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Remarks:

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(54) **Optical illumination system, exposure apparatus and device fabrication method**

(57) An illumination optical system for illuminating a target surface using light from a light source, said illumination optical system includes a polarizing element that is arranged in an optical path from the light source to the target surface, and adjusts a polarization ratio of the light, and an optical element that is arranged in an optical path from the polarizing element to the target surface, wherein the total birefringence of the optical element is $m+2s < 1.0$ nm/cm, where an average of birefringence amount of a glass material of the optical element is m , and standard variation birefringence amount of a glass material of the optical element is s .

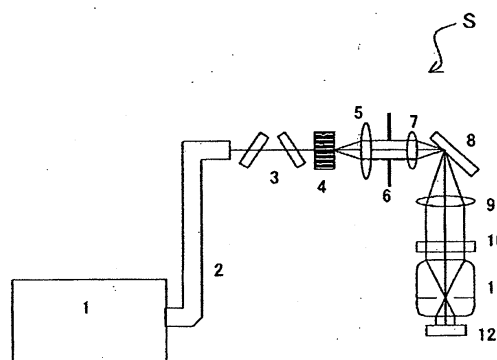


FIG. 1