

[54] METHOD AND APPARATUS FOR THE EFFICIENT GENERATION OF HIGH QUALITY IMAGES IN A COMPUTER SYSTEM UTILIZING AN INTERCONNECTED IMAGE STATE TABLE

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[51] Int. Cl.<sup>6</sup> ..... G06T 3/00

[52] U.S. Cl. .... 395/133; 395/136

[58] Field of Search ..... 395/133-139, 395/140, 141, 325; 358/426; 382/56

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Primary Examiner—Almis R. Jankus

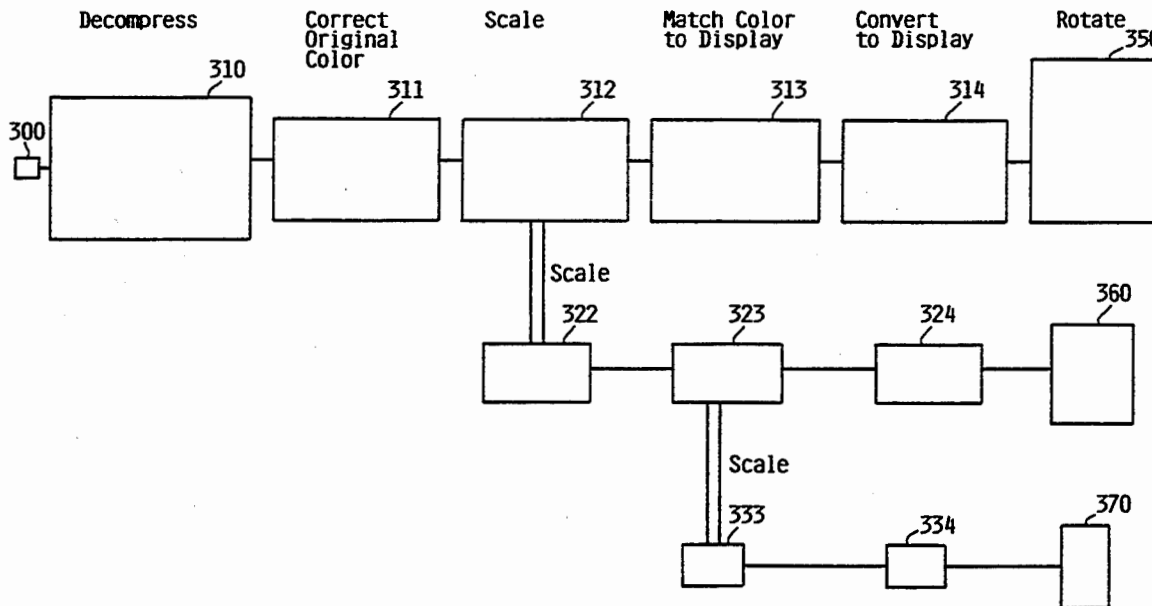
Attorney, Agent, or Firm—Richard E. Billion; Andrew J. Dillon

[57] ABSTRACT

A method and apparatus for the efficient generation of high quality images in a computer system is provided. A

user requests that one or more images be generated. Representation of each requested image and any existing images are added to an image table. Representations of a group of intermediate images are then added to the image table. Each intermediate image corresponds to a change of an image state between an existing image and a requested image. For example, if a requested image is smaller than an existing image, the scaling of the existing image is a change of image state and will result in the addition of the representation of an intermediate image to the image table. Note that the intermediate image itself is not actually computed or generated at this time. After the representation of each intermediate image has been added to the image table, image paths are built from any existing image to any requested image. An image path includes an existing image, a series of one or more intermediate images, and a requested image. After a network of all the image paths are built, a "cost" of computing the image is calculated for each image path. After these calculations are complete, an optimal image path is selected. The requested image is then generated in a manner determined by the optimal image path. If more than one image is requested, the optimal image path for each requested image is determined by looking at combinations of image paths so that intermediate images generated for one requested image can be used by other requested images.

