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(12) **United States Patent**
Bar-Nahum

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(45) **Date of Patent: Dec. 17, 2002**

(54) **FILTER FOR TRANSFORMING 3D DATA IN A HARDWARE ACCELERATED RENDERING ARCHITECTURE**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(22) Filed: **Jun. 30, 1998**

(51) **Int. Cl.**[7] **G06T 15/00**
(52) **U.S. Cl.** **345/419**
(58) **Field of Search** 345/419, 427, 345/302, 421, 426, 619, 220, 621

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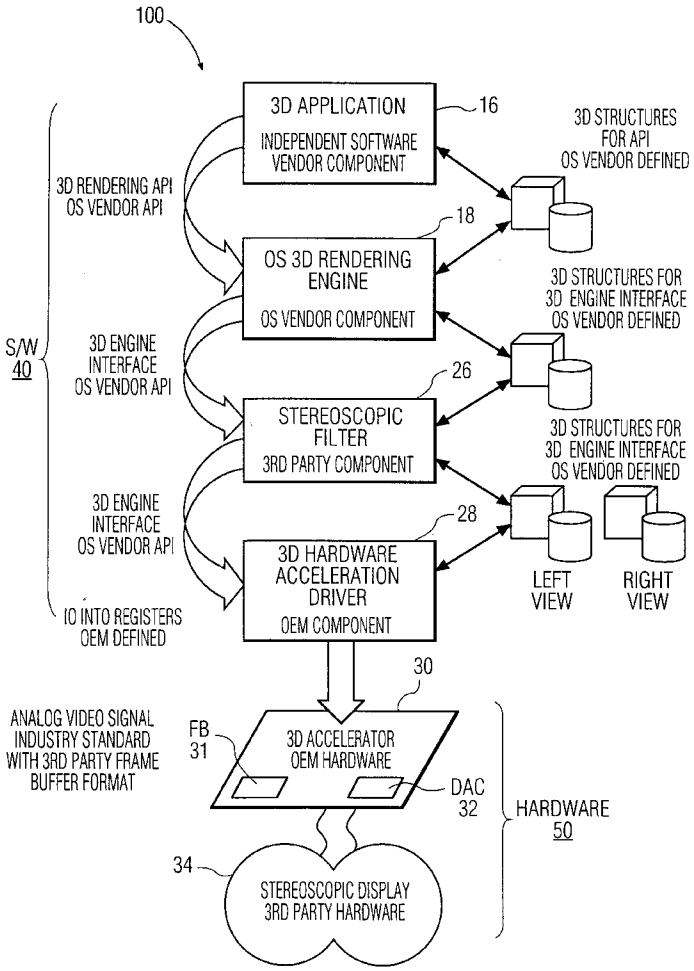
(74) *Attorney, Agent, or Firm*—Michael Schmitt

(57) **ABSTRACT**

A method and apparatus for generating multiple views for graphics objects utilizes a filter for transforming the 3D content of the data. The filter is configured to receive function calls from a 3D rendering engine and generate multiple viewpoint data based on the 3D content of the graphics object. The filter then transmits the viewpoint data to a display driver for display to a display device.

