light from the Fourier transform plane 56 will cause defocusing at a peripheral portion of the illumination region and distortion of the illumination shape in the mirror region 70, resulting in a decrease in illumination efficiency.

[0063] For this reason, of the plurality of optical elements included in the optical system of the adjusting unit 21, the MLA 52 and the cylindrical lens 55 are rotated about the optical axis of the optical system in a plane perpendicular to the optical axis. Fig. 10 shows the arrangement relationship between the MLA 52, the cylindrical lens 55, and the mirror region 70. Fig. 10 shows an X-Y plane projection view when Fig. 8 is observed from the positive direction of the Z-axis. Referring to Fig. 10, a coordinate system 78 indicates a coordinate system in the mirror region 70, and a coordinate system 79 indicates a coordinate system on the optical axis 77. The optical axis 77 coincides with the Z-axis of the coordinate system 79. Note that an illustration of optical elements, of the plurality of optical elements included in the optical system, which are rotationally symmetric in a plane perpendicular to the traveling direction of light is omitted in Fig. 10.

[0064] The MLA 52 is formed from an assembly of a plurality of micro convex lenses. A plurality of lenses of the MLA 52 are arranged along the X- and Y-

axes of the coordinate system 79. One of the arranging directions of the plurality of lenses of the MLA 52 is defined as an axis 80. The angle formed between the axis 80 and the X-axis direction in the coordinate system 79 on the optical axis 77 is defined as an angle 81. The MLA 52 is arranged so as to be rotated about the optical axis 77 through the angle 81 in an X-Y plane in the coordinate system 79.

[0065] In the cylindrical lens 55, a non-curvature plane direction (a direction in which the lens has no power) of the cylindrical lens 55 is defined as an axis 82. The angle formed between the axis 82 and the X-axis direction in the coordinate system 79 on the optical axis 77 is defined as angle 83. The cylindrical lens 55 is arranged so as to be rotated about the optical axis 77 through the angle 83 in an X-Y plane in the coordinate system 79. Fig. 10 shows the cylindrical lens 55 as one lens. However, two or more lenses like cylindrical lenses 55a and 55b may be arranged, with each lens being independently arranged so as to be rotated. Alternatively, the cylindrical lenses 55a and 55b may be rotated through the same angle and regarded as the single cylindrical lens 55.

[0066] Likewise, Fig. 10 shows the MLA 52 as one MLA. However, the MLA 52 may be constituted by two MLAs like the MLAs 52a and 52b. Alternatively, an MLA

WHAT IS CLAIMED IS:

1. An illumination apparatus which performs oblique illumination, the apparatus comprising:

a first optical element formed with an array of a plurality of optical components each configured to generate a point light source; and

a second optical element configured to receive light from the first optical element and form an illumination region, with a power thereof in one direction being different from a power thereof in a direction perpendicular to the one direction,

wherein at least one of the first optical element and the second optical element has a rotation angle about an optical axis thereof so as to compensate for distortion of the illumination region by the oblique illumination,

wherein the illumination region has a rectangular shape surrounded by a firs side and a second side perpendicular to the first side, and

wherein the illumination apparatus illuminates the illumination region from a direction tilted with respect to the first side and the second side.

2. The apparatus according to claim 1, wherein the illumination region is caused to have a rectangular

shape by the compensation.

3. The apparatus according to claim 1, wherein the rotation angle of the first optical element is different from the rotation angle of the second optical element.

4. The apparatus according to claim 3, wherein a shape of the illumination region is closer to a rectangle than that in a case where the rotation angle of the first optical element is equal to the rotation angle of the second optical element.

5. The apparatus according to claim 2, wherein the optical axis has an azimuth of 45° relative to one side of the rectangle and an elevation angle of 24° relative to a normal to a plane to be illuminated.

6. The apparatus according to claim 1, wherein a plane to be illuminated is a Fourier transform plane with respect to an exit plane of the first optical element.

7. The apparatus according to claim 1, wherein the first optical element has 2.8° as the rotation angle, and

the second optical element has 77.2° as the

rotation angle.

8. The apparatus according to claim 1, wherein the array comprises a microlens array.

9. The apparatus according to claim 1, wherein the second optical element comprises at least one of a cylindrical lens, an anamorphic lens, and a toric lens.

10. An optical apparatus comprising:

a mirror array formed with an array of a plurality of mirrors each having a drive axis, an arranging direction of the plurality of mirrors being different from a direction of the drive axis; and

an illumination apparatus defined in claim 1 and configured to illuminate the mirror array.

11. An imprint apparatus which molds an imprint material on a substrate to form a pattern on the substrate, the apparatus comprising:

a heating device configured to heat the substrate by illuminating the substrate to deform the substrate,

wherein the heating device includes an illumination apparatus defined in claim 1 and is configured to heat the substrate by illuminating the substrate via the illumination apparatus.

12. An imprint apparatus which molds an imprint material on a substrate to form a pattern on the substrate, the apparatus comprising:

a heating device configured to heat the substrate by illuminating the substrate to deform the substrate,

wherein the heating device includes an optical apparatus and is configured to heat the substrate by illuminating the substrate via the optical apparatus,

wherein the optical apparatus includes a mirror array formed with an array of a plurality of mirrors each having a drive axis, an arranging direction of the plurality of mirrors being different from a direction of the drive axis, and an illumination apparatus defined in claim 1 and configured to illuminate the mirror array.

13. A projection apparatus comprising:

a projection device configured to project an image,

wherein the projection device includes an illumination apparatus defined in claim 1 and is configured to project the image via the illumination apparatus.

14. A method of manufacturing an article, the method comprising steps of:

forming a pattern on a substrate using an imprint apparatus; and

processing the substrate, on which the pattern has been formed, to manufacture the article,

wherein the imprint apparatus molds an imprint material on the substrate to form a pattern on the substrate, and includes:

a heating device configured to heat the substrate by illuminating the substrate to deform the substrate,

wherein the heating device includes an illumination apparatus and is configured to heat the substrate by illuminating the substrate via the illumination apparatus,

wherein the illumination apparatus performs oblique illumination and includes:

a first optical element formed with an array of a plurality of optical components each configured to generate a point light source; and

a second optical element configured to receive light from the first optical element and form an illumination region, with a power thereof in one direction being different from a power thereof in a direction perpendicular to the one direction,

wherein at least one of the first optical

element and the second optical element has a rotation angle about an optical axis thereof so as to compensate for distortion of the illumination region by the oblique illumination,

wherein the illumination region has a rectangular shape surrounded by a firs side and a second side perpendicular to the first side, and

wherein the illumination apparatus illuminates the illumination region from a direction tilted with respect to the first side and the second side.