21 Claims, 33 Drawing Sheets



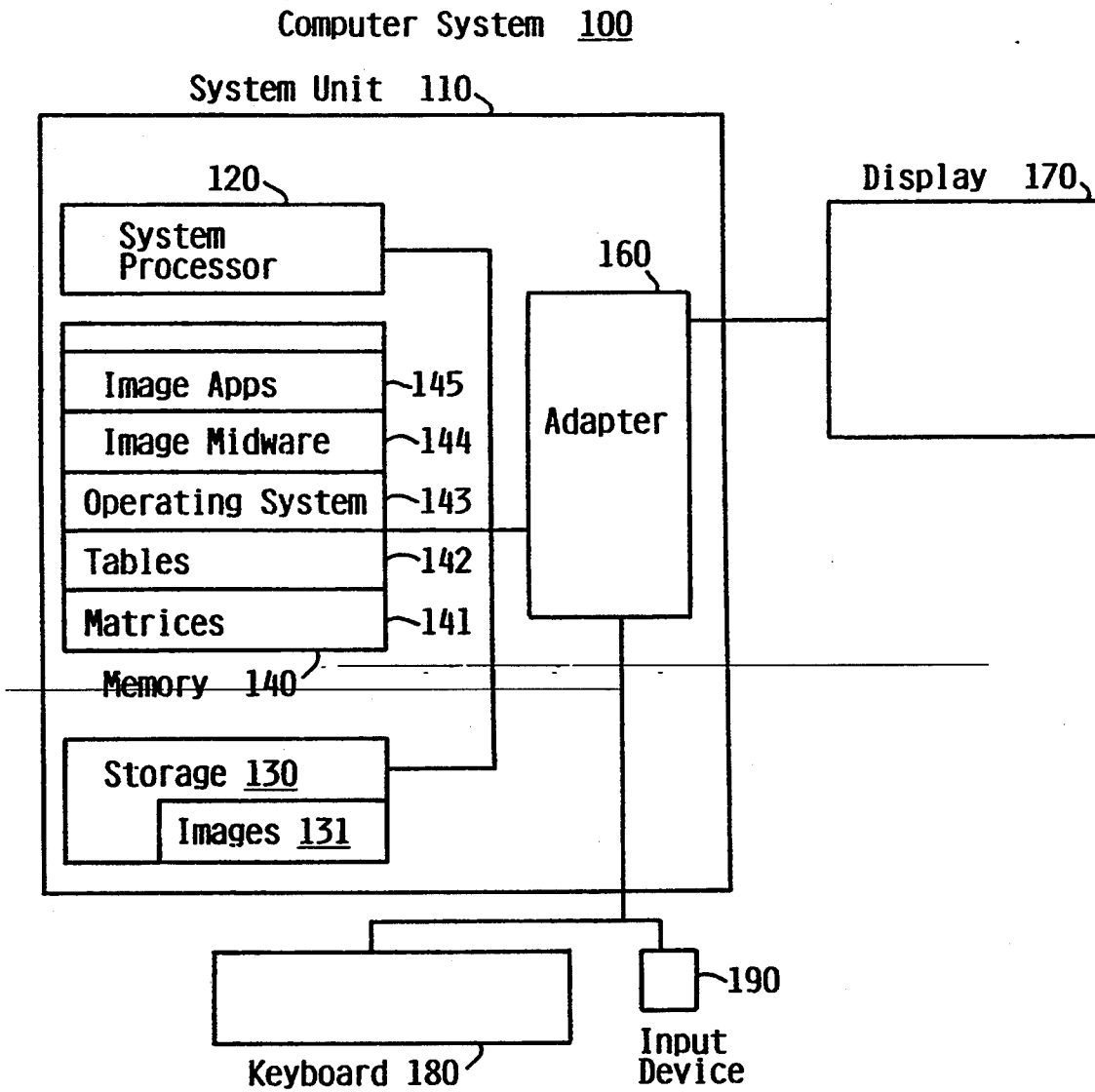


