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(54) Title: PROJECTION SYSTEM WITH METROLOGY

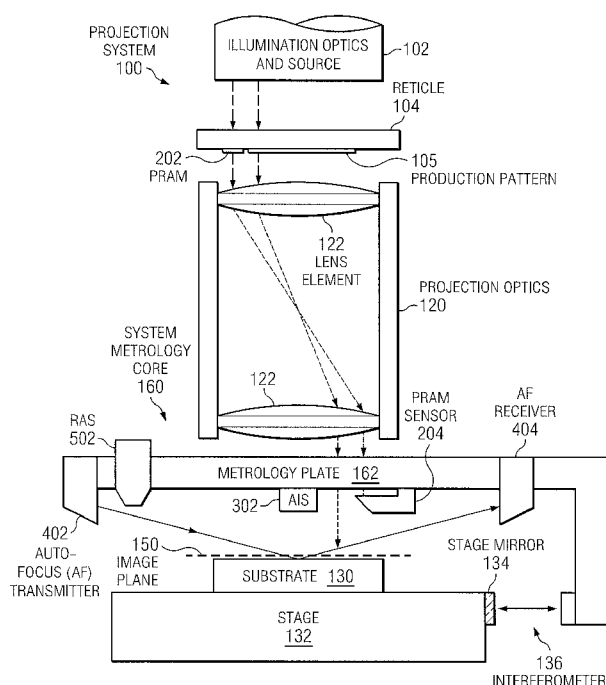


FIG. 1A

(57) Abstract: Projection systems and methods with mechanically decoupled metrology plates according to embodiments of the present invention can be used to characterize and compensate for misalignment and aberration in production images due to thermal and mechanical effects. Sensors on the metrology plate measure the position of the metrology plate relative to the image and to the substrate during exposure of the substrate to the production image. Data from the sensors are used to adjust the projection optics and/or substrate dynamically to correct or compensate for alignment errors and aberration-induced errors. Compared to prior art systems and methods, the projection systems and methods described herein offer greater design flexibility and relaxed constraints on mechanical stability and thermally induced expansion. In addition, decoupled metrology plates can be used to align two or more objectives simultaneously and independently.



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