

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BRAIN SYNERGY INSTITUTE, LLC,
Petitioner,

v.

ULTRATHERA TECHNOLOGIES, INC.,
Patent Owner.

Case IPR2015-00515
Patent 8,702,631 B2

Before LINDA E. HORNER, MEREDITH C. PETRAVICK, and
WILLIAM V. SAINDON, *Administrative Patent Judges*.

HORNER, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Petitioner filed a Petition requesting an *inter partes* review (Paper 1, “Pet.”)¹ of claims 1–11 of U.S. Patent No. 8,702,631 B2 (Ex. 1001, “the ’631 patent”).

Pet. 1. Patent Owner filed a Preliminary Response. Paper 11 (“Prelim. Resp.”).

We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” We have reviewed the Petition, the evidence cited therein, and the Preliminary Response. For the reasons discussed below, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing with respect to any of the challenged claims of the ’631 patent.

A. *Related Matters*

Petitioner has sued Patent Owner for infringing claims 2–6, 8–10, 13–16 of U.S. Patent No. 6,800,062 (Ex. 1003, “Epley”) in *Brain Synergy Institute, LLC v. Ultrathera Technologies, Inc.*, Case No. 1:13-cv-01471, pending in the United States District Court for the District of Colorado (“the Colorado litigation”).

Pet. 6. Petitioner relies on Epley in each of the grounds of challenge presented in the Petition. *Id.* at 8; Ex. 1003.

U.S. Patent Application No. 13/957,226, filed August 1, 2013, now pending, is a continuation of U.S. Patent Application No. 12/744,896, filed October 22, 2010, now the ’631 patent, which Petitioner challenges in the present matter.

B. *The ’631 Patent*

The ’631 patent describes a system and method for administering vestibular² stimulation to a subject. Ex. 1001, 2:17–38. The system and method “employ[] a

¹ The Petition, as filed, did not provide pagination. A reproduction of the Petition, with pagination referenced therein, is attached as an appendix to this Decision.

computer controlled multi-axis rotational motion device to move a human subject in specific controllable motions with specific controllable angular acceleration.”

Id. at 3:20–24. Figure 1 depicts a vestibular stimulation system configured to rotate around two axes of rotation. *Id.* at 2:45–46.³ Figure 1 is reproduced below.

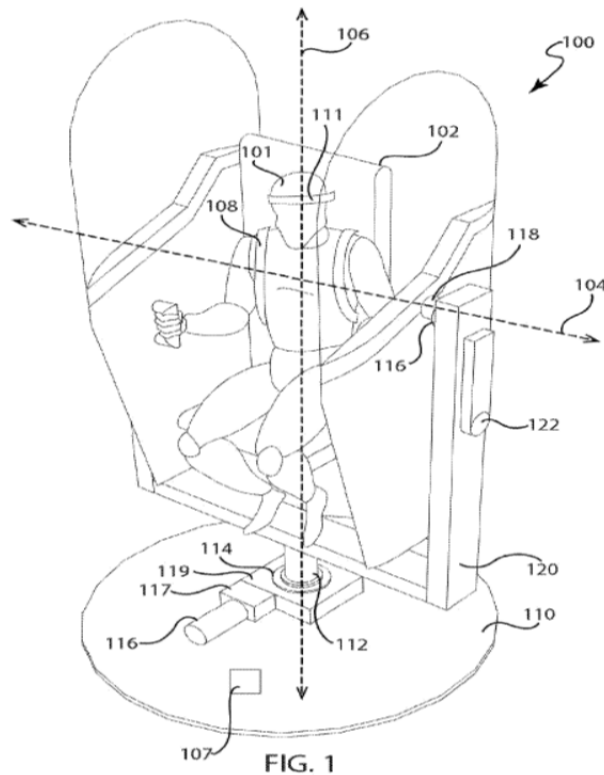


Figure 1 depicts a vestibular stimulation system configured to rotate around two axes of rotation.

Figure 1 depicts subject 101 seated in chair 102 of vestibular stimulation system 100, which provides for rotation of subject 101 about pitch axis 104 and

² The vestibular system includes the parts of the inner ear and brain that help control balance and eye movements. Ex. 1001, 1:18–21.

