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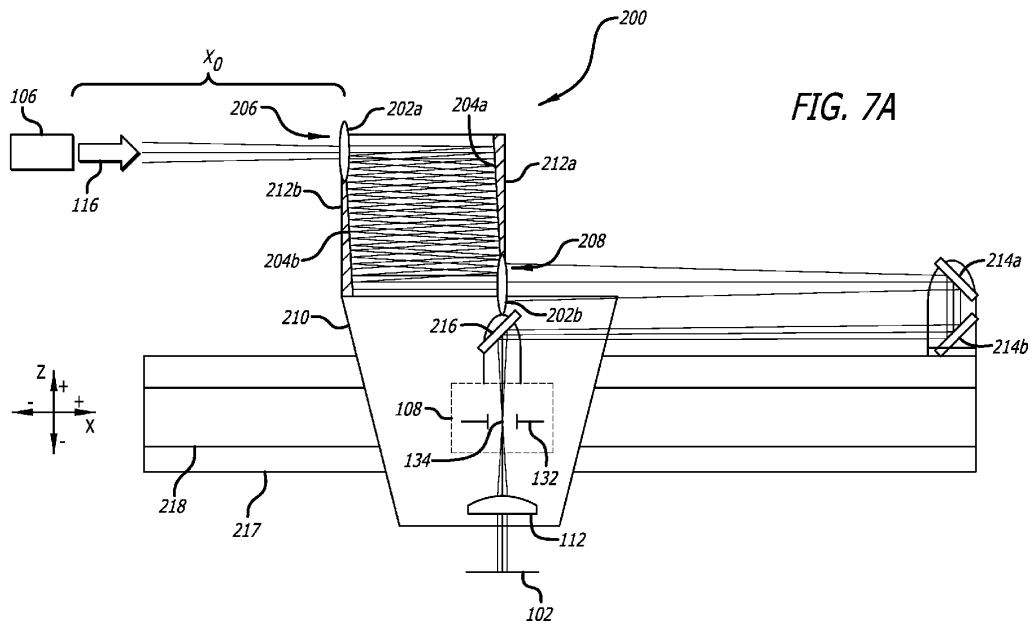
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(54) Title: OPTICAL RELAY SYSTEM AND METHODS OF USE AND MANUFACTURE



(57) Abstract: Numerous embodiments of optical relay systems are disclosed. In one embodiment, a laser-processing apparatus includes an optical relay system configured to correct for beam placement errors by maintaining the optical path length of a beam of laser energy between a first positioner and a scan lens. In another embodiment, the optical relay system may include a first lens, a second lens, and a zoom lens assembly arranged between the first lens and the second lens, wherein the zoom lens assembly includes a first lens group and a second lens group. The zoom lens assembly may be movable relative to the first lens and the second lens (e.g., mounted on a positioner, such as a motion stage). The distance between the lenses of the first lens group and the distance between the lenses of the second lens group may be fixed or variable.

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