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(12) **United States Patent**  
**Kanto et al.**

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(54) **OPTICAL HEAD UNIT FOR OPTICAL DISK APPARATUS HAVING BOTH FOCUS CONTROL AND TRACK CONTROL FUNCTION**

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(75) Inventors: **Nobuyuki Kanto; Koichi Tezuka; Haruhiko Izumi; Satoshi Shimokawa; Shingo Hamaguchi; Akihiko Makita; Kyoko Tadaki; Kazushi Uno; Goro Kawasaki, all of Kawasaki (JP)**

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(73) Assignee: **Fujitsu Limited, Kawasaki (JP)**

\* cited by examiner

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

*Primary Examiner*—Paul W. Huber

(74) *Attorney, Agent, or Firm*—Greer, Burns & Crain, Ltd.

(21) Appl. No.: **09/203,158**

(22) Filed: **Dec. 1, 1998**

(57) **ABSTRACT**

(30) **Foreign Application Priority Data**

Jun. 30, 1998 (JP) ..... 10-185283

(51) **Int. Cl.**<sup>7</sup> ..... **G11B 7/00**

(52) **U.S. Cl.** ..... **369/44.14; 369/112.24**

(58) **Field of Search** ..... 369/44.11, 44.14, 369/44.15, 44.16, 44.17, 44.18, 44.19, 112, 44.23, 13, 112.23, 112.24

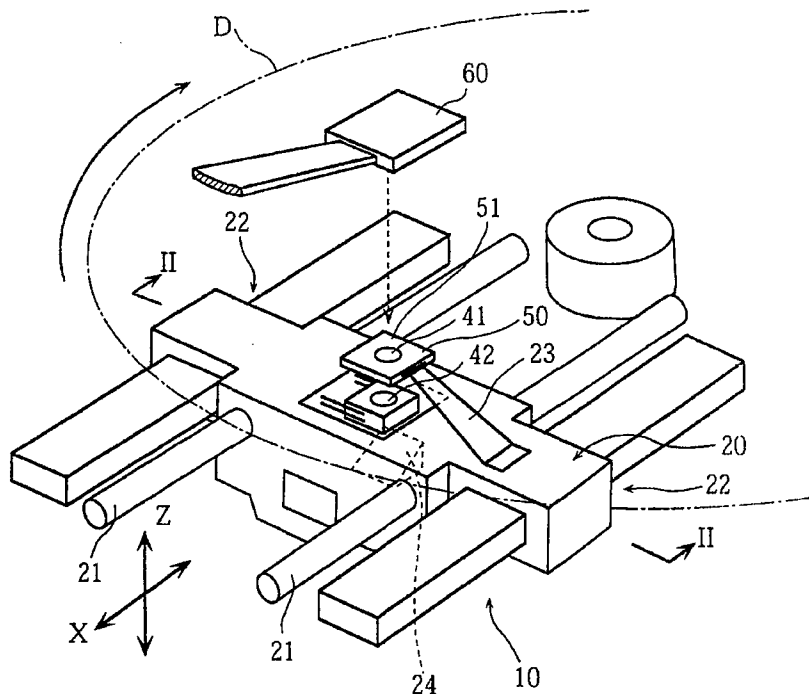
An optical head unit used for an optical disk apparatus is provided. The optical head unit includes an object glass assembly for focusing a laser beam from a light source on an optical disk, an actuator movable at least in a focus control direction, a carriage for supporting the actuator and moving the actuator in a track control direction, and a slider which is attached to the carriage and capable of adjusting its posture in relation to a surface of the optical disk. The object glass assembly is provided with a plurality of lens units. Each lens unit includes at least one lens. One of the plural lens units is supported by the slider.

