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(54) **METHOD AND APPARATUS FOR CAPTURING 3D SURFACE AND COLOR THEREON IN REAL TIME**

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(57) **ABSTRACT**

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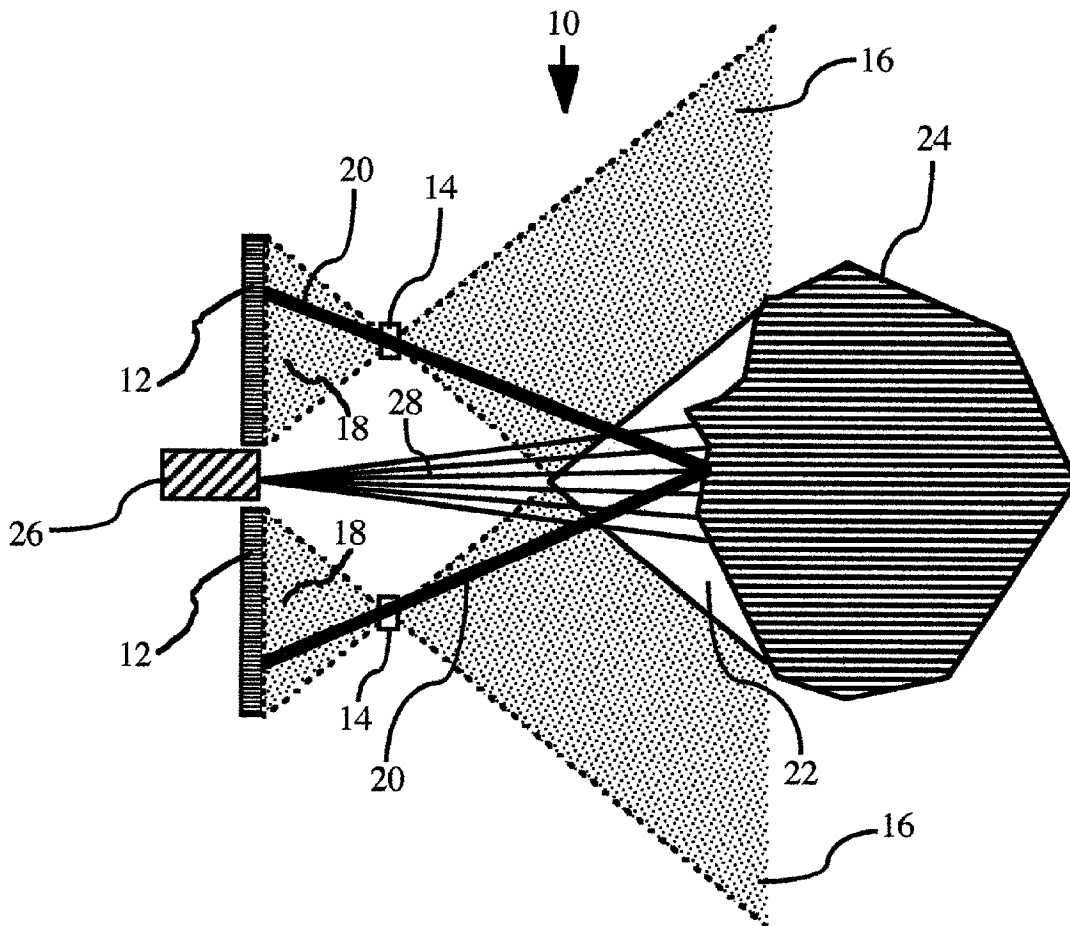
A method and apparatus for acquiring surface topography. The surface being acquired is illuminated by illumination sources with patterns of light from one optical perspective and the light reflected off the surface is captured by image sensors from one optical perspective that is different than the perspective of the illumination. The images obtained are of the surface with one or more patterns superimposed upon the surface. The surface topography is computed with a processor based upon the patterned image data, the known separation between the illumination sources and the imaging sensors, and knowledge about how the patterns of light are projected from the illumination sources.

