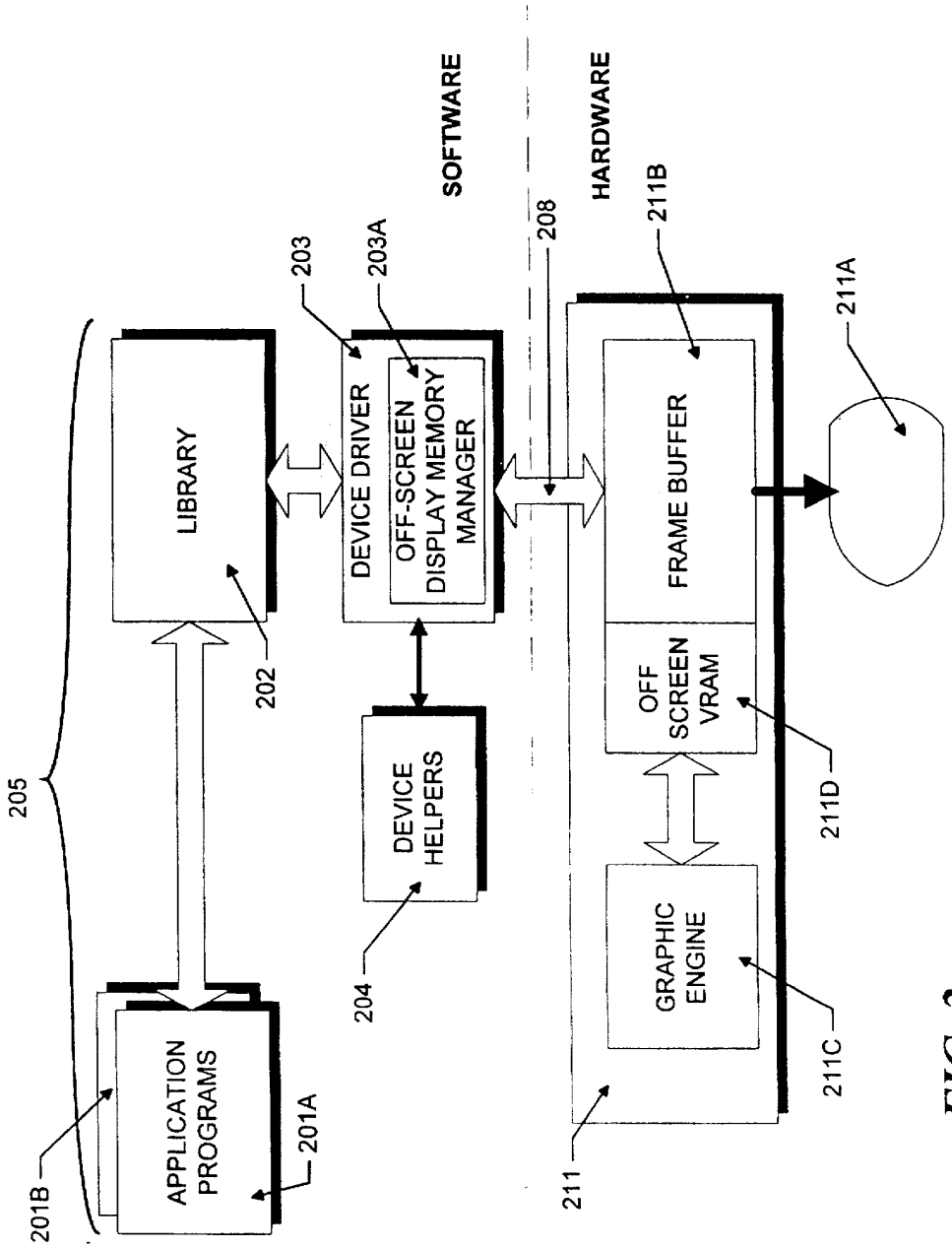


FIG. 2

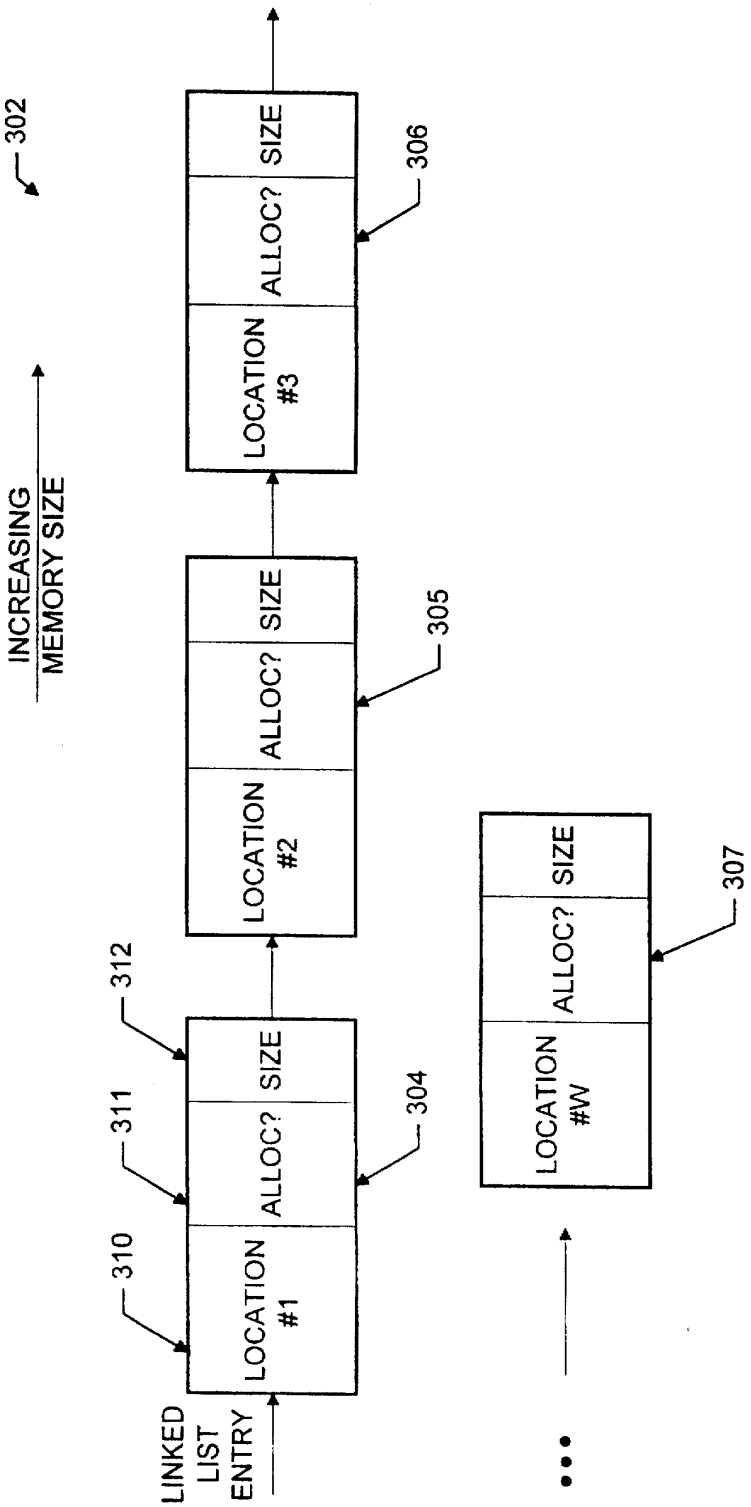


FIG. 3

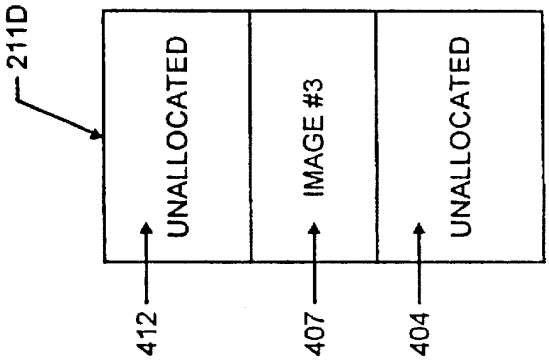


FIG. 4D

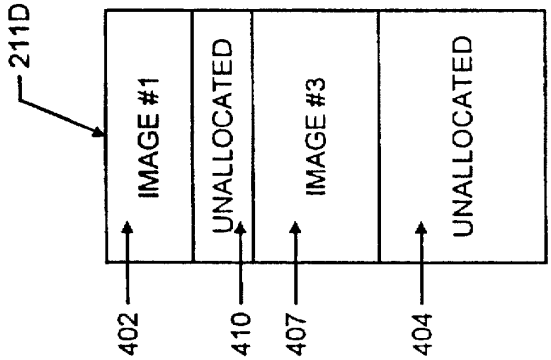