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**11 Claims, 9 Drawing Sheets**



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**EXHIBIT 1010**

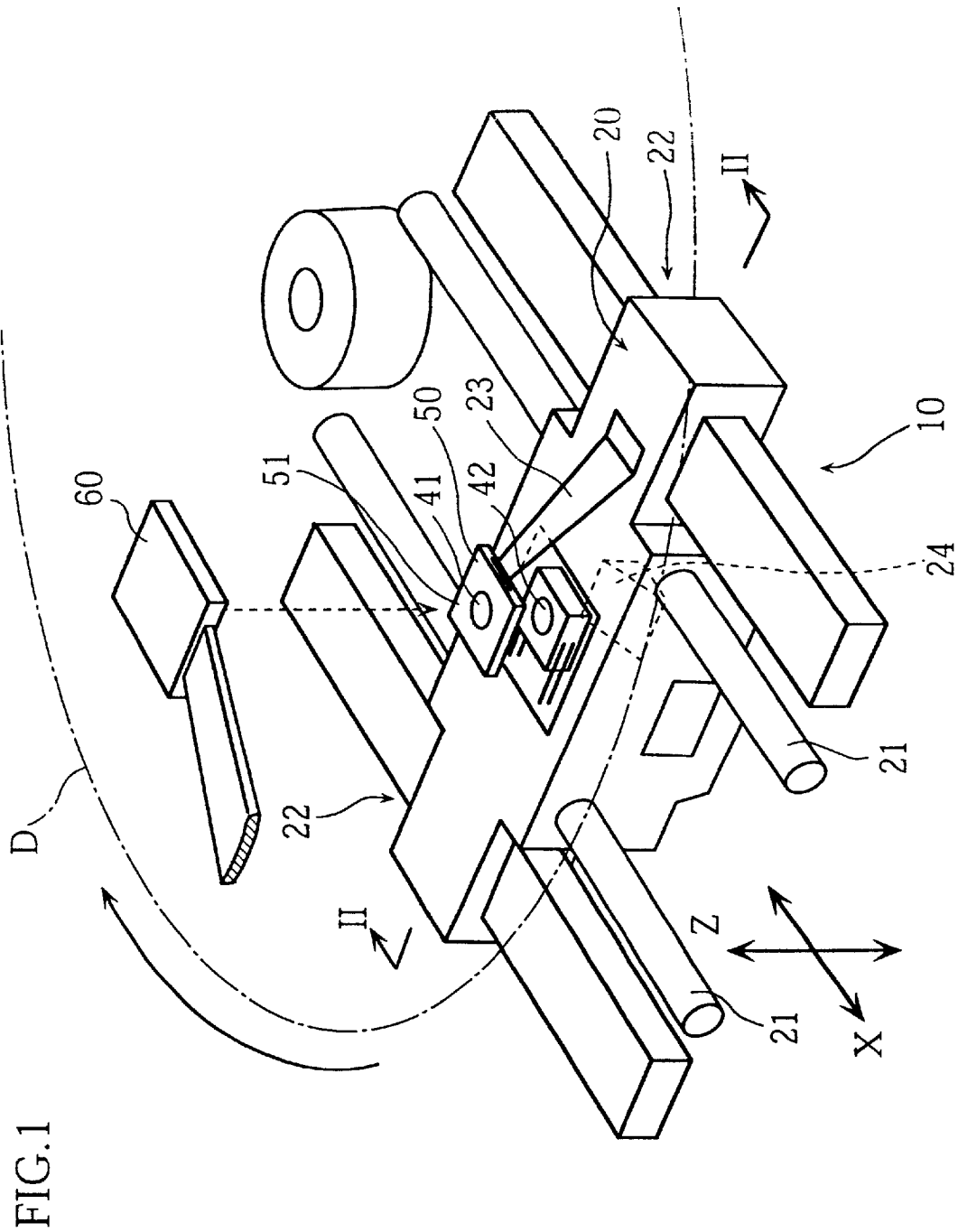


FIG. 1

FIG. 2

