Trials@uspto.gov
571-272-7822

Paper   87
Date: January 9, 2020

UNITED STATES PATENT AND TRADEMARK OFFICE _____

BEFORE THE PATENT TRIAL AND APPEAL BOARD
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GOOGLE LLC, ZTE (USA), INC.,
SAMSUNG ELECTRONICS CO., LTD.,
LG ELECTRONICS INC., HUAWEI DEVICE USA, INC.,
HUAWEI DEVICE CO. LTD., HUAWEI TECHNOLOGIES CO. LTD.,
HUAWEI DEVICE (DONGGUAN) CO. LTD.,
HUAWEI INVESTMENT & HOLDING CO. LTD.,
HUAWEI TECH. INVESTMENT CO. LTD., and
HUAWEI DEVICE (HONG KONG) CO. LTD.,
Petitioner,

v.

CYWEE GROUP LTD.,
Patent Owner.

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IPR2018-01257
Patent 8,552,978 B2

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Before PATRICK M. BOUCHER, KAMRAN JIVANI, and
CHRISTOPHER L. OGDEN, *Administrative Patent Judges*.

BOUCHER, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
Denying Patent Owner's Motion to Amend
Denying Patent Owner's First and Second Motions to Terminate
35 U.S.C. § 318(a)

In response to a Petition (Paper 1, "Pet.") filed by Google LLC ("Google" or "Petitioner"[1]), we instituted an *inter partes* review of claims 10 and 12 of U.S. Patent No. 8,552,978 B2 (Ex. 1001, "the '978 patent"). Paper 8 ("Dec."). We subsequently joined (1) ZTE (USA), Inc. ("ZTE"), (2) Samsung Electronics Co., Ltd. ("Samsung"), (3) LG Electronics Inc. ("LG"), and (4) Huawei Device USA, Inc., Huawei Device Co. Ltd., Huawei Technologies Co. Ltd., Huawei Device (Dongguan) Co. Ltd., Huawei Investment & Holding Co. Ltd., Huawei Tech. Investment Co. Ltd., and Huawei Device (Hong Kong) Co. Ltd. (collectively, "Huawei") as parties to this proceeding. Papers 35–38.

During the trial, CyWee Group Ltd. ("Patent Owner") filed a Response (Paper 14, "PO Resp.") to which Petitioner filed a Reply (Paper 28, "Reply") and Patent Owner filed a Sur-reply (Paper 48, "Sur-reply"). Patent Owner also filed a Motion to Amend the claims of the '978 patent. Paper 15 ("Mot. Amend"). Petitioner opposed Patent Owner's Motion to Amend (Paper 29, "Opp. Amend"), Patent Owner replied (Paper 46, "Reply Amend"), and Petitioner sur-replied (Paper 64, "Sur-reply Amend"). In

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[1] As noted, additional parties were joined to this proceeding during the trial. Because those joined parties participated in an "understudy" role, we refer interchangeably to Google LLC or to the entire group of petitioner parties as "Petitioner" without distinction unless identification of a particular petitioner is relevant.

addition, Patent Owner filed a First Motion to Terminate this proceeding based on Petitioner's alleged failure to identify all real parties in interest and/or privies. Paper 40 ("Mot. Term."). Petitioner opposed Patent Owner's Motion to Terminate (Paper 51, "Opp. Term."), Patent Owner replied (Paper 65, "Reply Term."), and Petitioner sur-replied (Paper 72, "Sur-reply Term.").[2] Subsequent to the Federal Circuit's decision in *Arthrex, Inc. v. Smith & Nephew, Inc.*, 941 F.3d 1320 (Fed. Cir. 2019), we authorized Patent Owner's request to file a Second Motion to Terminate to preserve Patent Owner's positions related to the Constitutional concerns raised by that decision. Paper 82[3] (Second Mot. Term.). To this, Petitioner filed an opposition. Paper 86. An oral hearing was held with the parties, and a copy of the transcript was entered into the record. Paper 73 ("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 the claims on which we instituted trial. Based on the record before us, Petitioner has shown, by a preponderance of the evidence, that (1) the Petition is not barred by 35 U.S.C. §§ 312(a)(2) or 315(b), as alleged by Patent Owner in its First Motion to Terminate; (2) claims 10 and 12 of the '978 patent are unpatentable; and (3) Patent Owner's proposed amended claims are unpatentable. We also deny Patent Owner's Second Motion to Terminate for the reasons discussed below.

