



- [54] **METHOD AND SYSTEM FOR PROVIDING TEXTURE USING A SELECTED PORTION OF A TEXTURE MAP**
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- [51] Int. Cl.<sup>6</sup> ..... **G06T 11/00**
- [52] U.S. Cl. .... **345/430**
- [58] Field of Search ..... 395/128-132, 395/125-127; 345/430

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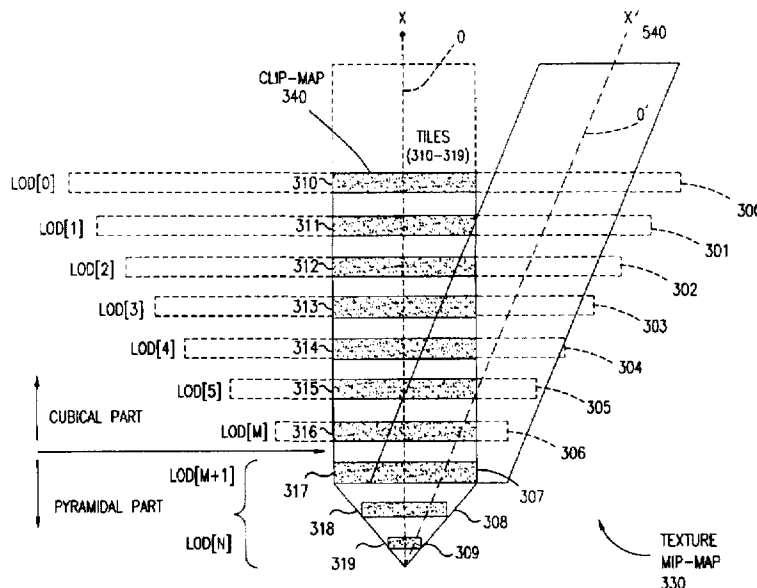
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[57] **ABSTRACT**

An apparatus and method for quickly and efficiently providing texel data relevant for displaying a textured image. A large amount of texture source data, such as photographic terrain texture, is stored as a two-dimensional or three-dimensional texture MIP-map on one or more mass storage devices. Only a relatively small clip-map representing selected portions of the complete texture MIP-map is loaded into faster, more expensive memory. These selected texture MIP-map portions forming the clip-map consist of tiles which contain those texel values at each respective level of detail that are most likely to be mapped to pixels being rendered for display based upon the viewer's eyepoint and field of view. To efficiently update the clip-map in real-time, texel data is loaded and discarded from the edges of tiles. Attempts to access a texel lying outside of a particular clip-map tile are accommodated by utilizing a substitute texel value obtained from the next coarser resolution clip-map tile which encompasses the sought texel.

