

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

LOGANTREE, LP,
Patent Owner.

IPR2022-00037
Patent 6,059,576 C1

Before PATRICK R. SCANLON, MITCHELL G. WEATHERLY, and
JAMES A. WORTH, *Administrative Patent Judges*.

SCANLON, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Apple Inc. (“Petitioner”) filed a Petition (Paper 3, “Pet.”) requesting an *inter partes* review of claims 1–5, 8–11, 20, 25, 30–32, 36, 39–42, 45–51, 61–65, 144, and 147 of U.S. Patent No. 6,059,576 C1 (Ex. 1001, “the ’576 patent”). LoganTree, LP (“Patent Owner”) did not file a Preliminary Response.

We have authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2020). To institute an *inter partes* review, we must determine that the information presented in the Petition shows “a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). For the reasons set forth below, we determine that the information presented in the Petition establishes a reasonable likelihood that Petitioner will prevail with respect to at least one challenged claim. Accordingly, we institute an *inter partes* review of claims 1–5, 8–11, 20, 25, 30–32, 36, 39–42, 45–51, 61–65, 144, and 147 based on the grounds set forth in the Petition.

II. BACKGROUND

A. Real Parties in Interest

Petitioner identifies itself as the real party in interest. Pet. 112. Patent Owner identifies itself as the real party in interest. Paper 8, 1.

B. Related Matters

The parties identify the following proceedings as related matters involving the ’576 patent: *LoganTree LP v. Apple, Inc.*, Case No. 6:21-cv-

00397 (W.D. Tex.);¹ *LoganTree LP v. LG Electronics, Inc.*, Case No. 4:21-cv-00332 (E.D. Tex.); *LoganTree LP v. Huawei Technologies USA Inc.*, Case No. 4:21-cv-00119 (E.D. Tex.); and *LoganTree LP v. Fossil Group*, Case No. 1:21-cv-00385 (D. Del.). Pet. 112–113 (citing Exs. 1031–1037); Paper 8, 2.

In addition, Petitioner states that it has filed another petition for *inter partes* review of the '576 patent, IPR2022-00040. Pet. 113. Petitioner states that two other *inter partes* review proceedings challenging the '576 patent (IPR2017-00256 and IPR2017-00258) terminated after the filing of a petition but before any decision on institution, and final written decisions were entered in two more *inter partes* review proceedings challenging the '576 patent (IPR2018-00564 and IPR2018-00565). *Id.* Patent Owner also identifies these proceedings. Paper 8, 3.

C. The '576 Patent²

The '576 patent is titled “Training and Safety Device, System and Method to Aid in Proper Movement During Physical Activity” and relates to “the field of electronic training and safety devices used to monitor human physical activity.” Ex. 1001, code (54), 1:6–7. More specifically, the '576 patent discloses a method that detects, measures, records, and/or analyzes the time, date, and other data associated with movement of the device and

¹ This proceeding was transferred from the Western District of Texas to the Northern District of California on May 16, 2022, and is now styled *LoganTree LP v. Apple, Inc.*, Case No. 5:22-cv-02892 (N.D. Cal.). Paper 6, 2.

² An *ex parte* reexamination certificate issued on March 17, 2015, with all claims either amended from their original form or newly added during reexamination. Ex. 1001, code (45) C1, cols. 1–12 C1.

produces meaningful feedback regarding the measured movement. *See id.* at 1:8–11.

The '576 patent discloses that certain prior art devices recorded the number of times that a predetermined angle was exceeded but were not convenient to operate and served to report rather than analyze the information. *See id.* at 1:45–54. The '576 patent discloses that it is also important to measure angular velocity to monitor and analyze improper movement. *Id.* at 1:55–67.