FIG. 4C

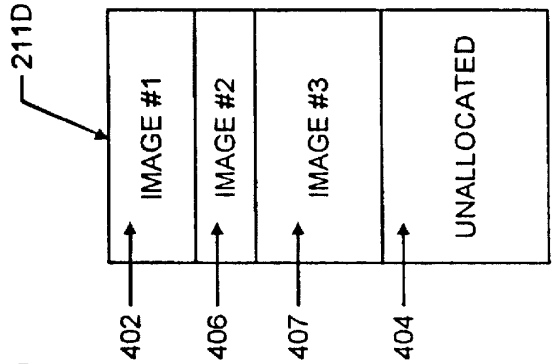


FIG. 4B

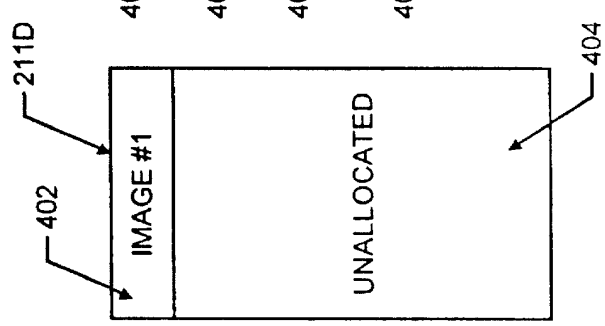


FIG. 4A

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