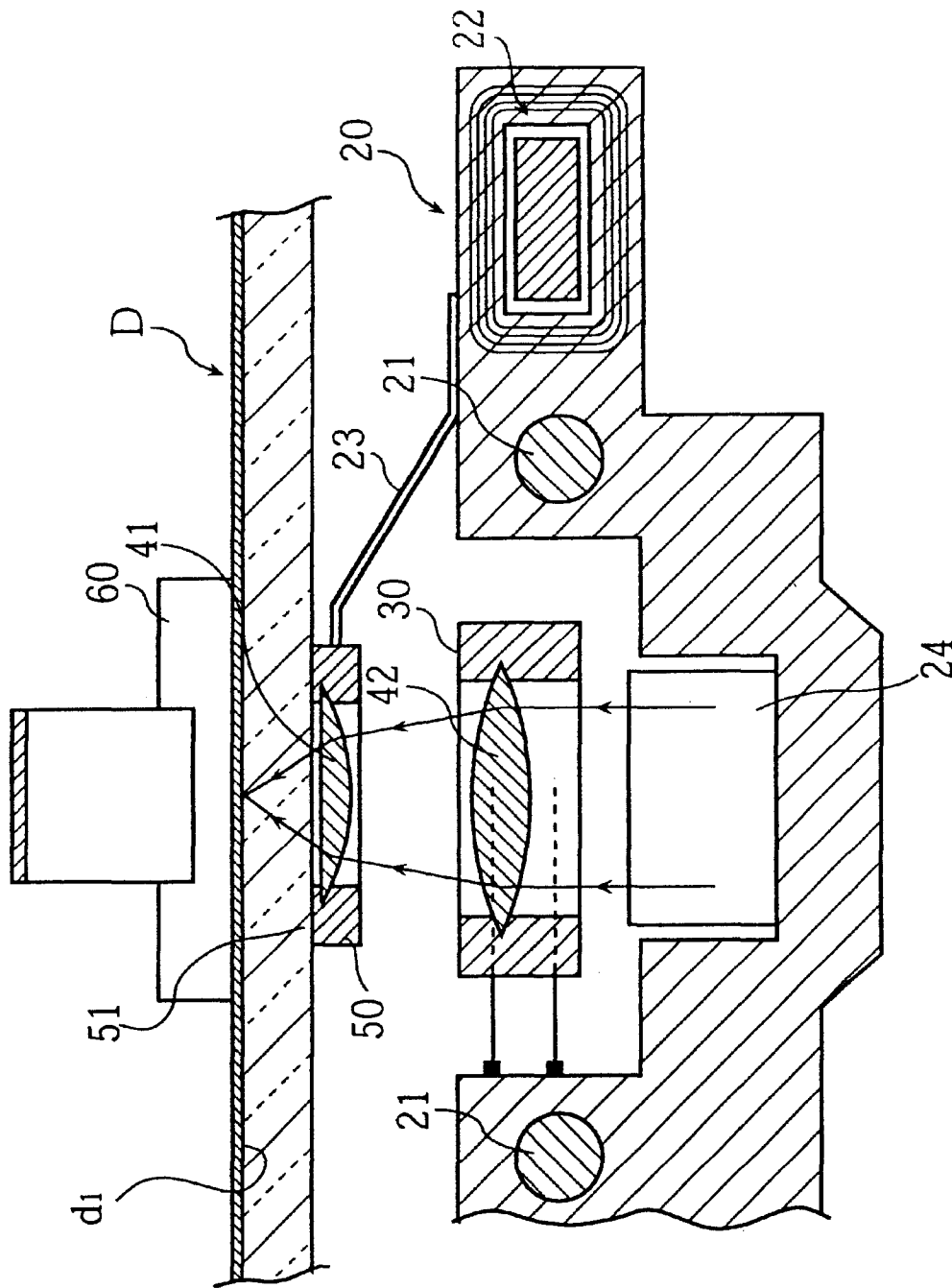


FIG. 3

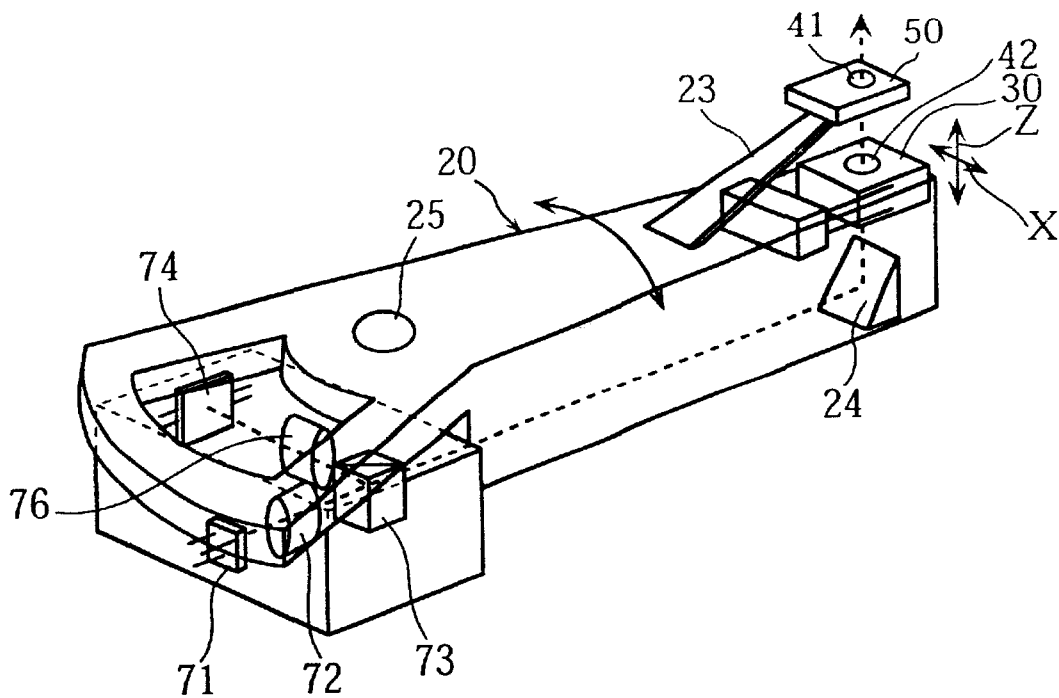


FIG. 4

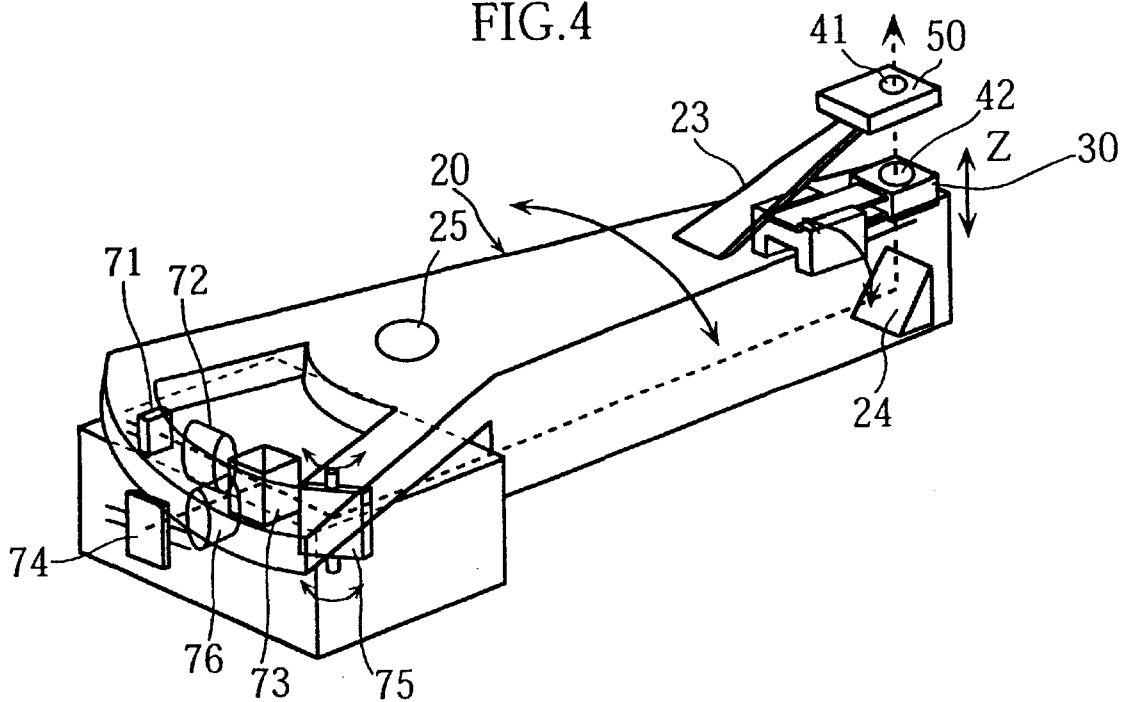