The '576 patent discloses an electronic device that tracks and monitors an individual's motion through the use of a movement sensor capable of measuring data associated with the wearer's movement. *Id.* at 2:10–13. The device of the '576 patent also employs a user-programmable microprocessor, which receives, interprets, stores and responds to the movement data based on customizable operation parameters; a clock connected to the microprocessor; memory for storing the movement and analysis data; a power source; a port for downloading the data from the device to other computation or storage devices contained within the system; and various input and output components. *Id.* at 2:13–21.

Figure 4 of the '576 patent is a block diagram of the movement measuring device (*id.* at 3:11–12):

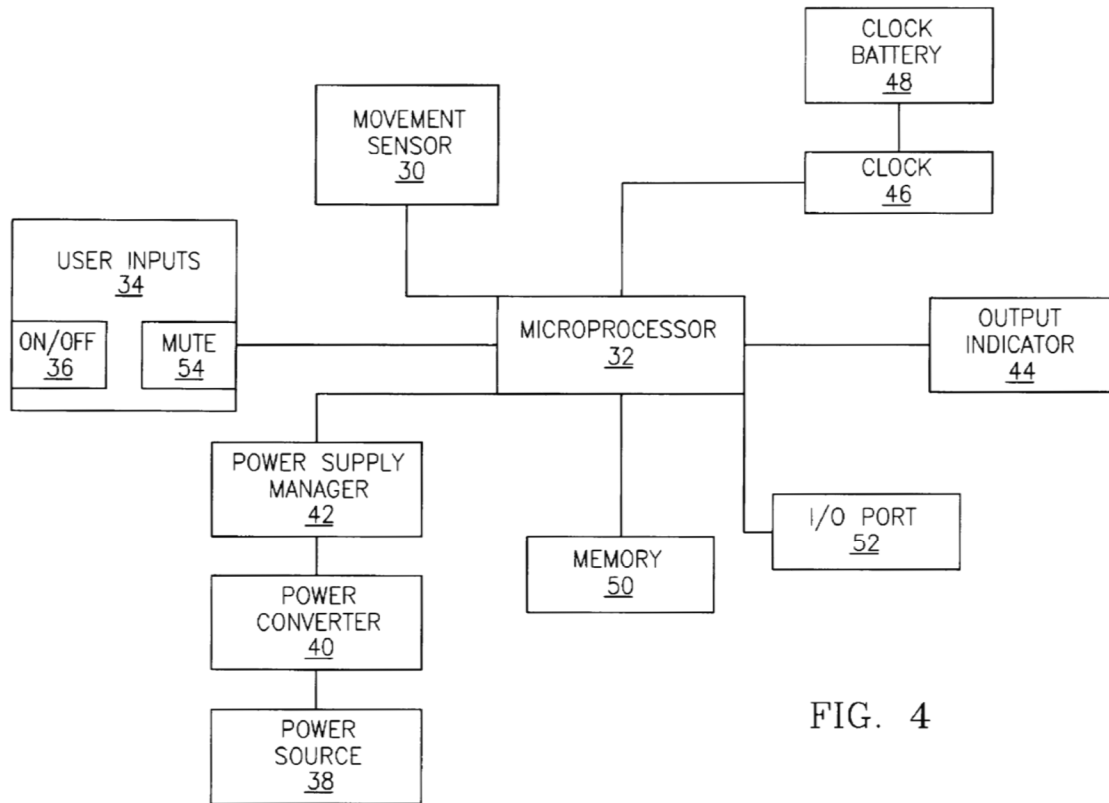


FIG. 4

Figure 4 depicts a block diagram of the components of the device.

The self-contained device can be worn at various positions along the torso or appendages being monitored depending on the specific physical task being performed. *Id.* at 2:21–24. The device also monitors the speed of the movements made while the device is being worn. *Id.* at 2:24–25. When a pre-programmed event is recognized, the device records the time and date of the event while providing feedback to the wearer via visual, audible and/or tactile warnings. *Id.* at 2:25–29. Periodically, data from the device may be downloaded into an associated computer program, which analyzes the data. *Id.* at 2:29–31. The program can then format various reports to aid in recognizing and correcting trends in incorrect physical movement. *Id.* at 2:31–33.