³ Although the '631 patent discloses another embodiment, depicted in Figure 2, in which the system rotates about three axes, the claims of the patent are limited to the two-axis embodiment. Ex. 1001, 23:5–24:36. Accordingly, we limit our discussion to the two-axis embodiment disclosed in the '631 patent.

yaw axis 106. Ex. 1001, 5:14–20. Chair 102 is rotationally supported on base 110 via yaw shaft 112 and rotational bearing system 114. *Id.* at 5:20–24. Chair 102 is rotated around yaw axis 106 by yaw axis motor 116. *Id.* at 5:27–28. Chair 102 is also supported on U-shaped support frame 120 and operably linked to pitch shaft 118 via bearing cases 114 and 116 at opposing ends of pitch shaft 118. *Id.* at 5:22–23, 5:43–49. Chair 102 is rotated around pitch axis 104 by pitch axis motor 122. *Id.* at 5:50–51. Rotation around yaw axis 106 and pitch axis 104 can be continuous with no limitation on the rotation characteristics or the number of rotations. *Id.* at 5:37–40, 5:56–60. In operation, rotations of chair 102 around pitch axis 104 and yaw axis 106 are independent, and can occur either separately or simultaneously. *Id.* at 6:3–5. Vestibular stimulation can be administered to a subject using system 100 to alter the response of the subject to a variety of stimuli or to treat a number of developmental disorders. *Id.* at 15:4–12.

C. Illustrative Claim

Petitioner challenges all of the claims in the '631 patent, of which claims 1 and 9 are independent. Claim 1 is reproduced below.

1. A method of administering a dose of vestibular stimulation to a subject, comprising:

administering to a subject in a two-axis rotational device a dose of vestibular stimulation,

wherein said two-axis rotational device comprises a pitch axis of rotation directly inside a yaw axis of rotation, with the proviso that the device does not comprise a roll axis of rotation, the rotation of each said pitch and yaw axis is independent of the other axis of rotation, the rotation velocity and acceleration around each said pitch and yaw axis controlled by a computer system, and said dose comprises a measurable and repeatable pattern of acceleration intensity and frequency around said pitch axis of rotation for a first duration and said yaw axis of rotation for a second duration, said

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rotational device configured to allow continuous rotation through more than 360 degrees around each said axis of rotation independently and simultaneously; and

measuring the vestibular stimulation applied to said subject by said computer system.

Ex. 1001, 23:5–24.

D. Prior Art and Asserted Grounds

Petitioner challenges the claims of the '631 patent based on four grounds using three references. Pet. 8. Petitioner asserts claims 1, 2, and 4–11 of the '631 patent are unpatentable under 35 U.S.C. § 103(a) over Okamoto⁴ in view of Epley⁵ and over Epley in view of Newman⁶. *Id.* Petitioner further asserts claim 3 of the '631 patent is unpatentable under 35 U.S.C. § 103(a) over Okamoto in view of Epley and Graybiel⁷ and over Epley in view of Newman and Graybiel.

⁴ JP Hei 07[1995]-60290 B2, published June 28, 1995 (translated version) (Ex. 1002). The Petitioner includes a certification of translation with the translated version of Okamoto. 37 C.F.R. § 42.63(b) requires that translations must be accompanied by “an affidavit attesting to the accuracy of the translation.” The certificate of translation submitted by the Petitioner is not a proper affidavit because it was not made under oath and does not include the acknowledgement that “willful false statements and the like are punishable by fine or imprisonment, or both.” 37 C.F.R. § 1.68. The Patent Owner does not contest the accuracy of the translation submitted by the Petitioner. For purposes of disposing of the Petition, the Board will consider the certified translation.

⁵ U.S. Patent No. 6,800,062 B2, issued October 5, 2004 (Ex. 1003).

⁶ U.S. Patent No. 4,710,129, issued December 1, 1987 (Ex. 1004).

⁷ Ashton Graybiel, *Prevention of Motion Sickness in the Slow Rotation Room by Incremental Increases in Strength of Stimulus*, in *FOURTH SYMPOSIUM ON THE ROLE OF THE VESTIBULAR ORGANS IN SPACE EXPLORATION*, NASA SP-187 109–115 (Nat'l Acad. of Scis. 1970) (Ex. 1005).