**28 Claims, 14 Drawing Sheets**



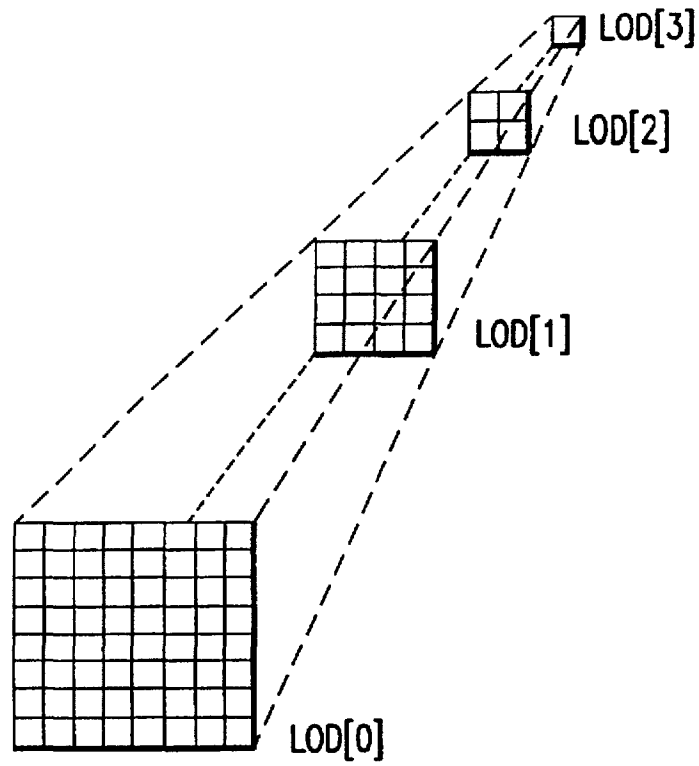


FIG. 1A

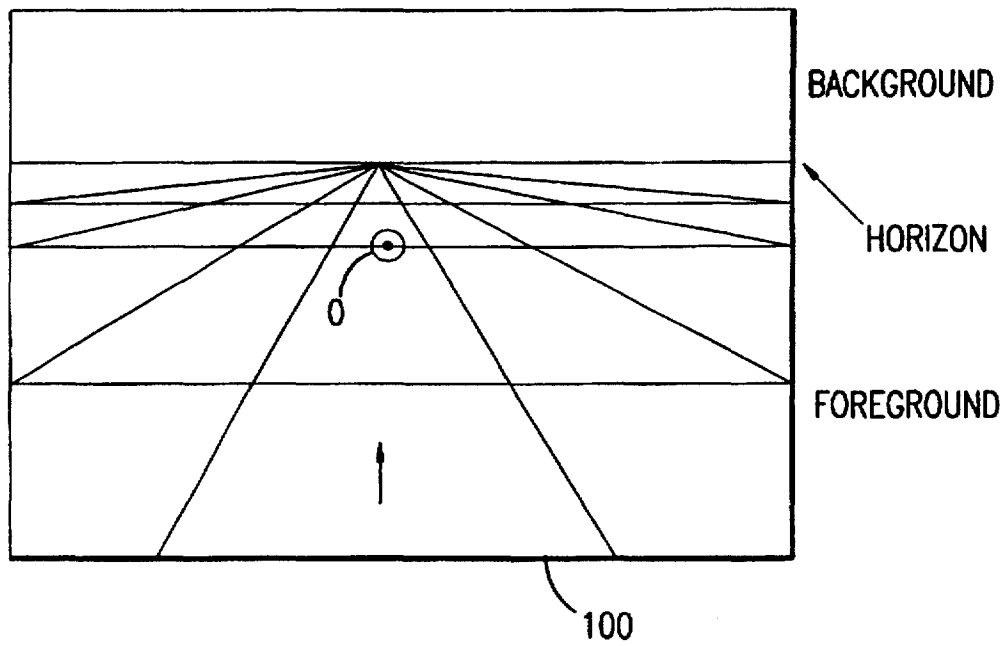


FIG. 1B