28 Claims, 8 Drawing Sheets



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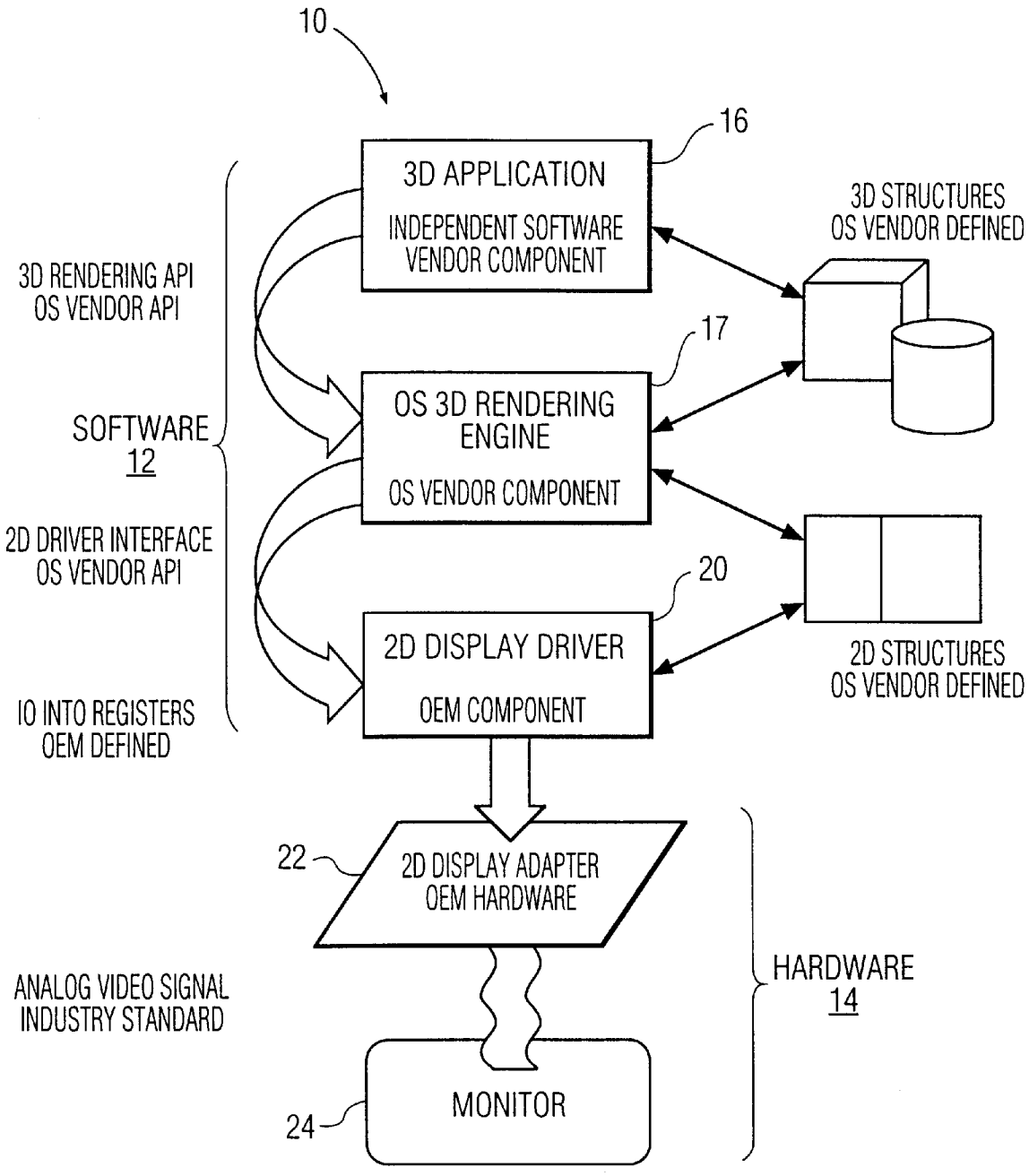

FIG. 1
PRIOR ART

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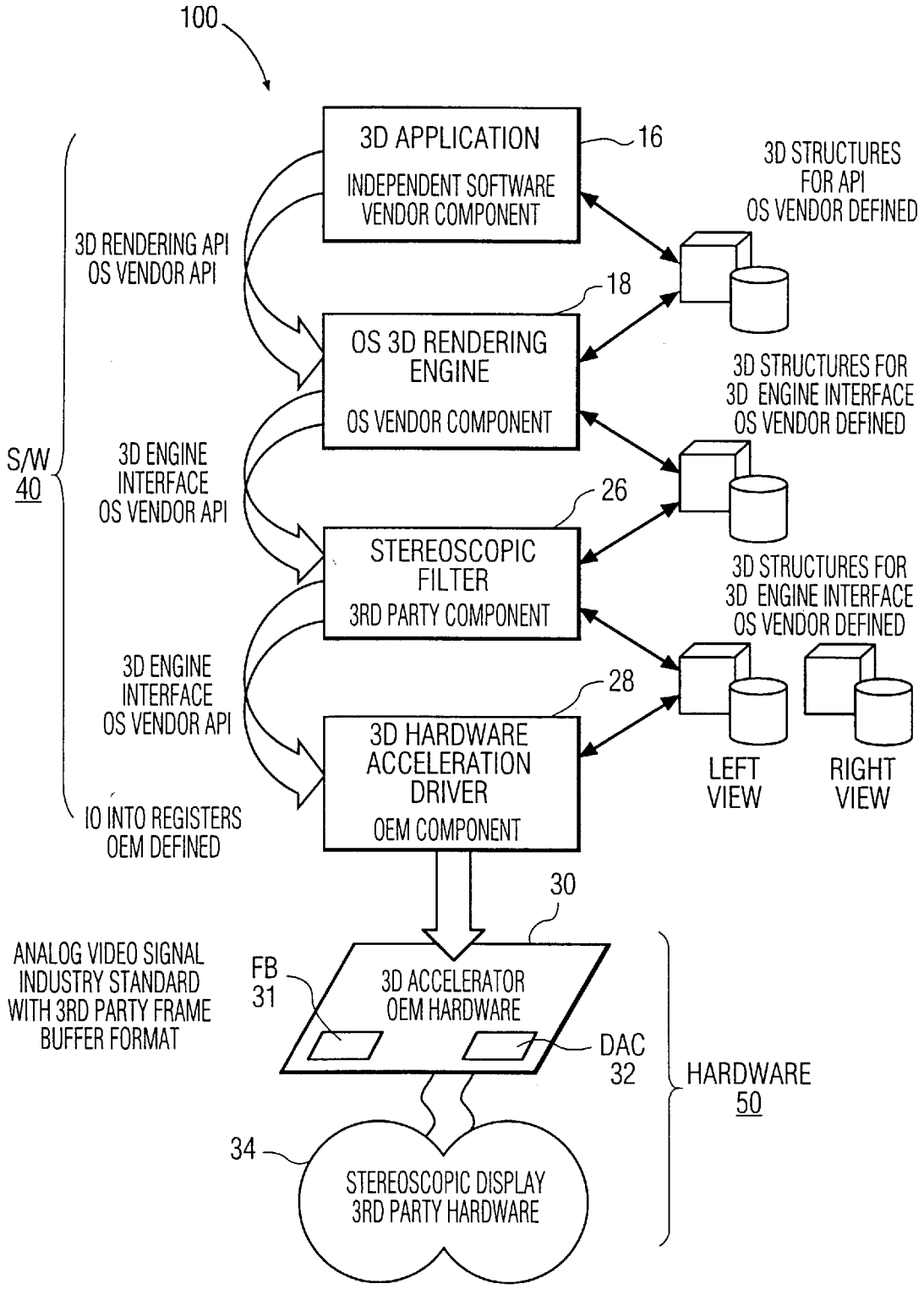

