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United States Patent [19]

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Mohri et al.

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[54] **OBJECT LENS DRIVING DEVICE**

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[21] Appl. No.: **09/342,585**

[22] Filed: **Jun. 29, 1999**

[57] **ABSTRACT**

[30] **Foreign Application Priority Data**

Jul. 3, 1998	[JP]	Japan	10-188650
Oct. 20, 1998	[JP]	Japan	10-298051

[51] **Int. Cl.⁷** **G02B 7/02; G11B 7/00**

[52] **U.S. Cl.** **359/824; 359/813; 359/814; 369/44.15**

[58] **Field of Search** **359/811, 813, 359/814, 819, 823, 824; 369/44.15, 44.16**

An object lens driving device of the present invention includes a movable section, supporting sections for supporting the movable section and a base for holding the supporting sections. The movable section includes an object lens for recording and/or reproducing optical information to and/or from a disk-shaped recording medium, a lens holder for holding the object lens and at least four permanent magnets adhered to the lens holder. The supporting sections include at least four metal wires substantially parallel to each other, each wire having a first end fixed to the lens holder and a second end connected to the base, and elastic deformable elements connected to the base and having connecting sections thereof connected to the second end of each respective metal wire. The base includes yokes fixed to the base and facing the respective permanent magnets, focusing coils wound around the respective yokes, wound axes of the focusing coils being oriented in a direction of an optical axis of the object lens, and tracking coils wound around the respective yokes, wound axes of the tracking coils being oriented in a direction perpendicular to the wound axes of the focusing coils.

[56] **References Cited**

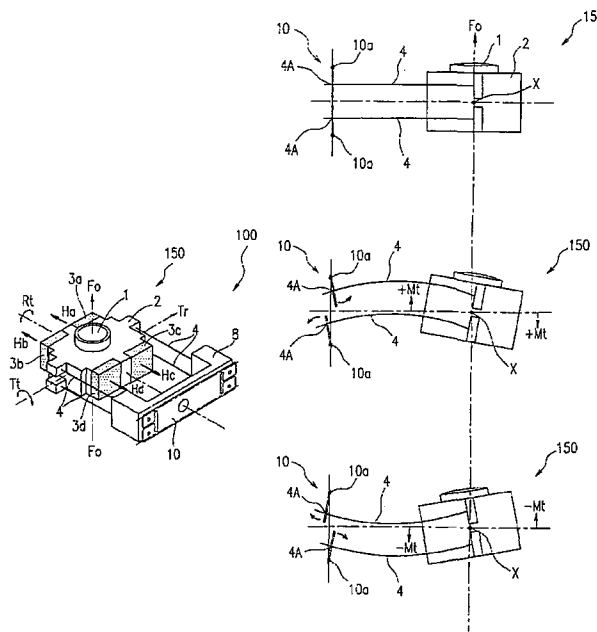
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15 Claims, 17 Drawing Sheets