D. Challenged Claims

As noted above, Petitioner challenges claims 1–5, 8–11, 20, 25, 30–32, 36, 39–42, 45–51, 61–65, 144, and 147. Of these claims, claims 1 and 20 are independent. Claim 1, as amended in the reexamination proceeding, is illustrative of the subject matter and reads as follows:

1. A portable, self-contained device for monitoring movement of body parts during physical activity, said device comprising:
 - a movement sensor capable of measuring data associated with unrestrained movement in any direction and generating signals indicative of said movement;
 - a power source;
 - a microprocessor connected to said movement sensor and to said power source, said microprocessor capable of receiving, interpreting, storing and responding to said movement data based on user-defined operational parameters, detecting a first user-defined event based on the movement data and at least one of the user-defined operational parameters regarding the movement data, and storing first event information related to the detected first user-defined event along with first time stamp information reflecting a time at which the movement data causing the first user-defined event occurred;
 - at least one user input connected to said microprocessor for controlling the operation of said device;
 - a real-time clock connected to said microprocessor;
 - memory for storing said movement data; and
 - an output indicator connected to said microprocessor for signaling the occurrence of user-defined events;
- wherein said movement sensor measures the angle and velocity of said movement.

Ex. 1001, 1:25–50 C1 (emphasis omitted).

E. Asserted Grounds of Unpatentability

Petitioner contends that the challenged claims would have been unpatentable on the following grounds:³

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 3–5, 8, 10, 20, 25, 30, 39, 41, 42, 61–65	103(a)	Ono, ⁴ Hutchings ⁵
1, 3–5, 8–11, 20, 25, 30, 36, 39–42, 61–65	103(a)	Ono, Hutchings, Amano ⁶
1–5, 8, 10, 20, 25, 30, 31, 39, 41, 42, 45–47, 49, 61–65	103(a)	Ono, Hutchings, Conlan ⁷
48, 50, 51	103(a)	Ono, Hutchings, Conlan, Hickman ⁸
1, 3–5, 8, 10, 20, 25, 30, 39, 41, 42, 61–65, 144, 147	103(a)	Ono, Hutchings, Kaufman ⁹
1–5, 8–11, 20, 25, 30–32, 36, 39–42, 45–47, 49, 61–65, 144, 147	103(a)	Ono, Hutchings, Amano, Conlan, Kaufman
48, 50, 51	103(a)	Ono, Hutchings, Amano, Conlan, Kaufman, Hickman
1–5, 8–11, 20, 25, 30, 31, 36, 39–42, 45–47, 49, 61–65	103(a)	Ono, Hutchings, Amano, Conlan
48, 50, 51	103(a)	Ono, Hutchings, Amano, Conlan, Hickman
1, 3–5, 8–11, 20, 25, 30, 36, 39–42, 61–65, 144, 147	103(a)	Ono, Hutchings, Amano, Kaufman

³ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. § 103. Because the ’576 patent has an effective filing date before the effective date of the applicable AIA amendments, we apply the pre-AIA version of 35 U.S.C. § 103.

⁴ US 4,962,469, issued Oct. 9, 1990 (Ex. 1101).

⁵ US 5,899,963, issued May 4, 1999 (Ex. 1102).

⁶ US 5,941,837, issued Aug. 24, 1999 (Ex. 1103).

⁷ US 5,573,013, issued Nov. 12, 1996 (Ex. 1010).

⁸ US 6,059,692, issued May 9, 2000 (Ex. 1104).

⁹ US 5,857,939, issued Jan. 12, 1999 (Ex. 1105).

