

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LG ELECTRONICS, INC., and
LG ELECTRONINCS U.S.A., INC.,
Petitioner,

v.

TOSHIBA SAMSUNG STORAGE TECHNOLOGY KOREA
CORPORATION,
Patent Owner.

Case IPR2015-01642
Patent 6,721,110 B2

Before KALYAN K. DESHPANDE, MICHAEL R. ZECHER, and
TREVOR M. JEFFERSON, *Administrative Patent Judges*.

ZECHER, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
Inter Partes Review
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. BACKGROUND

Petitioner, LG Electronics, Inc. and LG Electronics U.S.A., Inc. (collectively, “LG”), filed a Petition requesting an *inter partes* review of claims 40–45, 47, and 48 of U.S. Patent No. 6,721,110 B2 (“the ’110 patent,” Ex. 1001). Paper 1 (“Pet.”). Patent Owner, Toshiba Samsung Storage Technology Korea Corporation (“Toshiba”), timely filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). Taking into account the arguments presented in Toshiba’s Preliminary Response, we determined that the information presented in the Petition established that there was a reasonable likelihood that LG would prevail in challenging claims 40–45, 47, and 48 of the ’110 patent as unpatentable under 35 U.S.C. § 103(a). Pursuant to 35 U.S.C. § 314, we instituted this *inter partes* review on January 29, 2016, as to all the challenged claims. Paper 8 (“Dec. on Inst.”).

During the course of trial, Toshiba filed a Patent Owner Response (Paper 21, “PO Resp.”) and LG filed a Reply to the Patent Owner Response (Paper 24, “Pet. Reply”). A consolidated oral hearing was held on October 6, 2016, and a transcript of the hearing is included in the record. Paper 36 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 40–45, 47, and 48 of the ’110 patent. For the reasons discussed below, we hold that LG has demonstrated by a preponderance of the evidence that these claims are unpatentable under § 103(a).

A. Related Matters

The '110 patent is involved in the following district court cases: (1) *LG Electronics, Inc. v. Toshiba Samsung Storage Technology Korea Corp.*, No. 1:12-cv-01063 (LPS) (D. Del.); and (2) *Toshiba Samsung Storage Technology Korea Corp. v. LG Electronics, Inc.*, No. 1:15-cv-0691 (LPS) (D. Del.). Pet. 4; Paper 6, 1. In addition to this Petition, LG filed another petition challenging the patentability of a certain subset of claims in U.S. Patent No. 6,785,065 B1 (“the '065 patent”), which is a continuation of the '110 patent. Pet. 4. In that case, we instituted an *inter partes* review as to claims 1–9 of the '065 patent. *LG Elecs., Inc. v. Toshiba Samsung Storage Tech. Korea Corp.*, Case IPR2015-01644 (PTAB Jan. 29, 2016) (Paper 8).

B. The '110 Patent

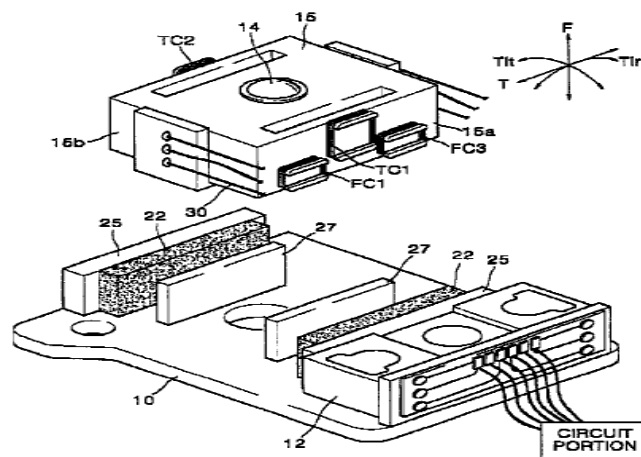
The '110 patent, titled “Optical Pickup Actuator Driving Method and Apparatus Therefor,” issued April 13, 2004, from U.S. Patent Application No. 10/173,958, filed on June 19, 2002. Ex. 1001, at [54], [45], [21], [22]. The '110 patent claims foreign priority to Korean Patent Application No. 2001-34687, filed on June 19, 2001. *Id.* at [30].

As the title suggests, the '110 patent generally relates to an apparatus and method of driving an optical pickup actuator in which focus, track, and tilt coils drive the optical pickup actuator in focus, track, and tilt directions, respectively. Ex. 1001, 1:15–20. These coils are provided at two sides of a bobbin to secure the remaining sides of the bobbin, and also to allow the focus coil to be used as the tilt coil. *Id.* at 1:21–23. According to the '110 patent, a conventional optical pickup actuator is very small and uses all four

side surfaces of the bobbin to install the focus, track, or tilt coils. *Id.* at 2:56–58, Fig. 1. Consequently, it becomes very difficult to install the necessary wiring in such a small space. *Id.* at 2:59–62, Fig. 1. In addition, when these coils are arranged on all four side surfaces of the bobbin, the wiring of the coils becomes more complicated. *Id.* at 2:64–65, Fig. 1.

The '110 patent addresses these problems by arranging the focus, track, and tilt coils on just two side surfaces of the bobbin in a manner that secures a sufficient space provided at the other side surfaces of the bobbin, and also allows the focus and tilt direction to be controlled together by a single coil. Ex. 1001, 3:9–17. Figure 3 of the '110 patent, reproduced below, illustrates an optical pickup actuator according to one embodiment of the invention. *Id.* at 4:44–46, 5:9–10.

FIG. 3



As shown in Figure 3, the optical pickup actuator includes base 10, holder 12 located on one side of the base, bobbin 15 suspended over the base, objective lens 14 mounted on the bobbin, and a magnetic driving

portion that drives the bobbin in focus, tilt, and track directions. Ex. 1001, 5:10–15. The magnetic driving portion further includes at least one focus and tilt coil FC1–FC4 and at least one track coil TC1, TC2 at each of opposite side surfaces 15a of bobbin 15. *Id.* at 5:16–18. Magnets 22 are installed to face the at least one focus and tilt coil and at least one track coil provided on each of the opposite side surfaces. *Id.* at 5:18–21.

C. Illustrative Claims

Of the challenged claims, claims 40 and 48 are the only independent claims at issue. Independent claim 40 is directed to an optical pickup actuator, whereas independent claim 48 is directed to a method of driving an optical pickup actuator. Claims 41–45 and 47 directly depend from independent claim 40. Independent claims 40 and 48 are illustrative of the challenged claims and are reproduced below:

40. An optical pickup actuator comprising:
a bobbin movably arranged on a base of the optical pickup actuator;
at least one focus and tilt coil which drives the bobbin in focus and tilt directions and at least one track coil which drives the bobbin in a track direction arranged on each of opposite side surfaces of the bobbin;
support members which move the bobbin and are provided to the other side surfaces of the bobbin, wherein the focus and tilt coils and the track coils are not arranged on the other side surfaces of the bobbin; and
magnets arranged to face corresponding sides of the opposite side surfaces of the bobbin.

Ex. 1001, 11:10–22.

48. A method of driving an optical pickup actuator comprising a support member, a bobbin having at least one focus

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