PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : G11B 7/135, 7/125 — A1

(11) International Publication Number: WO 00/00964

(43) International Publication Date: 6 January 2000 (06.01.00)

(21) International Application Number: PCT/JP99/03413

(22) International Filing Date: 25 June 1999 (25.06.99)

(30) Priority Data:
10/218490 26 June 1998 (26.06.98) JP

(71) Applicant: ASAHI KOGAKU KOGYO KABUSHIKI KAISHA [JP/JP]; 36-9, Maenocho 2-chome, Itabashi-ku, Tokyo 174-8639 (JP).

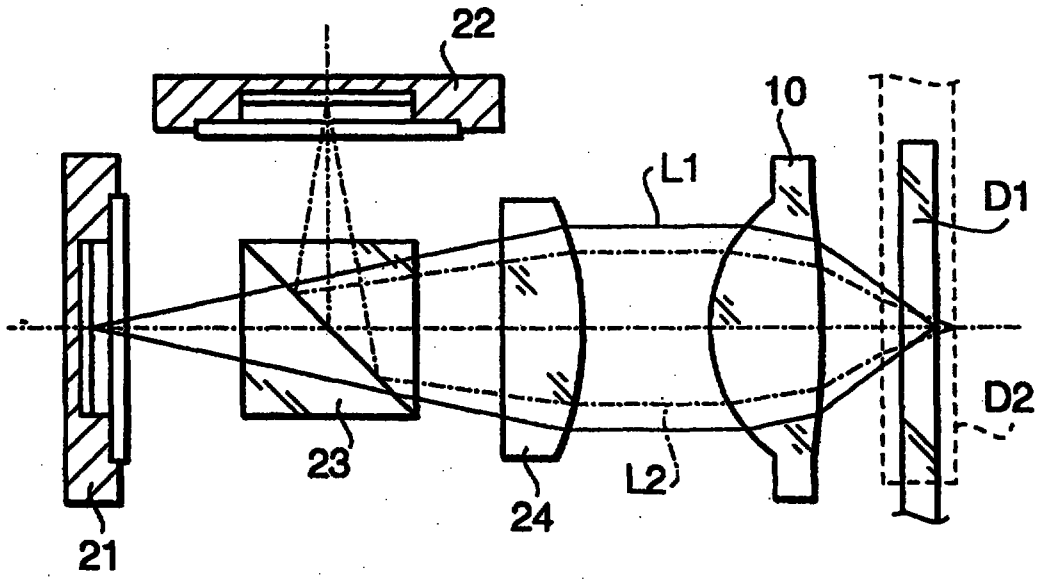
(72) Inventor: MARUYAMA, Koichi; Asahi Kogaku Kogyo Kabushiki Kaisha, 36-9, Menocho 2-chome, Itabashi-ku, Tokyo 174-8639 (JP).

(74) Agent: MATSUOKA, Shuhei; Matsuoka & Co., Shin-Toshi-Center Building 5F, 24-1, Tsurumaki 1-chome, Tama-shi, Tokyo 206-0034 (JP).

(81) Designated States: CN, ID, IN, SG, VN.

Published
With international search report.

(54) Title: OBJECTIVE LENS FOR OPTICAL PICK-UP



(57) Abstract

An objective lens includes a refractive lens having a positive refractive power, and a diffractive lens structure having a plurality of concentric ring-shaped steps that are formed on at least one lens surface of the refractive lens. The objective lens is a biconvex plastic lens having first and second aspherical surfaces. A diffractive lens structure is formed on the first surface of the objective lens. The diffractive lens structure is similar to a Fresnel lens, it is formed as many concentric rings each of which has a wedge sectional shape. The boundary between the adjacent rings is formed as a step giving a predetermined optical path difference. The diffractive lens structure has wavelength dependence such that at least two light beams having different wavelength with an identical diffractive order form appropriate wavefronts for at least two kinds of optical discs respectively provided with cover layers having different thickness.