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**Related U.S. Application Data**

(63) **Non-provisional of provisional application No. 60/247,248, filed on Nov. 13, 2000.**



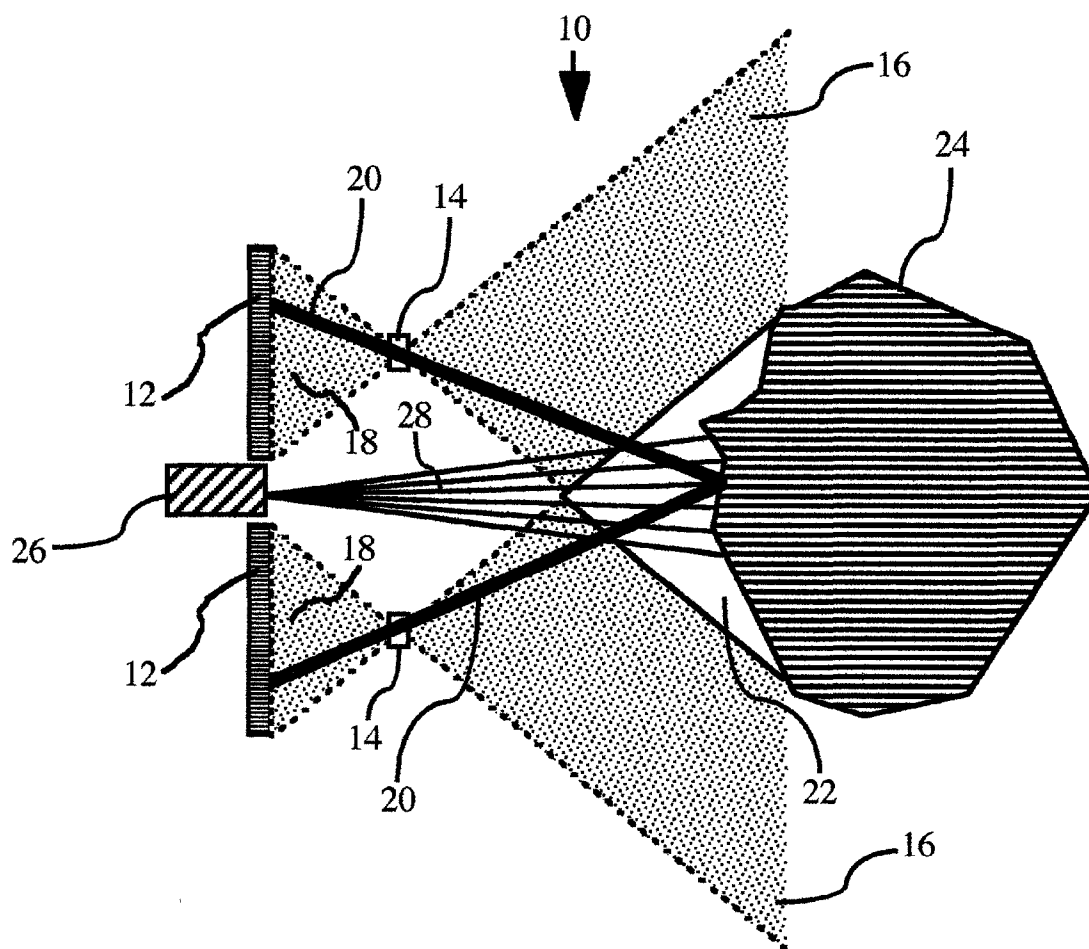
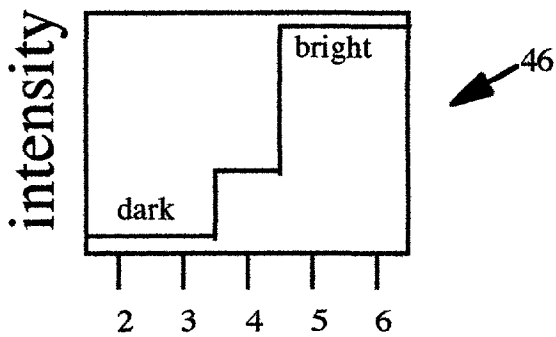
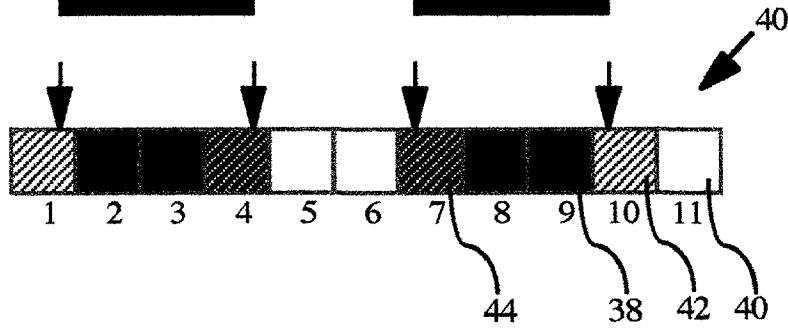
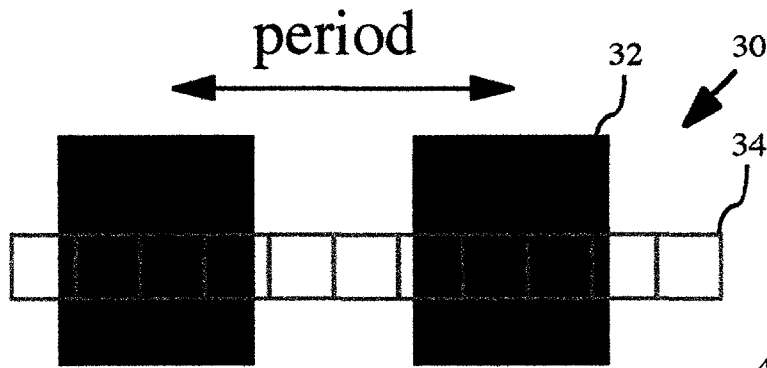


