



(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2002/0024741 A1**  
Terasawa et al. (43) **Pub. Date: Feb. 28, 2002**

(54) **PROJECTION OPTICAL SYSTEM AND PROJECTION EXPOSURE APPARATUS**

**Publication Classification**

(51) **Int. Cl.<sup>7</sup>** ..... **G02B 27/10; G02B 27/14**  
(52) **U.S. Cl.** ..... **359/627; 359/628; 359/629**

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(57) **ABSTRACT**

Disclosed is a projection optical system for projecting an image of an object onto an image plane, which includes a first imaging optical system for forming an image of the object, a second imaging optical system for re-imaging the image upon the image plane, wherein the first and second imaging optical systems are disposed in an order from the object side and are disposed along a common straight optical axis, wherein the first imaging optical system includes a first mirror for reflecting and collecting abaxial light from the object, wherein one of the first and second imaging optical systems includes a second mirror for reflecting light from the first mirror to the image plane side, and wherein, with the second mirror, the abaxial light is caused to pass an outside of an effective diameter of the first mirror.

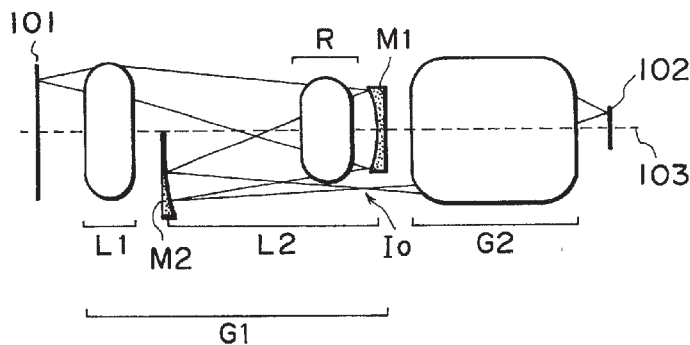
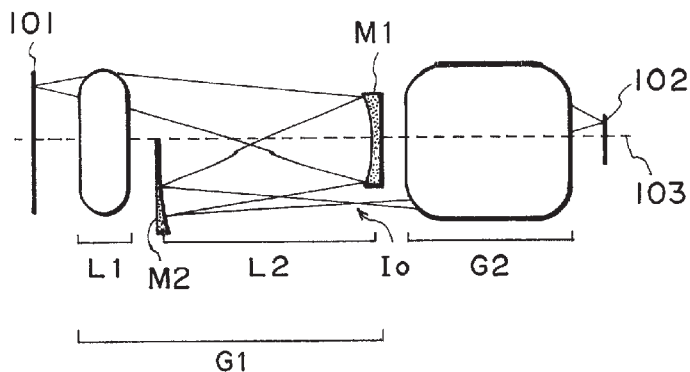
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(21) Appl. No.: **09/784,021**