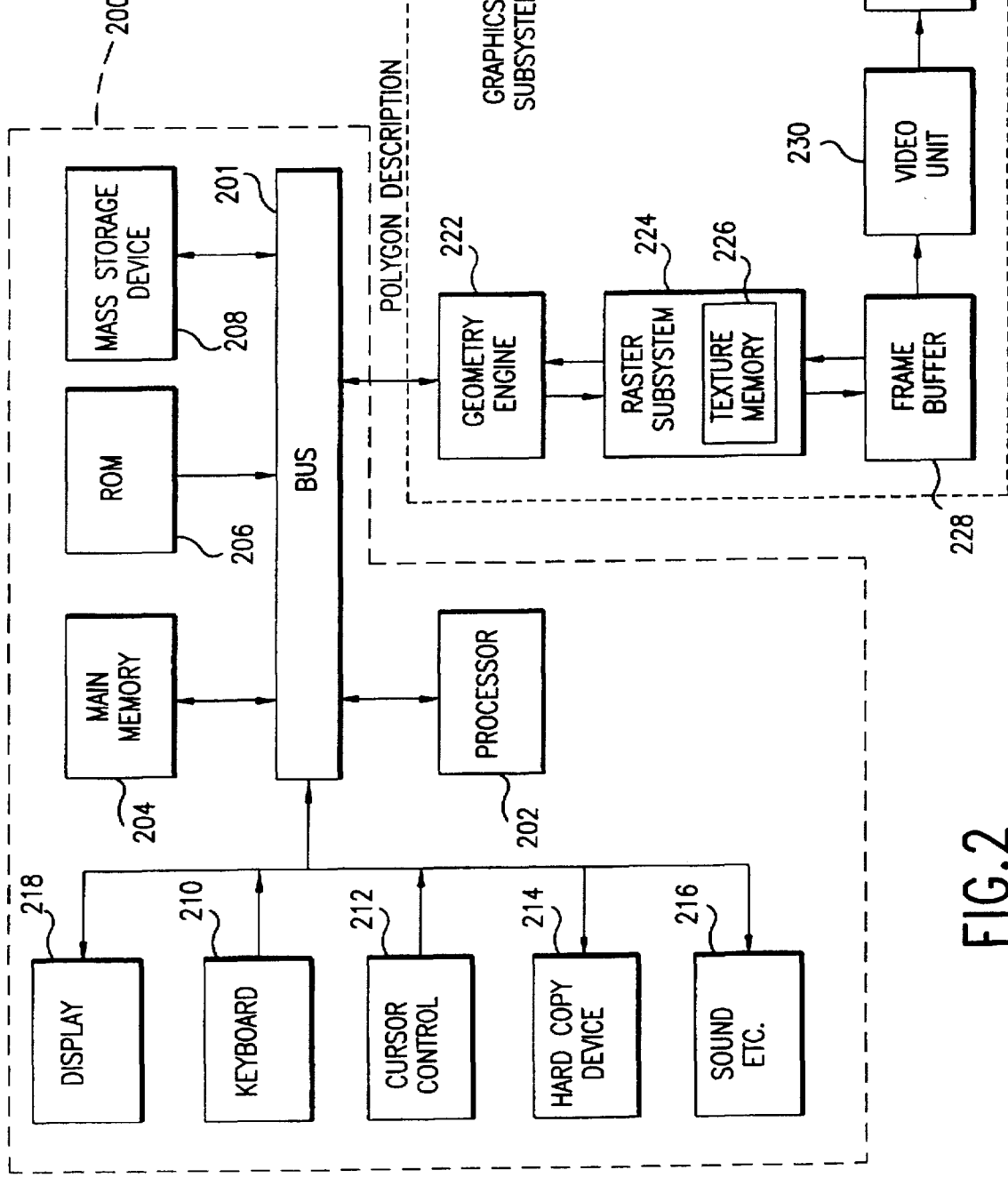


FIG. 2



CLIP-MAP  
440

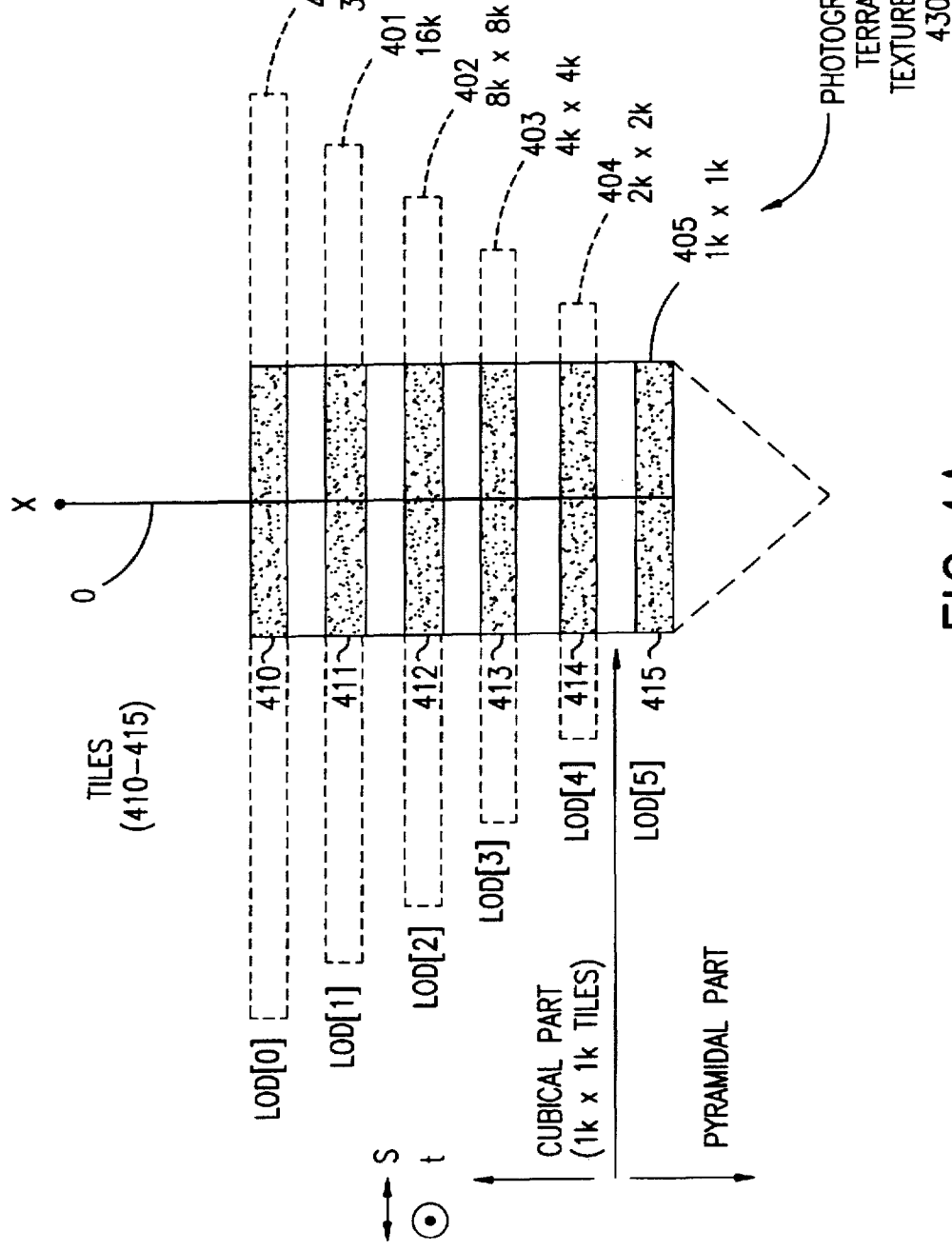


FIG. 4A

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