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–5, 8, 10, 20, 25, 30, 31, 39, 41, 42, 45–47, 49, 61–65, 144, 147	103(a)	Ono, Hutchings, Conlan, Kaufman
48, 50, 51	103(a)	Ono, Hutchings, Conlan, Kaufman, Hickman

Pet. 13–14. Petitioner supports its challenge with the Declaration of Dr. Thomas W. Kenny (Ex. 1100).

III. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner contends that a person having ordinary skill in the art would have had a Bachelor of Science degree in an academic discipline emphasizing the design of electrical, computer, or software technologies, in combination with training or at least one to two years of related work experience with capture and processing of data or information, including but not limited to physical activity monitoring technologies. Alternatively, the person could have also had a Master of Science degree in a relevant academic discipline with less than a year of related work experience in the same discipline.

Pet. 15–16 (citing Ex. 1100 ¶ 22).

Based on our review of the record before us, we determine that Petitioner’s stated level of ordinary skill in the art is reasonable because it appears consistent with the evidence of record, including the asserted prior art. Accordingly, for the purposes of this Decision, we adopt Petitioner’s definition.

B. Claim Construction

In *inter partes* reviews, the Board interprets claim language using the district-court-type standard, as described in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). See 37 C.F.R. § 42.100(b) (2021). Under that standard, we generally give claim terms their ordinary and customary

meaning, as would be understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1313–14. Although extrinsic evidence, when available, may also be useful when construing claim terms under this standard, extrinsic evidence should be considered in the context of the intrinsic evidence. *See id.* at 1317–19.

Petitioner proposes a claim construction for the term “movement sensor.” Pet. 17–18. On the present record, we do not discern a need to construe explicitly any claim language because doing so would have no effect on our analyses below of Petitioner’s asserted grounds and will not assist in resolving the present controversy between the parties. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms that . . . are in controversy, and only to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

The parties are hereby given notice that claim construction, in general, is an issue to be addressed at trial and claim constructions expressly or implicitly addressed in this Decision are preliminary in nature. Claim construction will be determined at the close of all the evidence and after any hearing. The parties are expected to assert all of their claim construction arguments and evidence in the Petition, Patent Owner’s Response, Petitioner’s Reply, Patent Owner’s Sur-reply, or otherwise during trial, as permitted by our rules.

C. Board Discretion

Petitioner argues that the Board should not exercise its discretion to deny institution in accordance with *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 6 (PTAB Mar. 20, 2020) (precedential). Pet. 106–112.

In addition, Petitioner filed a paper ranking the two petitions it filed challenging the '576 patent and explaining the material differences between the petitions. Paper 2. Patent Owner did not file a Preliminary Response, and, accordingly, we do not address Petitioner's arguments on these issues.

D. Asserted Obviousness Based on Ono and Hutchings

Petitioner asserts that claims 1, 3–5, 8, 10, 20, 25, 30, 39, 41, 42, and 61–65 of the '576 patent are unpatentable under 35 U.S.C. § 103(a) based on Ono and Hutchings. Pet. 18–78. Petitioner relies on the declaration of Dr. Thomas W. Kenny. Ex. 1100. We first summarize the references and then address Petitioner's contentions. We emphasize that the following determinations regarding the sufficiency of the Petition are preliminary in nature at this stage of the proceeding.

1. Ono

Ono "relates to an exercise measuring instrument in which exercise in walking, jogging, running, and the like is measured utilizing an acceleration sensor." Ex. 1101, 1:5–8. Ono's exercise measuring instrument can be an electronic wrist watch having a mode-selecting switch, a stride-length selecting switch, and an accelerometer sensor. *Id.* at 3:10–19, Fig. 1. We reproduce Figure 14 below.