(22) Filed: **Feb. 16, 2001**

(30) **Foreign Application Priority Data**

Feb. 16, 2000 (JP) ..... 037981/2000



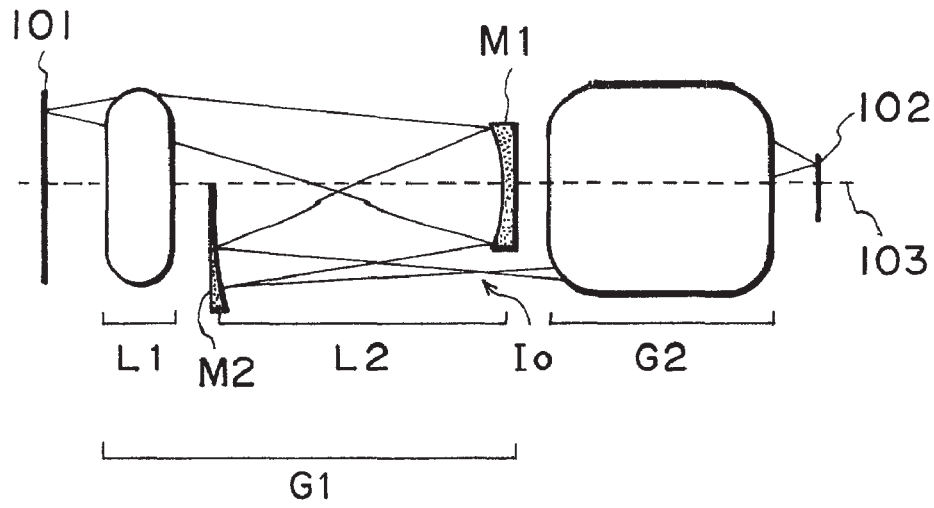


FIG. 1