II. ANALYSIS

A. Claim Construction

The Board interprets the claims of an unexpired patent using the broadest reasonable interpretation in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see also* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012).

Petitioner proposes constructions for “dose of vestibular stimulation,” “a pitch axis of rotation directly inside a yaw axis of rotation,” “a measurable and repeatable pattern,” “continuous rotation,” “independently and simultaneously,” “independently and continuously,” “measuring the vestibular stimulation,” and “chaotic pattern or regular repeating pattern.” Pet. 12–17. Patent Owner does not contest the Petitioner’s proposed constructions for these claim terms and does not propose its own construction of any claim terms. We need to construe only “simultaneously,” “continuously,” and “continuous rotation” in reaching our decision. “[C]laim terms need only be construed ‘to the extent necessary to resolve the controversy.’” *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (quoting *Vivid Techs., Inc. v. Am Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

“*simultaneously*”

Independent claim 1 of the ’631 patent recites that “said rotational device [is] configured to allow continuous rotation through more than 360 degrees around each said [pitch and yaw axes] of rotation independently and *simultaneously*.” Ex. 1001, 23:19–22 (emphasis added). Petitioner proposes that the claim recitation “independently and simultaneously . . . should be interpreted to mean that the variables associated with pitch and yaw axes – e.g., acceleration, deceleration, velocity, etc. – are separately controlled *and the axes can rotate at the same time.*” Pet. 15 (citing Ex. 1001, 5:5–7; 6:3–7; 13:24–27) (emphasis added).

With respect to “simultaneous” rotation, the ’631 patent describes that “[i]n operation, rotation of chair 102 around pitch axis 104 and yaw axis 106 are independent, and can occur either separately or simultaneously.” Ex. 1001, 6:3–5. Thus, the Specification distinguishes between separate rotation about the pitch and yaw axes at different times versus simultaneously rotation about these axes at the same time. We interpret the term “simultaneously”, as used in claim 1, when read in light of the Specification, to mean that the device can be rotated about the pitch and yaw axes at the same time.

“continuously” and “continuous rotation”

Independent claim 1 of the ’631 patent recites that the two-axis rotational device is “configured to allow *continuous rotation* through more than 360 degrees of rotation around each said axis of rotation independently and simultaneously.” Ex. 1001, 23:19–22 (emphasis added). Independent claim 9 of the ’631 patent recites each axis of the two-axis rotational device “operating independently and *continuously* from the other axis and configured to allow *continuous rotation* through more than 360 degrees of rotation around each said axis.” Ex. 1001, 24:19–22 (emphases added). Petitioner proposes that the claim recitation “continuous rotation” in claims 1 and 9 “should be interpreted to mean *an unlimited number of rotations with or without stopping.*” Pet. 14–15 (citing Ex. 1001, 5:37–40, 58–60, 6:55–58, 7:13–16, 29–32, 12:1–3) (emphasis added). Petitioner further proposes that the claim recitation “independently and continuously” in claim 9 “should be interpreted to mean that the variables associated with pitch and yaw axes – e.g., acceleration, deceleration, velocity, etc. – can be separately controlled *and the axes can rotate an unlimited number of times.*” Pet. 15–16 (emphasis added).

The ’631 patent describes that “[r]otation around yaw axis 106 can be continuous indefinitely in a single rotational direction, without any limitation on

the rotation characteristics or number of rotations.” Ex. 1001, 5:37–40. The ’631 patent provides a similar description for rotation around pitch axis 104, stating that “[r]otation around pitch axis 104 thus can be continuous in a single rotational direction indefinitely, without any limitation on the number of rotations.” *Id.* at 5:58–60. The ’631 patent further describes that “[t]he system can rotate through all 360 degrees in each axis in a controlled and continuous (i.e.,] unlimited rotations) amount.” *Id.* at 12:1–3. The ’631 patent describes that a dose of vestibular stimulation can include a “number of starts and stops,” thus implying that “continuous” does not mean an indefinite rotation without any stops. *Id.* at 11:50–54.