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[2] Papers 51 and 65 are filed under seal. Publicly available, redacted versions of those papers are available in the record as Papers 52 and 66 respectively.
[3] Paper 82 is filed under seal. A publicly available, redacted version of Patent Owner's second Motion to Terminate is available in the record as Paper 83.

I. BACKGROUND

A. *The '978 Patent*

The '978 patent "generally relates to a 3D pointing device," which is described as having the function of "detecting motions of the device and translating the detected motions to a cursor display such as a cursor pointing on the screen . . . of a 2D display device." Ex. 1001, 1:22–23, 1:29–33. For example, the pointing device "may be a mouse of a computer or a pad of a video game console" and the display device "may be a part of the computer or the video game console." *Id.* at 1:36–39. A user may then perform control actions and movements with the pointing device for some purpose, such as playing a video game. *Id.* at 1:52–55. For example, when the user moves the pointing device, a pointer on the display device may "move along with the orientation, direction and distance travelled by the pointing device." *Id.* at 1:56–61.

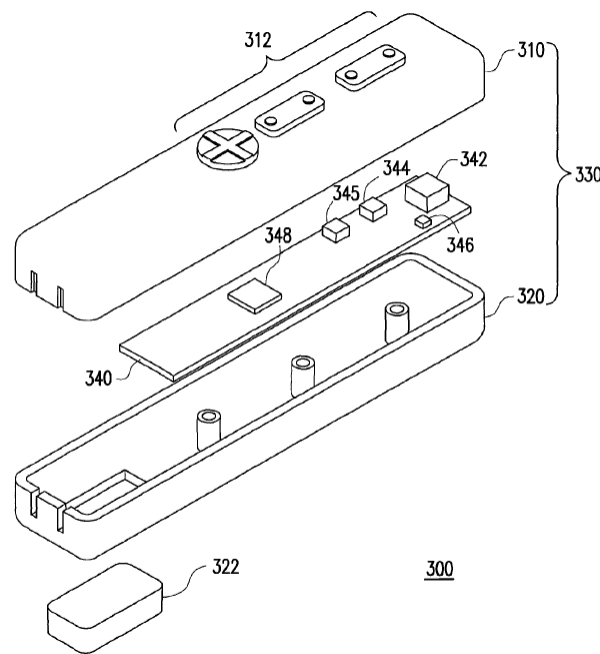Figure 3 of the '978 patent is reproduced below.

FIG. 3

Figure 3 is an exploded diagram showing electronic device 300, which may correspond to a pointing device. *Id.* at 9:14–16. Within housing 330, formed of top cover 310 and bottom cover 320, are rotation sensor 342, accelerometer 344, and magnetometer 345, each attached to printed circuit board 340, as well as other components that allow data transmission and processing. *Id.* at 9:26–33.

The '978 patent refers to rotation sensor 342, accelerometer 344, and magnetometer 345 as "a nine-axis motion sensor module." *Id.* at 9:57–62. The term "nine-axis" refers to and includes three angular velocities ω_x, ω_y, ω_z detected by rotation sensor 342, three axial accelerations Ax, Ay, Az detected by accelerometer 344, and three "magnetisms" Mx, My, Mz detected by magnetometer 345. *Id.* at 9:65–10:23. The *x*, *y*, and *z* components are illustrated in the patent for a Cartesian spatial reference frame relative to electronic device 300, but, more generally, "may not need to be orthogonal in a specific orientation and they may be rotated in different orientations." *Id.* at 10:23–29.

Various dynamic environments may present external influences that impact the ability to calculate orientation accurately. *See id.* at 15:53–16:4. For example, nongravitational forces may cause undesirable axial accelerations and/or extraneous electromagnetic fields may cause undesirable magnetism. *Id.* at 15:55–60. Such complications are addressed with a method illustrated by the flow diagram shown in Figure 7 of the '978 patent, reproduced below.

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