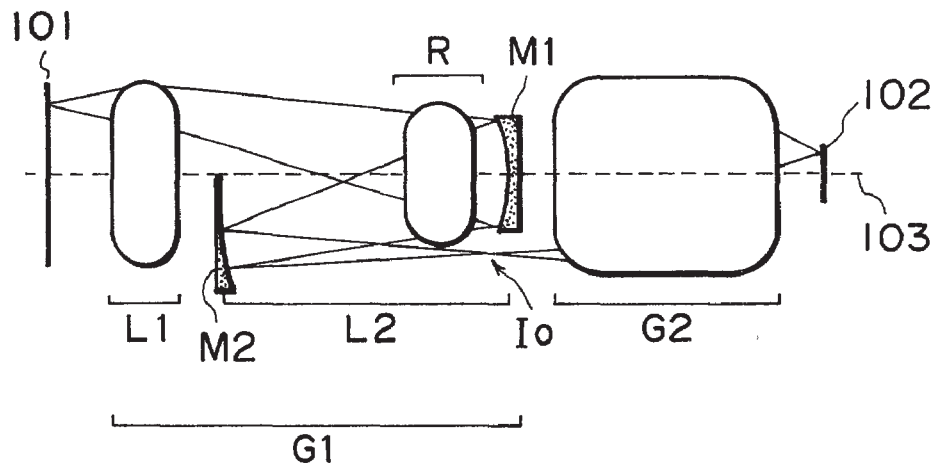


FIG. 2

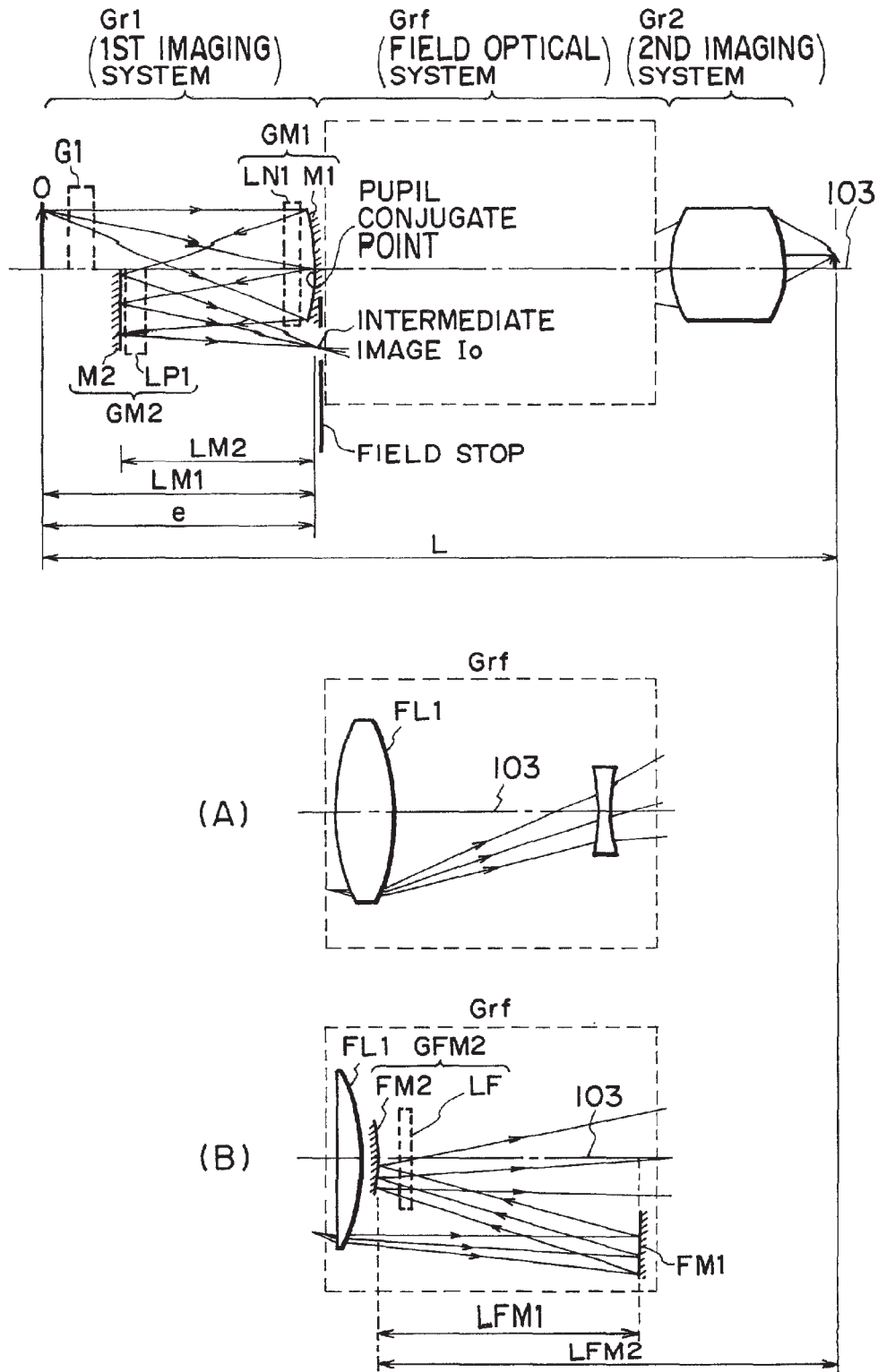


FIG. 3

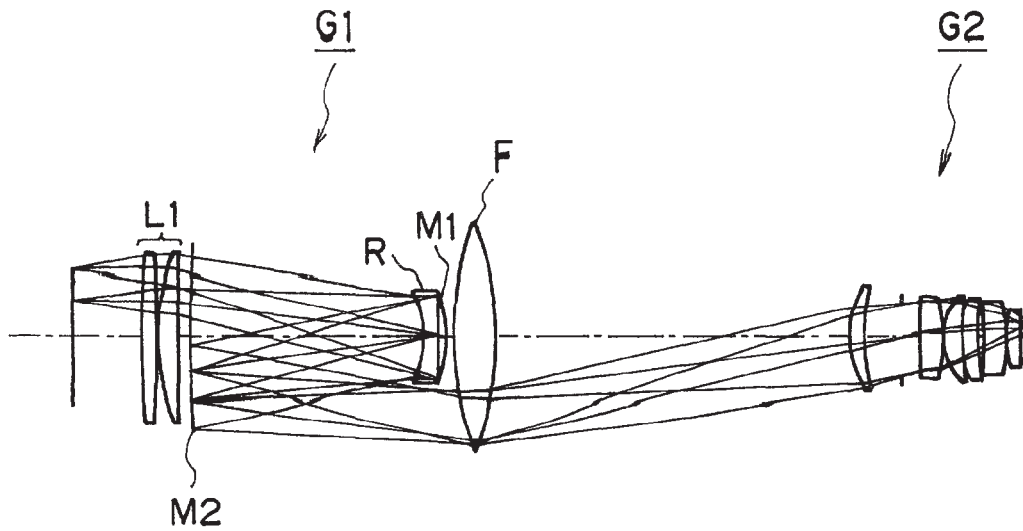


FIG. 4

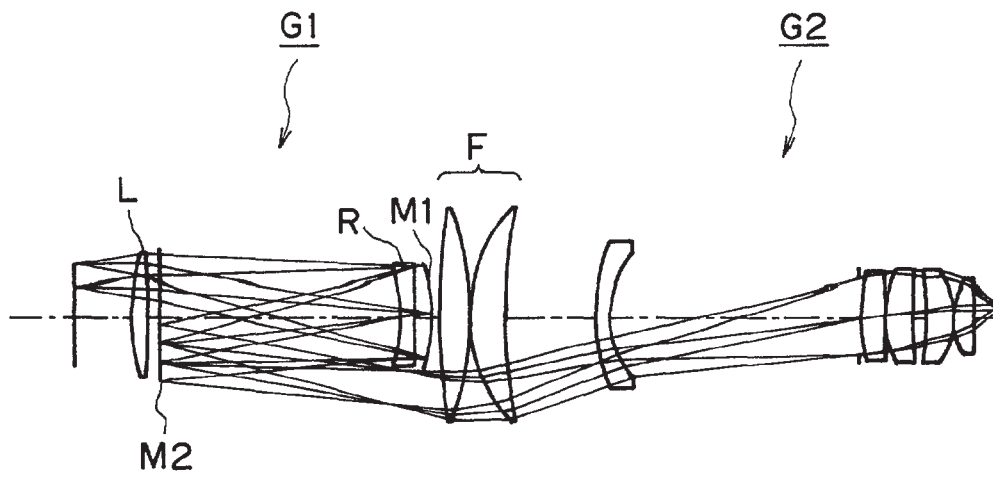


