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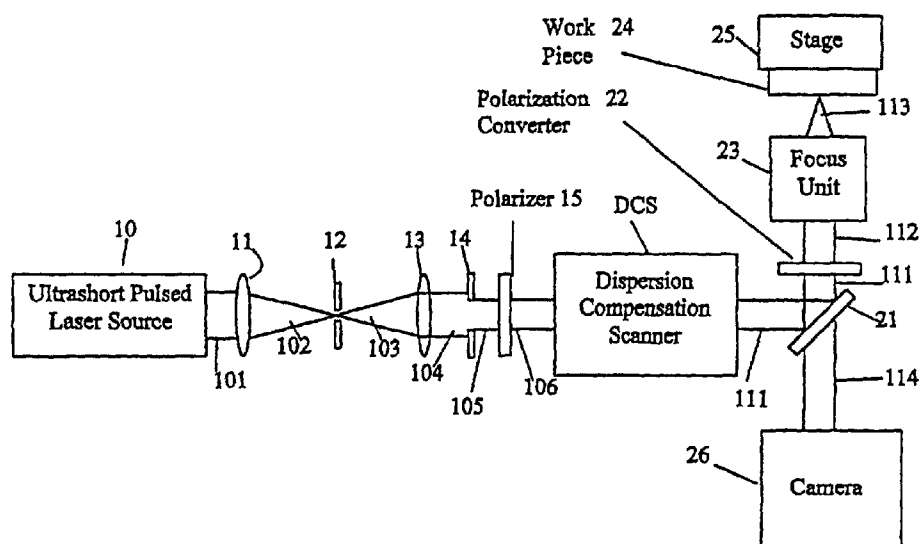
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(54) Title: **ULTRASHORT PULSED LASER MICROMACHINING/SUBMICROMACHINING USING AN ACOUSTOOPTIC SCANNING DEVICE WITH DISPERSION COMPENSATION**



(57) Abstract: A method and apparatus for precision laser scanning suitable for precision machining or cleaning using an ultrashort pulsed laser beam are disclosed. The apparatus employs a laser source that emits a pulsed laser beam, a dispersion compensation scanner that scans the pulsed laser beam, and a focusing unit that focuses the pulsed laser beam from the dispersion compensation scanner on a work piece. The dispersion compensation scanner comprises a first scanning device that scans the pulsed laser beam in a first direction and that causes dispersion of the pulsed laser beam. The dispersion compensation scanner further comprises a first dispersion compensation device that compensates for the dispersion caused by the first scanning device. Effects of polarization of the ultrashort pulsed laser beam on the quality of machining are described. Uses of the invention in direct fabrication of photolithographic masks and in work piece cleaning are also described.



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