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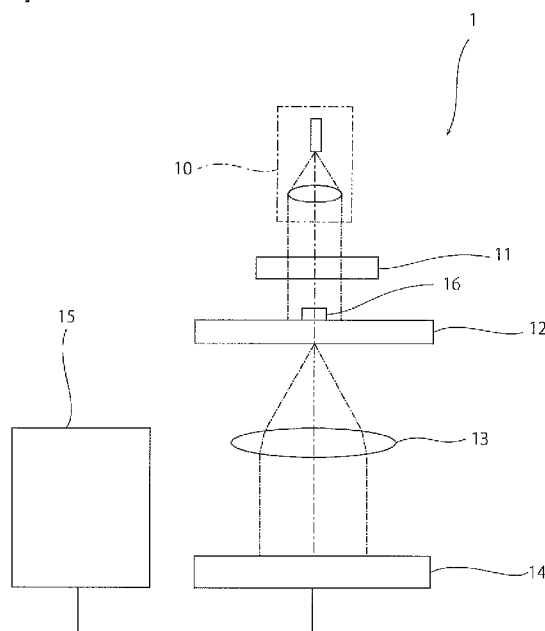
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(54) Title: 3D SHAPE MEASUREMENT APPARATUS

[Fig. 1]



(57) Abstract: Provided is a 3D shape measurement apparatus that can obtain a phase delay distribution image of an object to be measured from a single image and has simple optics. The 3D shape measurement apparatus (1) includes a coherent light source (10), a random phase modulation optical system (11), a mount (12), a Fourier transform optical system (13), an image pickup device (14), and an operation part (15). The random phase modulation optical system (11) two-dimensionally and randomly phase-modulates the coherent light to produce two-dimensionally and randomly phase-modulated flat light. The Fourier transform optical system (13) optically Fourier-transforms the light having passed through the object (16) to be measured to generate a light intensity distribution image. The image pickup device (14) takes the light intensity distribution image. The operation part (15) computes phase information on the object 16 to be measured from the taken light intensity distribution image. The operation part (15) further calculates a 3D shape of the object (16) to be measured from the phase information.