FIG. 2

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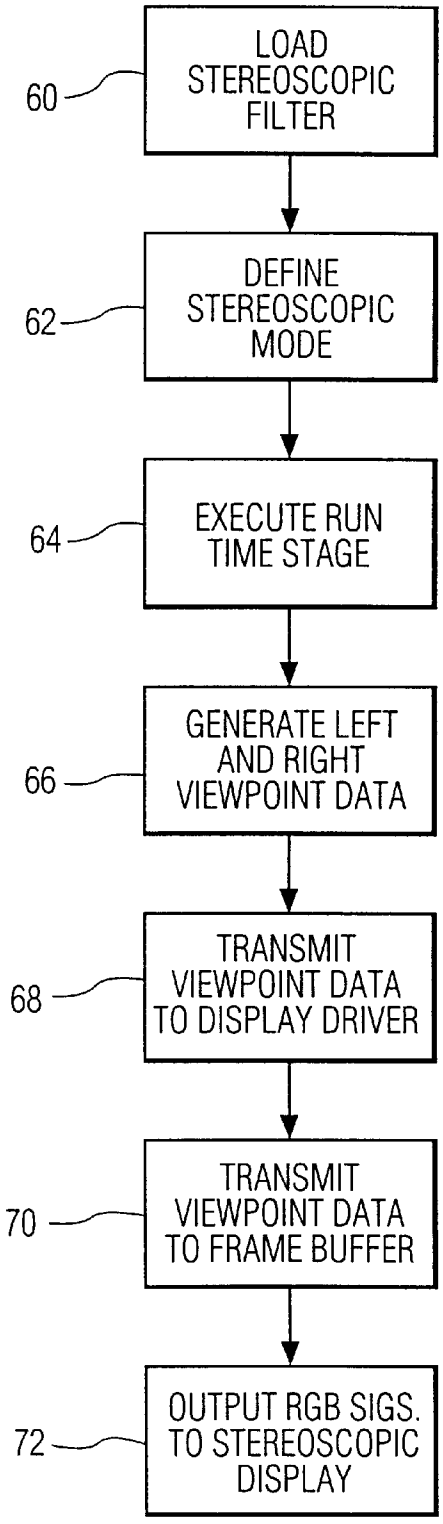

FIG. 3

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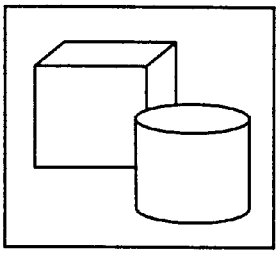

FIG. 4A

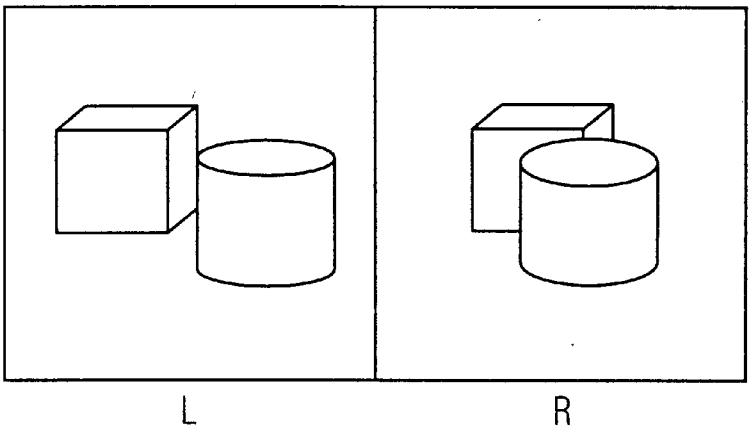

FIG. 4B

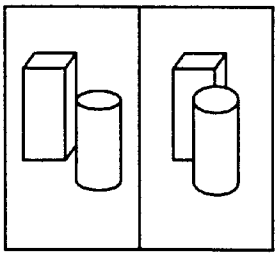

FIG. 4C

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