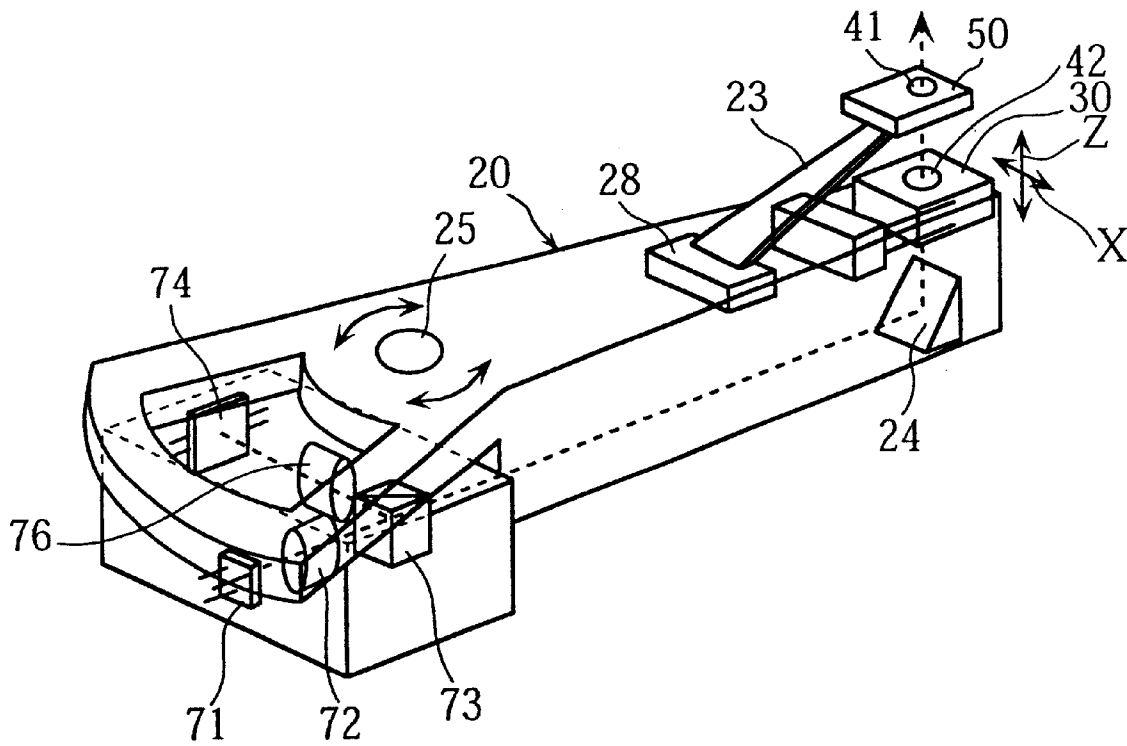


FIG. 5



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