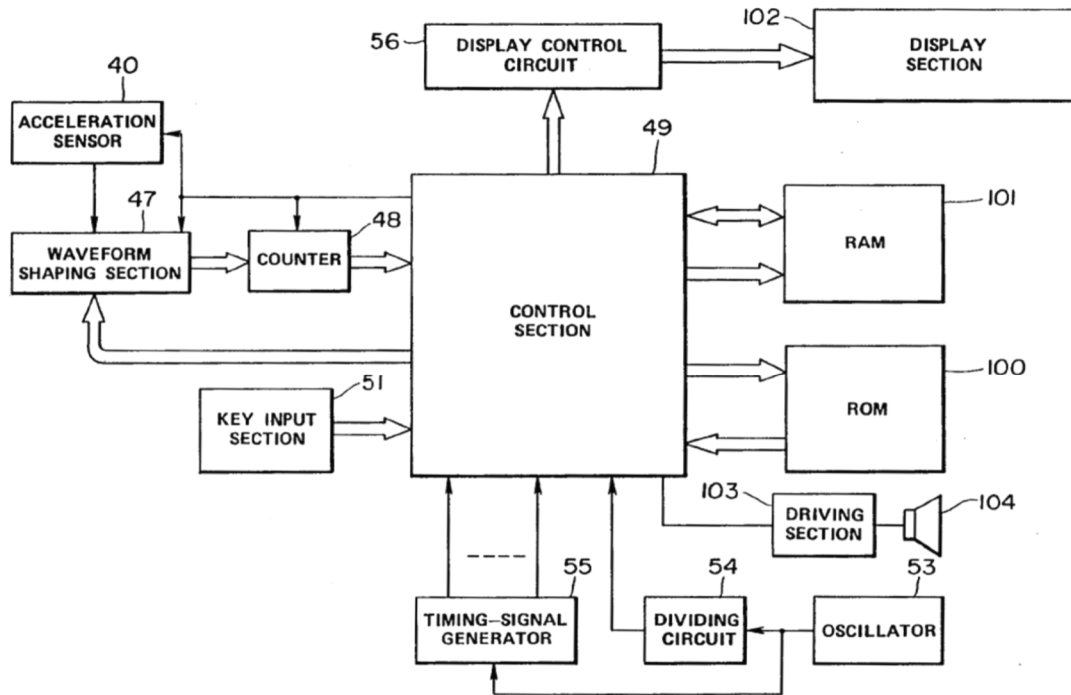


FIG. 14

Figure 14 is a block diagram depicting the components of an embodiment of the exercise measuring instrument. *Id.* at 2:59–60, 13:18–19. An output signal from acceleration sensor 40 is applied to waveform-shaping section 47, which shapes the output signal into a pulse signal. *Id.* at 8:60–65. The pulse signal is counted by counter 48, and the resulting count data is supplied to control section 49. *Id.* at 8:65–67. When a user inputs a system-start signal via key-input section 51, control section 49 calculates the number of steps based on the count data and also calculates the distance walked based on the number of steps and the stride-length data. *Id.* at 9:2–11. Control section 49 sends the calculated data to display section 102 through display control circuit 56. *Id.* at 9:12–14, 13:19–22.

Oscillator circuit 53 delivers a reference signal to dividing circuit 54 and timing-signal generating circuit 55. *Id.* at 9:16–18. Dividing circuit 54 divides the reference signal and outputs a one-Hertz signal to control

section 49, which processes the signal to obtain time data such as “present-time data comprising minute-data, hour-data, date-data and month-data.” *Id.* at 9:18–29.

The instrument also includes RAM 101, which includes time-counting register T for storing the present-time data. *Id.* at 13:30–33, Fig. 15. In addition, RAM 101 includes registers for storing measurement time, stride lengths for the walking, exercise- walking, and jogging modes, target number of steps, target distance, target calorie consumption, sex, weight, age, walking speeds, walking pitches, accumulative number of steps taken, accumulative distance walked, and accumulative calories consumed. *Id.* at 13:49–14:5, Fig. 15.

Ono discloses alarm-driving section 103 for generating an alarm and speaker 104. *Id.* at 13:23–25. For instance, and alarm sound is generated if the distance walked reaches the target distance or the accumulative number of steps reaches a target number. *Id.* at 16:2–4; 16:11–13.