We interpret the phrase “continuous rotation,” as used in claims 1 and 9, and the term “continuously” as used in claim 9, when read in light of the Specification, which describes continuous rotation as referring to an unlimited number of rotations, to refer to a device that is able to rotate the subject an unlimited number of times through more than 360 degrees around each axis of rotation.

B. Petitioner’s Showing in Petition

A petition for *inter partes* review must “identif[y], in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim.” 35 U.S.C. § 312(a)(3). According to 37 C.F.R. § 42.104(b)(4), a petition for *inter partes* review “must identify how the construed claim is unpatentable under the statutory grounds on which the petitioner challenges the claims, and must specify where each element of the claim is found in the prior art patents or printed publications relied upon.” Similarly, 37 C.F.R. § 42.22(a)(2) states that each petition must include “[a] full statement of the reasons for the relief requested, including a detailed explanation of the significance of the evidence including material facts, and the governing law, rules, and precedent.” The Office Patent

Trial Practice Guide suggests that parties requesting *inter partes* review should “avoid submitting a repository of all the information that a judge could possibly consider, and instead focus on concise, well-organized, easy-to-follow arguments supported by readily identifiable evidence of record.” 77 Fed. Reg. 48,756, 48,763 (Aug. 14, 2012). Petitioner’s brief summary, quotations, citations, and reproduced figures from Okamoto, Epley, and Newman fail to: (1) specify sufficiently where each element of independent claims 1 and 9 are found in the references, and (2) constitute a detailed explanation of the significance of the quotations, citations, and figures from the references to the claimed subject matter.

1. Petitioner’s Reading of “simultaneously” on the Prior Art

With respect to the first asserted ground of unpatentability of claims 1, 2, and 4–11 under 35 U.S.C. § 103(a) as unpatentable over Okamoto and Epley, the Petition does not point to adequate evidence showing where either Okamoto or Epley discloses rotation about each axis simultaneously. Pet. 24 (discussing in section VI.A.1(d) where Epley and Okamoto allegedly disclose independent rotation of the pitch and yaw axes, but failing to discuss rotation “simultaneously” as claimed); *id.* at 25 (in section VI.A.1(g), citing, without further explanation, where Epley and Okamoto allegedly disclose “continuous rotation” for both the pitch and yaw axes but failing to discuss rotation “simultaneously” as claimed). The Petition fails to provide adequate explanation as to where rotation about the pitch and yaw axes “simultaneously” is disclosed in Okamoto or Epley and does not provide adequate analysis showing why rotation “simultaneously” about each axis would have been obvious to one having ordinary skill in the art at the time of the invention in light of the teachings of Okamoto and Epley. *See also* Pet. 18–23 (general discussion of Okamoto and Epley failing to address adequately simultaneous rotation of pitch and yaw axes).

With respect to the third asserted ground of unpatentability of claims 1, 2, and 4–11 under 35 U.S.C. § 103(a) as unpatentable over Epley and Newman, the Petition fails to point to adequate evidence showing where either Epley or Newman discloses rotation about each axis simultaneously. Pet. 40 (discussing in section VI.C.1(d) where Epley and Newman allegedly disclose independent rotation of the pitch and yaw axes, but failing to discuss rotation “simultaneously” as claimed); *id.* (in section VI.C.1(g), citing, without further explanation, where Epley allegedly discloses “continuous rotation” for both the pitch and yaw axes, but failing to discuss rotation “simultaneously” as claimed). The Petition does not provide adequate explanation as to where rotation “simultaneously” about the pitch and yaw axes is disclosed in Epley or Newman and does not provide adequate analysis showing why rotation “simultaneously” about each axis would have been obvious to one having ordinary skill in the art at the time of the invention in light of the teachings of Epley and Newman. *See also* Pet. 35–38 (general discussion of Epley and Newman failing to address simultaneous rotation of pitch and yaw axes).

*2. Petitioner’s Reading of “continuously” and
“continuous rotation” on the Prior Art*

With respect to the first asserted ground of unpatentability of claims 1, 2, and 4–11 under 35 U.S.C. § 103(a) as unpatentable over Okamoto and Epley, in the discussion of Okamoto, the Petitioner asserts that first driving device 28 can “continuously rotate the cockpit 27 360° around the pitch axis Y” and second driving device 30 can “continuously rotate the cockpit 27 360° around the yaw axis Z.” Pet. 18 (citing Ex. 1002, 10:10–11:14, 12:13–24, 13:7–8; Figs. 1 and 3–4); *id.* at 25, 29 (citing Ex. 1002, 13:7–9).