FIG. 5

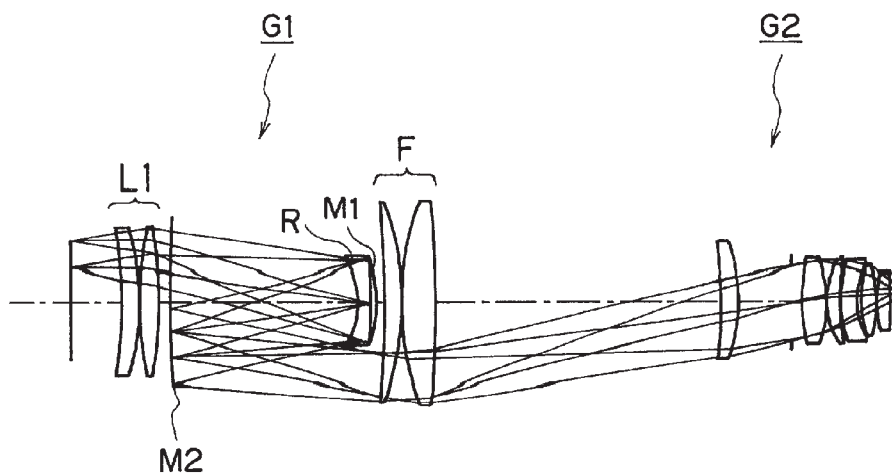


FIG. 6

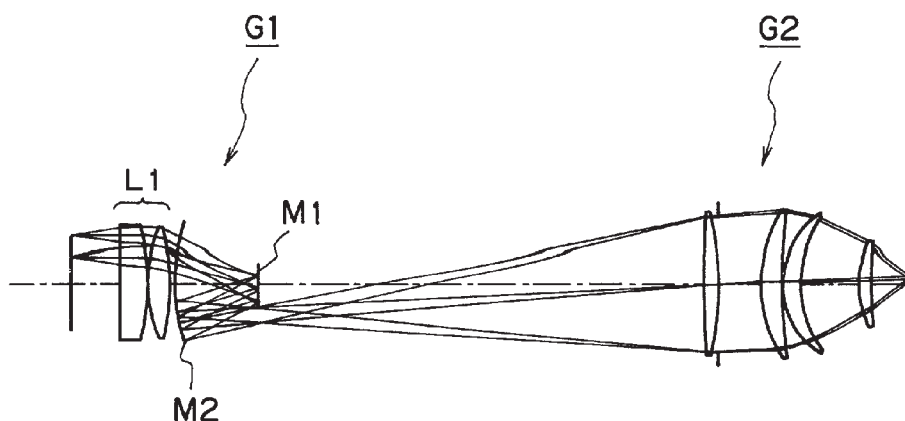


FIG. 7

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