

ABSTRACT

An illumination optical apparatus is able to adjust each of pupil luminance distributions at respective points on a surface to be illuminated to being almost uniform, while maintaining or adjusting an illuminance distribution on the surface to be illuminated to being almost uniform. The illumination optical apparatus illuminates the surface to be illuminated (M, W), with a light beam from a light source (1). The apparatus is provided with a pupil distribution forming device (1-4) for forming a pupil luminance distribution with a predetermined luminance distribution on an illumination pupil plane; and an adjuster (8, 9) for independently adjusting each of pupil luminance distributions about respective points on the surface to be illuminated. The adjuster has a plurality of adjustment surfaces each of which is disposed in an optical path between the pupil distribution forming device and the surface to be illuminated and has a predetermined transmittance distribution or reflectance distribution.