Okamoto discloses that “ θ_z and θ_y [the angles of rotation about the pitch axis and yaw axis, respectively] are possible for continuous rotation; in general,

when used within $\pm 180^\circ$, the necessary movement can be sufficiently obtained, and high-speed movement is possible.” Ex. 1002, 13:7–9. Without more explanation in the Petition of the understanding of one of ordinary skill in the art as to this cited disclosure in Okamoto, the bare reference in Okamoto to “continuous rotation” is not sufficient evidence of the ability of Okamoto’s system to rotate a subject an unlimited number of times through more than 360 degrees of rotation around each axis. Further, Okamoto describes, in the same sentence, that rotation within $\pm 180^\circ$ provides sufficient movement. This implies that a single rotation might be sufficient in the system of Okamoto. We reviewed the other cited passages of Okamoto relied on in the Petition, and did not find adequate disclosure of a device that is configured to allow an unlimited number of rotations or rotation through more than 360°. *Id.* at 10:10–11:14, 12:13–24.

In the discussion of Epley, the Petitioner asserts that “[t]he maneuvering device 18 can ‘take any one of a number of different forms’ including a two-axis device capable of continuously rotating a subject through 360° around each axis.” Pet. 19 (citing Ex. 1003, 9:59–62, 6:66–7:7, 10:20–31); *id.* at 25, 29 (citing Ex. 1003, 7:1–3, 8:30–37). Epley discloses that “for optimum positional testing and particular repositioning strategy, it would be very advantageous to have an automated system capable of positioning subjects through 360° in all three degrees of angular freedom (pitch, roll and yaw).” Ex. 1003, 6:66–7:3. Epley further discloses that “a subject can be positioned through 360-degrees in any angle of the roll, yaw or pitch planes of the subject relative to the linear track and the direction of oscillation, thus providing a manner to test the otolithic organ through any plane of its functionality.” *Id.* at 8:32–37.

Although these cited passages of Epley disclose the ability of the system to allow for rotation of a subject through 360° of rotation in any plane, it is not adequate evidence of the ability of Epley’s system to rotate the subject an

unlimited number of times through more than 360 degrees of rotation around each axis. We reviewed the other cited passages of Epley relied on in the Petition, and did not find adequate disclosure of an unlimited number of rotations or rotation through more than 360°. Ex. 1003, 9:59–62, 10:20–31.

With respect to the third asserted ground of unpatentability of claims 1, 2, and 4–11 under 35 U.S.C. § 103(a) as unpatentable over Epley and Newman, the Petitioner makes no assertion that Newman discloses continuous rotation through more than 360° around each axis of rotation. Pet. 35–38, 43–45. As to Epley, the Petitioner makes the same assertions as to the disclosure of Epley as relied on in the first asserted ground. *Id.* at 35, 40, 44. For the reasons provided above in the analysis of the first asserted ground, we do not find sufficient evidence presented in the petition of a disclosure in Epley of a device capable of an unlimited number of rotations through more than 360°.

The remaining challenges, asserting unpatentability of dependent claims 2, 4–8, 10, and 11 under the first and third asserted grounds and asserting unpatentability of dependent claim 3 under the second and fourth asserted grounds, are based on the same inadequate showings as to the unpatentability of independent claims 1 and 9 over the disclosures of Okamoto, Epley, and Newman discussed above.

III. CONCLUSION

On the record before us, Petitioner has not demonstrated a reasonable likelihood of prevailing on the assertions that the combined teachings of Okamoto and Epley and the combined teachings of Epley and Newman render unpatentable claims 1, 2, and 4–11 and that the combined teachings of Okamoto, Epley, and Graybiel and the combined teachings of Epley, Newman, and Graybiel render unpatentable claim 3.

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IV. ORDER

In view of the foregoing, it is hereby:

ORDERED that no *inter partes* review of the '631 patent is instituted and that all grounds set forth in the Petition challenging the '631 patent are *denied*.

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