FIG. 1



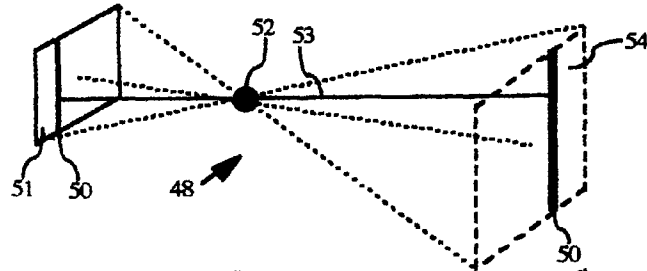


FIG. 3a

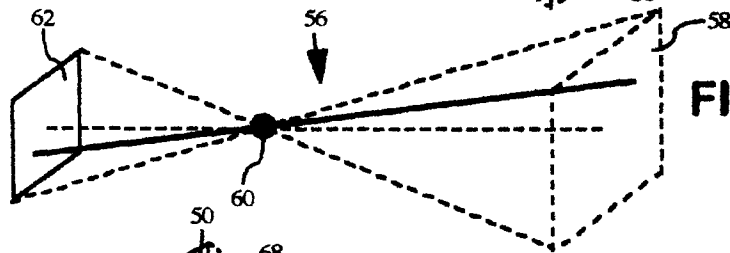


FIG. 3b

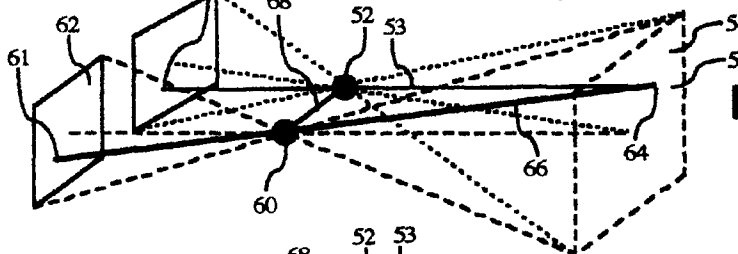


FIG. 3c

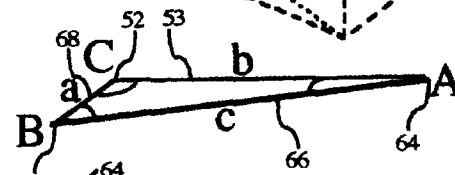


FIG. 3d

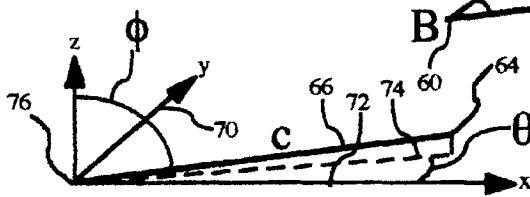


FIG. 3e

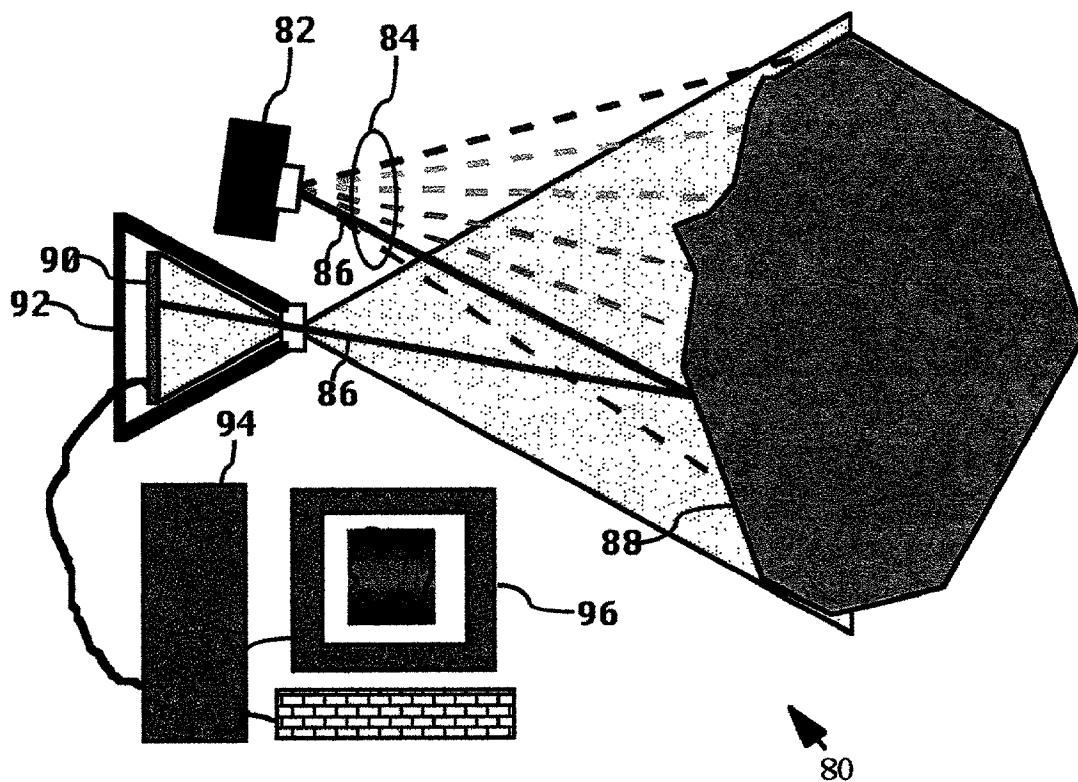


FIG. 4

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