LG Electronics, Inc. et al.
EXHIBIT 1006

FIG. 1A

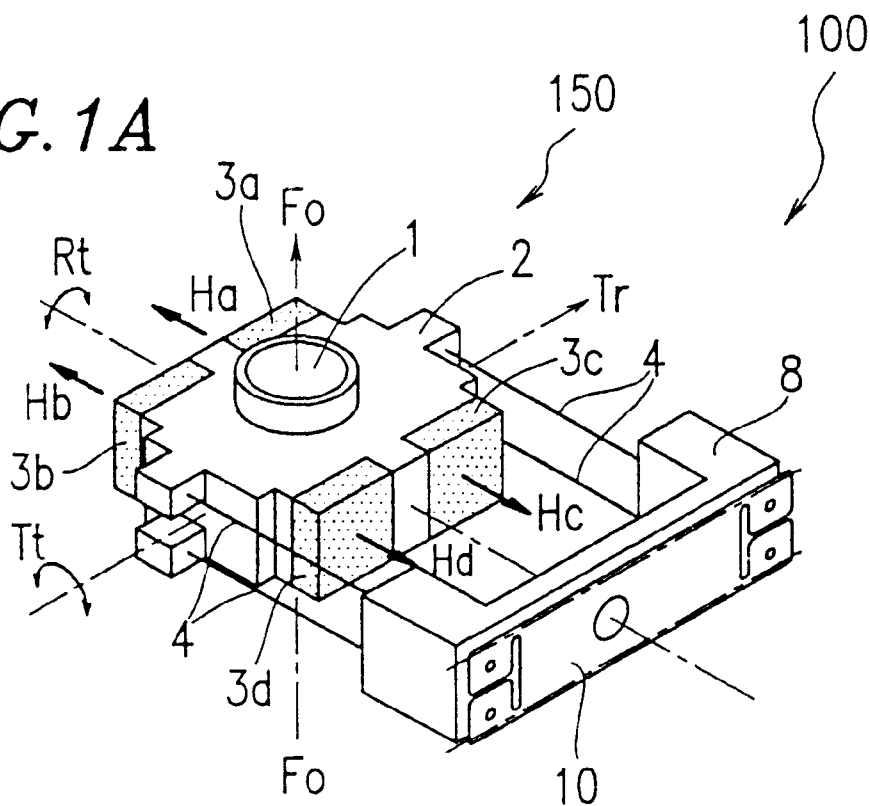


FIG. 1B

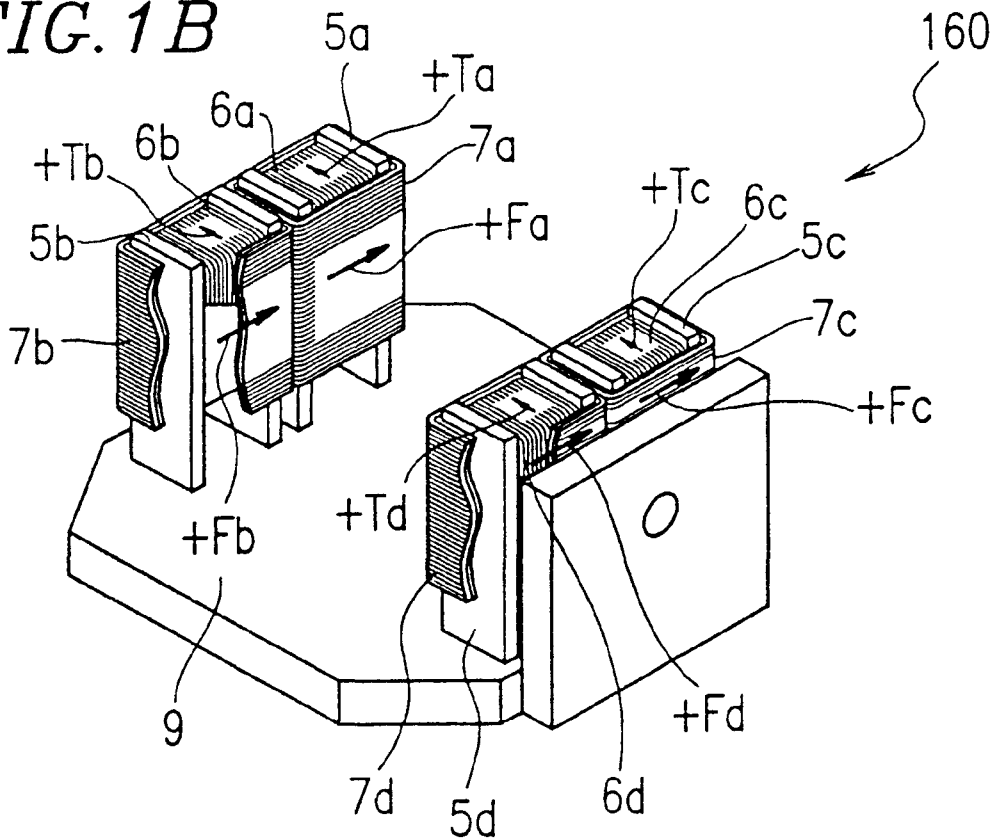


FIG. 2A

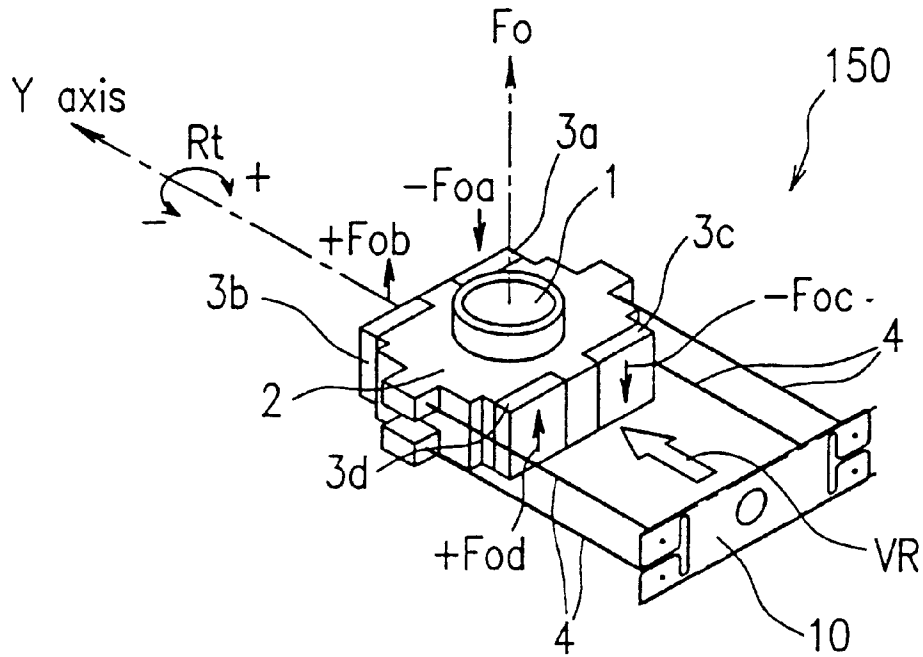


FIG. 2B

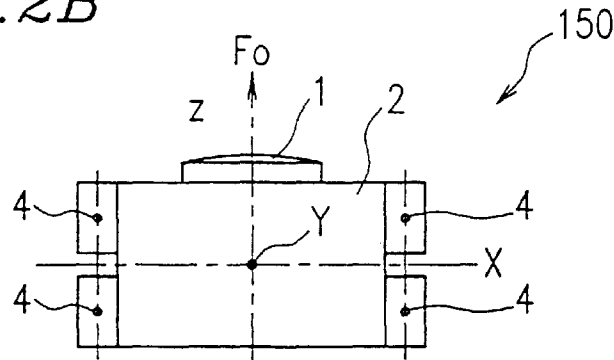