2. *Hutchings*

Hutchings relates to measuring instruments generally and more specifically to “a system and method for determining the speed, distance and height traversed by a person or an object while in motion.” Ex. 1102, 1:15–18. We reproduce Figure 6 below.

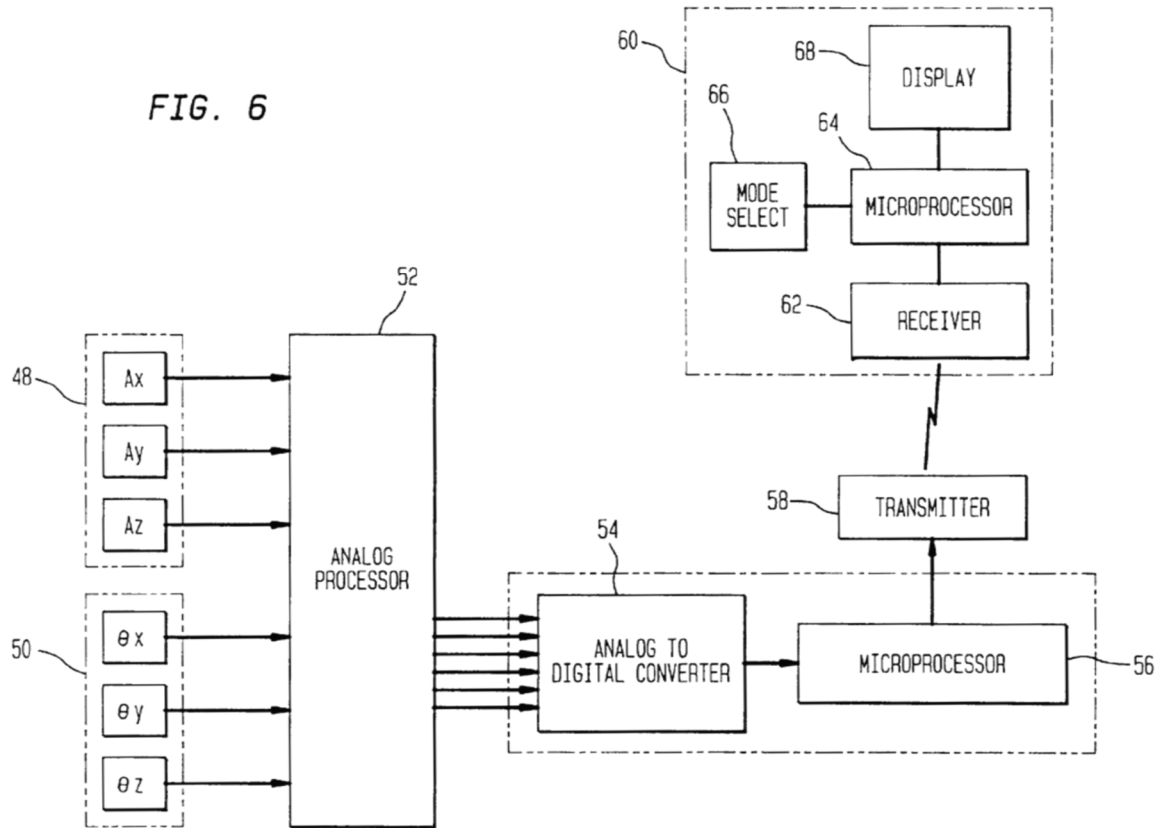


Figure 6 is a block diagram depicting the components of a measuring instrument. *Id.* at 4:4–6, 8:44–45. The system includes unit 48 comprising linear accelerometers that measure accelerations Ax, Ay, and Az in three dimensions and unit 50 comprising rotational sensors that measure θ_x , θ_y , and θ_z signals to thus provide the angle of rotation along each axis of the translational coordinate. *Id.* at 8:49–59.

