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(54) Title: MICROLENS DISPLAY APPARATUS FOR USE IN AN AUGMENTED REALITY SYSTEM

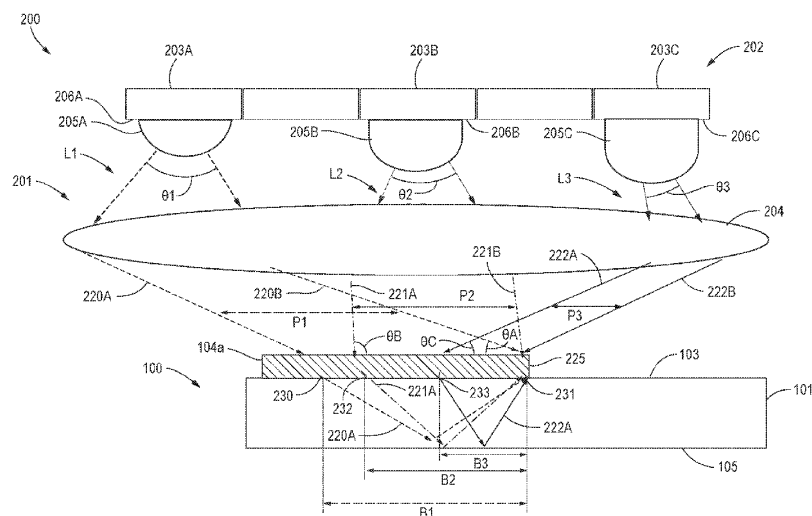


FIG. 2

(57) Abstract: Embodiments of the present disclosure generally relate to augmented reality (AR) systems. More specifically, embodiments described herein provide for an AR projection system and AR devices having the projection system. In one or more embodiments, an augmented reality device includes a projection system. The projection system includes a light engine. The light engine includes a pixel. The pixel includes an emission surface. A microlens is coupled to the emission surface of the pixel. The projection system further includes a projection lens configured to refract a first light emitted by the pixel. The first light has a first pupil length defined by a distance between a first end and a second end of the first light. The augmented reality device further includes a waveguide including an input coupler configured to incouple the first light at a first bounce length that is equivalent to the first pupil length.

[Continued on next page]

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