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(54) **OPTICAL PICKUP COMPATIBLE WITH A DIGITAL VERSATILE DISK AND A RECORDABLE COMPACT DISK USING A HOLOGRAPHIC RING LENS**

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(30) **Foreign Application Priority Data**

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(51) **Int. Cl.**
G11B 7/00 (2006.01)

(52) **U.S. Cl.** **369/112.08**; 369/112.1; 369/112.13;
369/112.23; 369/44.23

(58) **Field of Classification Search** None
See application file for complete search history.

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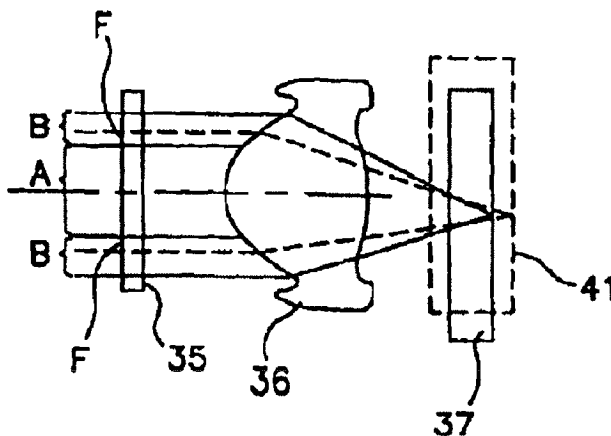
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(74) *Attorney, Agent, or Firm* — NSIP Law

(57) **ABSTRACT**

An optical pickup apparatus compatible with at least two types of optical recording media, using light beams having respective different wavelengths for recording and reading information, the optical pickup apparatus including two laser light sources to emit light beams having the different wavelengths, a holographic lens including a holographic ring to transmit the light beams incident in an inner region of the holographic ring, and to diffract a specific light beam among the light beams emitted from the laser light sources incident in an outer region relative to the inner region, an objective lens to focus the light beams passed through the holographic ring lens on the respective information recording surfaces of the two types of the optical recording media, optical elements to alter optical paths of the light beams reflected from the information recording surfaces of the optical recording media to corresponding photodetectors.

62 Claims, 5 Drawing Sheets



LG Electronics, Inc. et al.

EXHIBIT 1001

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FIG. 3

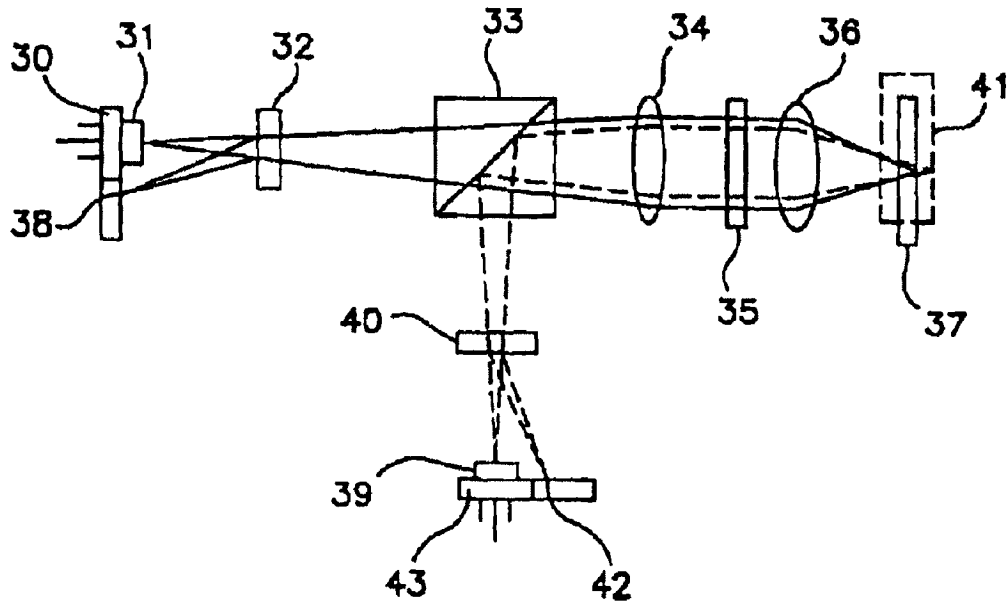


FIG. 4A

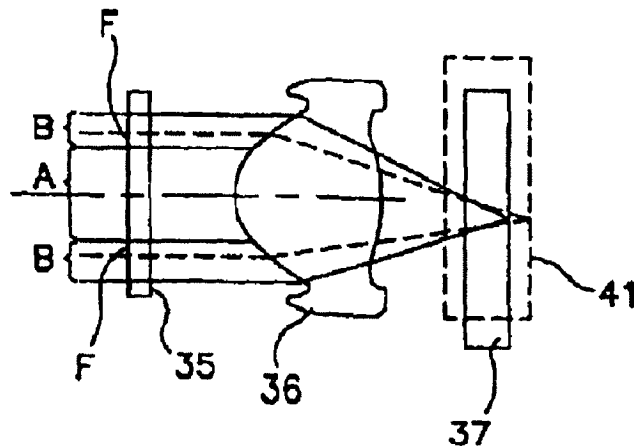


FIG. 4B

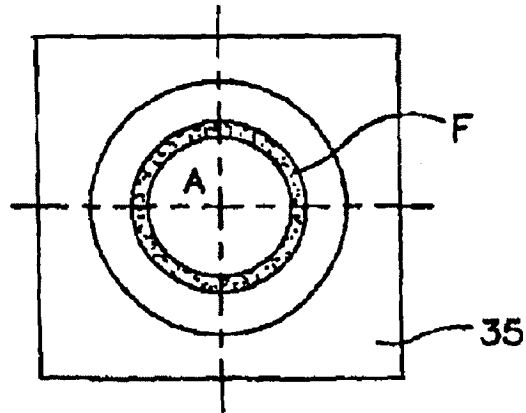
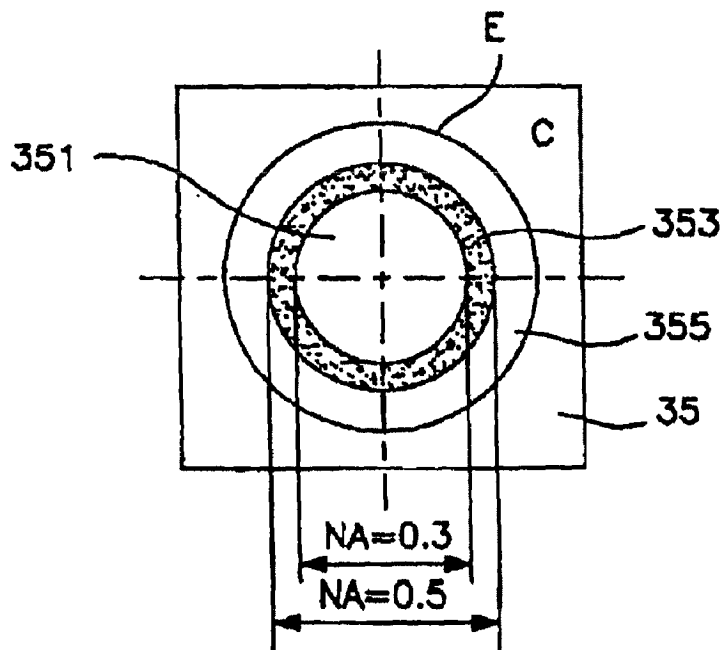


FIG. 5A



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