The outputs of unit 48 and unit 50 are coupled to processor 52, which determines the components of motion in the reference frame in accordance with equations 3–5 and 9–10. *Id.* at 7:13–15, 7:64–65, 8:59–62.

Microprocessor 56 measures the distance traversed during each step and the maximum height jumped during the step. *Id.* at 9:13–15. This data can be transmitted by transmitter 58 to remote receiver unit 60. *Id.* at 9:21–24.

Remote receiver unit 60, which may be located in a user's wrist watch,

contains receiver 62, microprocessor 64, mode select switch 66, and display 68. *Id.* at 9:30–32.

3. Independent Claim 1

- a) *“A portable, self-contained device for monitoring movement of body parts during physical activity, said device comprising:”*

Petitioner contends that Ono discloses a portable, self-contained device that monitors movement of body parts during physical activities such as walking, jogging, and running. Pet. 27 (citing Ex. 1101, 1:5–10, 2:22–32, 3:10–26, Fig. 1; Ex. 1100 ¶ 66). At this stage of the proceeding, and without determining whether the preamble is limiting, we are persuaded that Petitioner has made an adequate showing that Ono discloses a portable, self-contained device for monitoring movement of body parts during physical activity.

- b) *“a movement sensor capable of measuring data associated with unrestrained movement in any direction and generating signals indicative of said movement”*

Petitioner asserts that Ono discloses an acceleration sensor that outputs a waveform signal in response to movements by an exerciser. Pet. 28 (citing Ex. 1101, 2:1–7, 3:10–4:13, 5:64–6:1, 6:41–48, 7:20–27, 7:61–68, 8:16–42, 8: 58–60, 13:18–29). Petitioner further asserts that the output signal from Ono’s acceleration sensor 40 is applied to waveform-shaping section 47 that shapes the output signal into a pulse signal that is counted by counter 48, whereby control section 49 calculates a number of steps based on the count data. *Id.* (citing Ex. 1101, 8:60–67, 9:5–7). Thus, according to Petitioner, “Ono’s acceleration sensor 40, waveform-shaping section 47, and counter 48 form a movement sensor that measures data and generates signals indicative of movement.” *Id.* (citing Ex. 1100 ¶ 67).

In the event that Ono's movement sensor is deemed to not be "capable of measuring data associated with unrestrained movement in any direction," Petitioner also argues that the combination of Ono and Hutchings provides a movement sensor that "measures unrestrained movement in any direction through accelerometers that measure accelerations in three dimensions, and rotational sensors that provide the angle of rotation along each axis of the translational coordinate." *Id.* at 28–29 (citing Ex. 1102, 2:45–61, 3:22–26, 4:44–6:54, 8:44–59, 9:59–10:2, Fig. 6; Ex. 1101, 13:40–42, 18:28–19:6; Ex. 1100 ¶¶ 68–70).

Regarding this combination, Petitioner argues that it would have been obvious to one of ordinary skill in the art "to implement Ono's device, as suggested by Hutchings, with accelerometers to measure accelerations in three dimensions, rotational sensors to provide the angle of rotation along each axis of the translational coordinate." *Id.* at 24 (citing Ex. 1102, 4:21–32, 4:55–65, 5:3–16, 8:44–9:17, 9:48–12:37, Figs. 6–7; Ex. 1100 ¶¶ 62–65). Petitioner also articulates reasons, supported with the testimony of Dr. Kenny, to combine the relied-upon aspects of the references with a reasonable expectation of success. *Id.* at 25–26 (citing Ex. 1102, 2:15–31, 2:45–61, 1:60–64, 3:32–44, 4:7–26, 9:48–10:18, 10:43–51, Figs. 7–9; Ex. 1101, 13:40–42, 18:28–19:6; Ex. 1100 ¶¶ 63–64). At this stage of the proceeding, we are persuaded that Petitioner's rationale and evidence are sufficient to show that a person of ordinary skill in the art would have combined Ono and Hutchings in the manner proposed.