FIG. 1

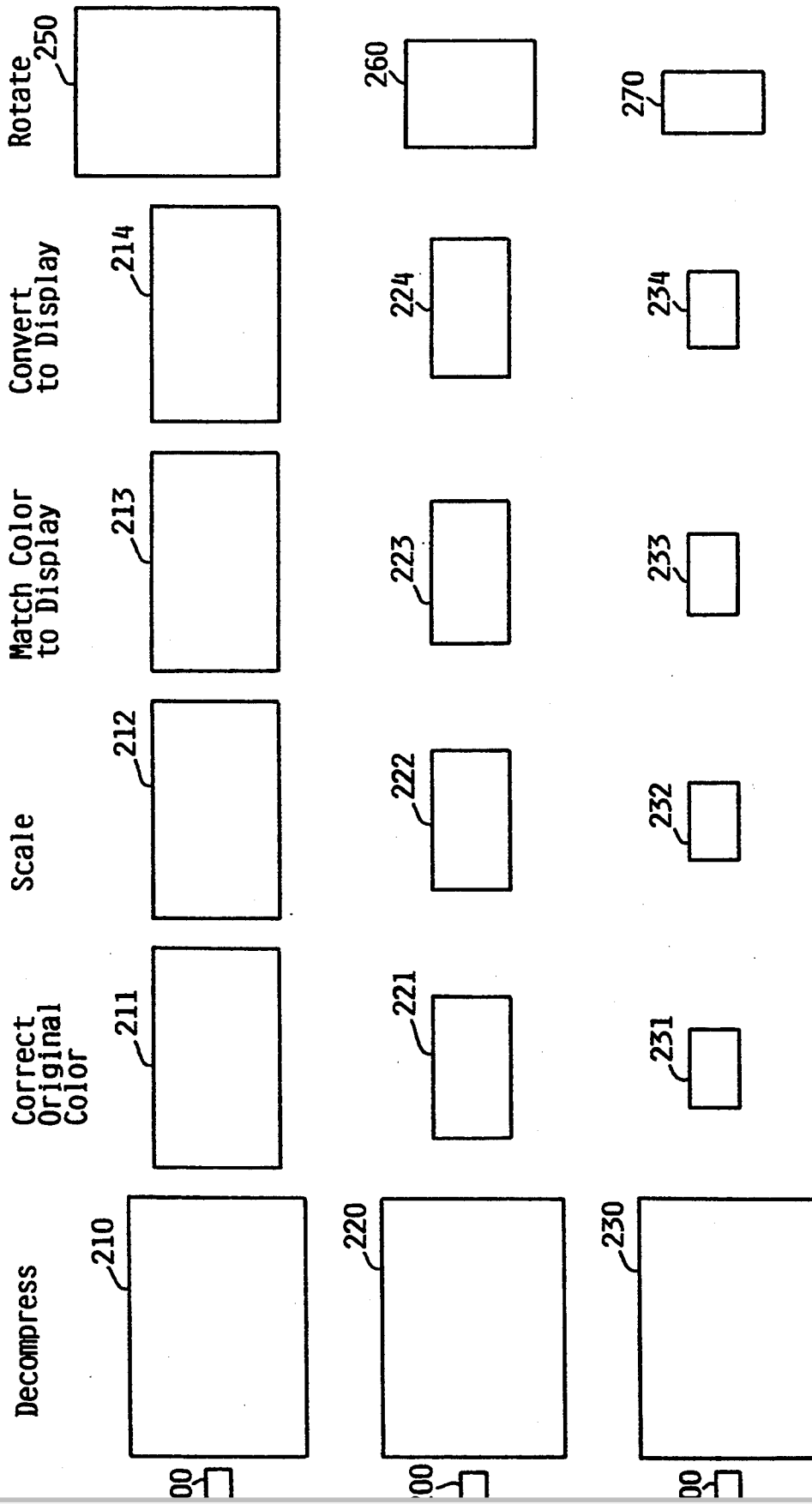


FIG. 2