FIG. 2C

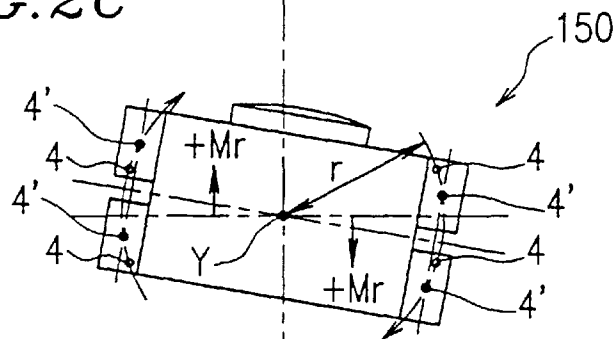


FIG. 2D

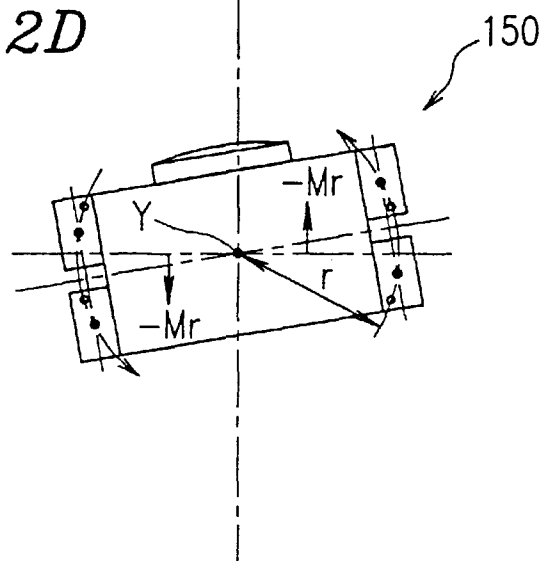
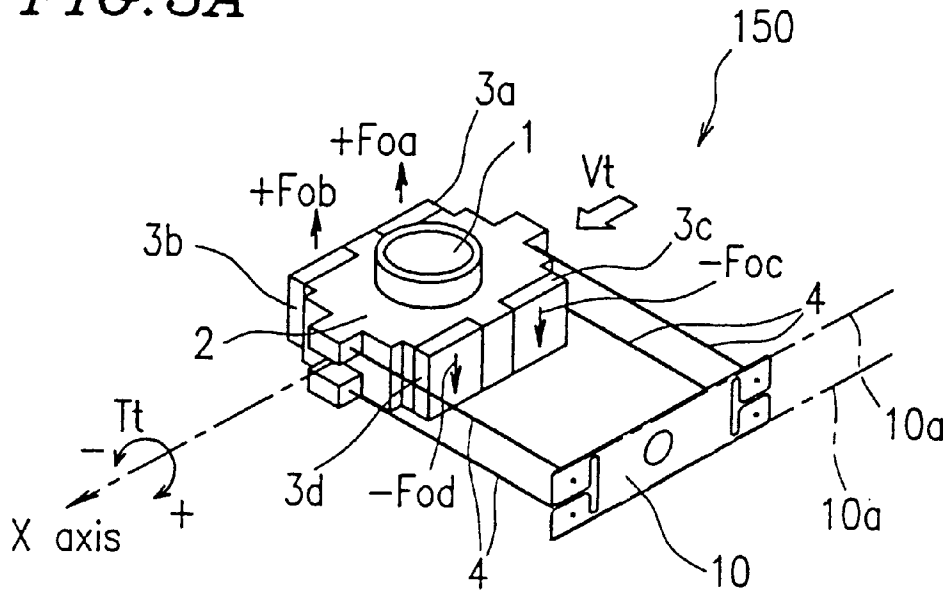


FIG. 3A



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