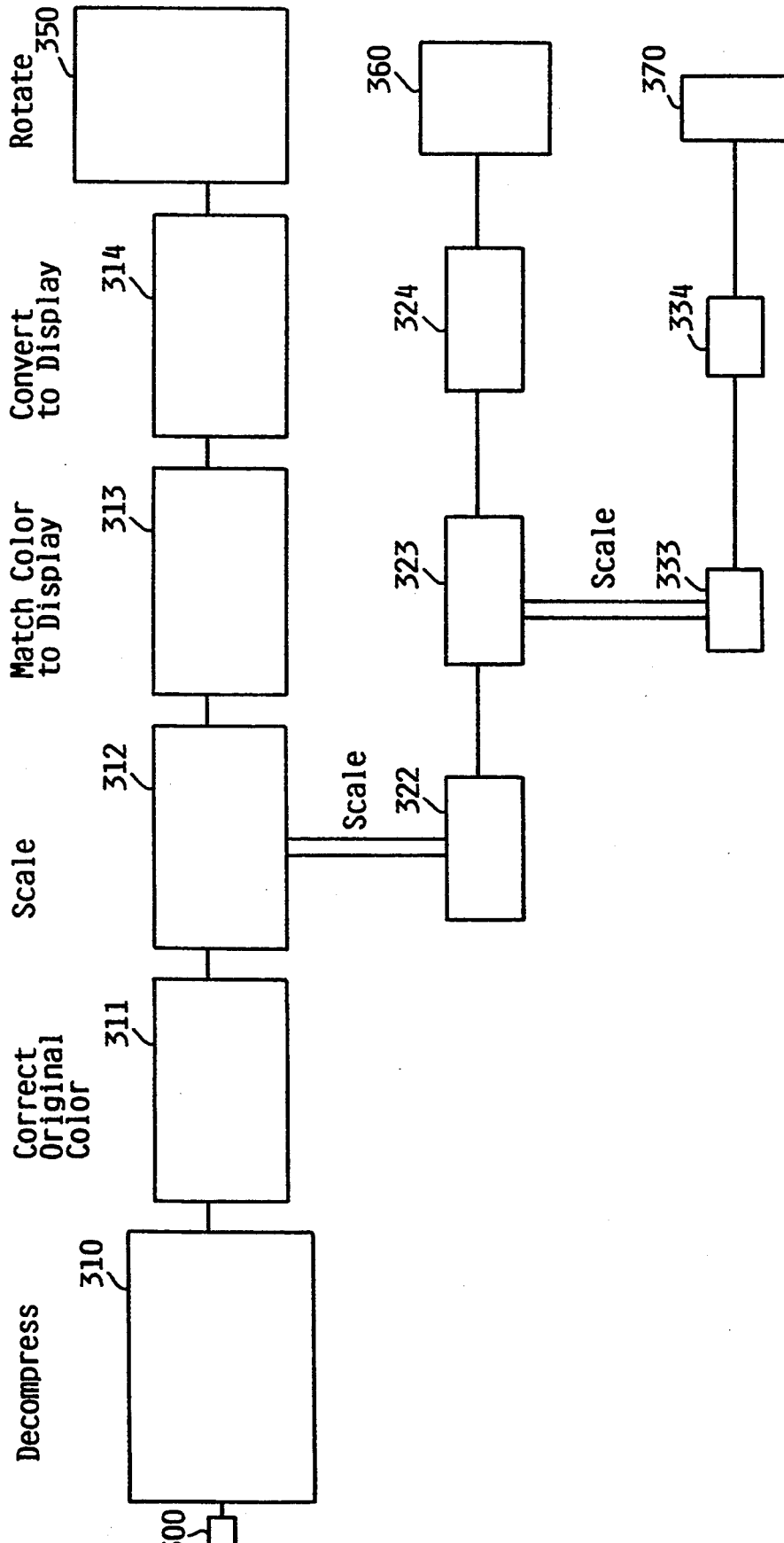


FIG. 3

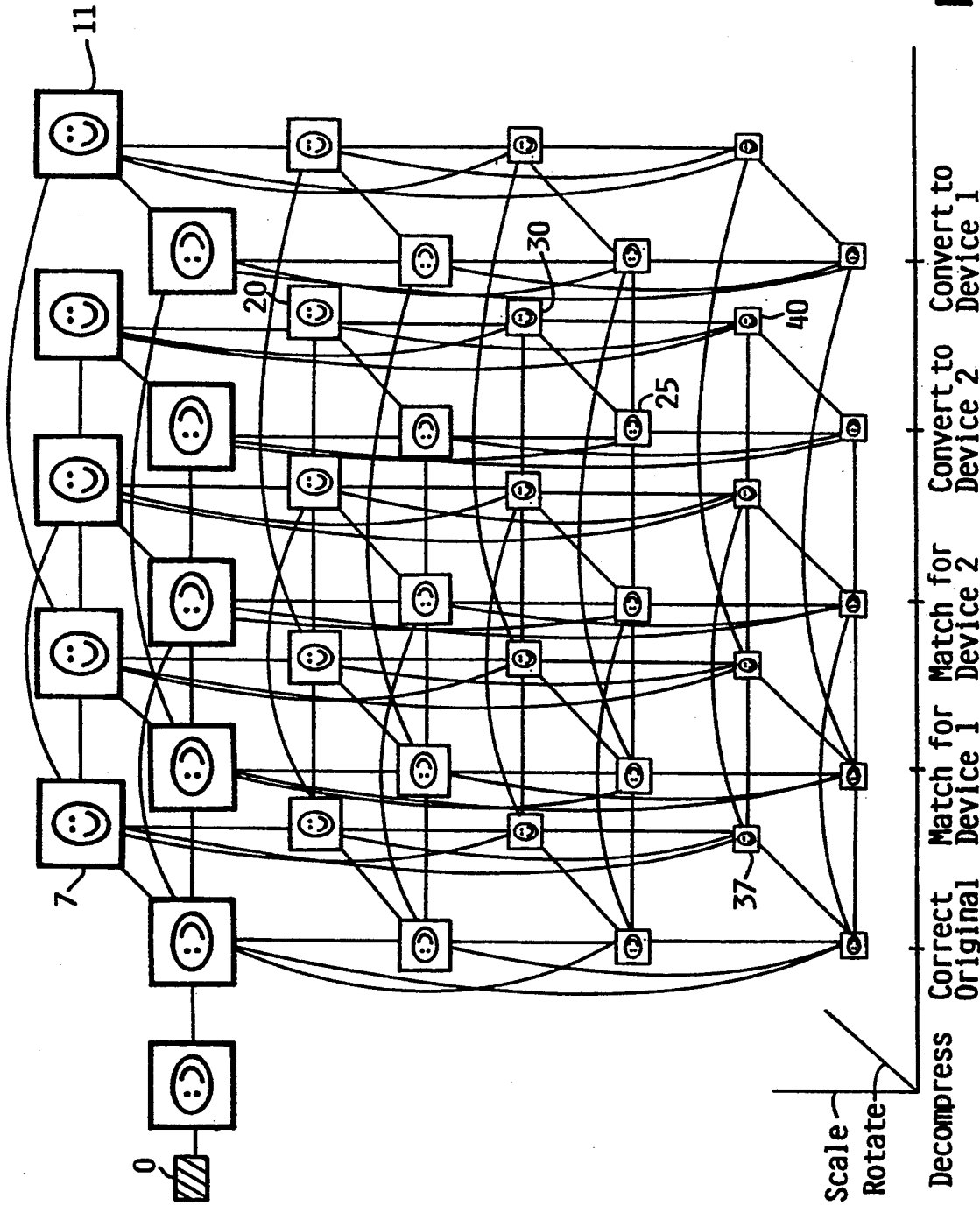


FIG. 4A

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