Furthermore, we are persuaded on this record that Petitioner has made an adequate showing that the combination of Ono and Hutchings discloses the claimed movement sensor. In particular, Hutchings discloses unit 48 having three accelerometers that measure accelerations in three dimensions

and unit 50 having three rotational sensors that measure the angle of rotation along the three coordinate axes. Ex. 1102, 8:49–59, Fig. 6. We are persuaded at this stage of the proceeding that this arrangement would have been capable of measuring data associated with unrestrained movement in any direction.

c) “a power source”

Petitioner contends that Ono’s device includes battery 9. Pet. 30–31 (citing Ex. 1101, 3:24–26, Figs. 1, 9; Ex. 1100 ¶ 72). On the current record, we are persuaded by Petitioner’s contention that Ono’s battery 9 is a power source.

d) “a microprocessor connected to said movement sensor and to said power source”

Petitioner asserts that Ono discloses control section 49 that comprises a CPU and one of ordinary skill in the art would have understood that the term “control section” was used in Ono “to describe a conventional microprocessor structure that was ubiquitous in such devices at the time.” Pet. 31–32 (citing Ex. 1100 ¶ 74; Ex. 1101, 8:60–9:12, 13:22–23). On this record, we are persuaded by Petitioner’s argument. Dr. Kenny testifies that this assertion “is confirmed by Ono’s disclosure that the control section 49 must read out a micro-programme stored in the ROM and execute processes in accordance with the micro-programme.” Ex. 1100 ¶ 74 (citing Ex. 1101, 8:60–9:12, 13:22–23). Dr. Kenny also testifies that:

Based upon my knowledge and experience in this field and my review of these above-cited characteristics taught by Ono, a [person having ordinary skill in the art] would have understood that Ono referred to the control section in the device in a manner that was interchangeable with the conventional microprocessor-controlled structure used in such devices—a typical usage at the time as corroborated by other publications.

Id. (citing Ex. 1010, 6:54–63, Fig. 6; Ex. 1102, 4:21–32; Ex. 1107, 16:35–38, Fig. 9; Ex. 1108, Fig. 6; Ex. 1109, Fig. 3, 8:35–9:44; Ex. 1110, Fig. 1, 7:33–36, 8:39–40; Ex. 1111, 12:13–21, Figs. 11, 17). At this stage of the proceeding, we credit Dr. Kenny’s uncontroverted testimony on this point, which we find well-reasoned and supported by evidence.

Alternatively, Petitioner argues that Hutchings discloses a microprocessor that is interrelated with the linear accelerometers, the rotational sensors, and a battery. *Id.* at 32 (citing Ex. 1102, 4:21–32, 10:10–18, 10:28–30; Ex. 1100 ¶¶ 75–76).

At this stage of the proceeding, we are persuaded that Petitioner has made an adequate showing for this limitation.

- e) *“said microprocessor capable of receiving, interpreting, storing and responding to said movement data based on user-defined operational parameters”*

Petitioner asserts that Ono discloses key-input section 51 comprising various switches that allow a user to select one of five display modes and one of three exercising modes. Pet. 34–35 (citing Ex. 1101, 13:25–27, 13:34–42, 13:51–57, 16:18–17:23, 18:14–19, 18:67–19:6, 19:18–67, Figs. 20–21). According to Petitioner, these switches allow the user to start and stop a step-counting operation, set a stride length for each of the three exercising modes, sex, age, weight, and target numbers, and set target steps, calorie consumption, and distance. *Id.* at 35 (citing Ex. 1101, 13:40–42, 13:55–61, 15:61–16:4, 17:24–50, 18:28–19:17, 20:8–15, Figs. 20–21; Ex. 1100 ¶ 78). In addition, Petitioner contends that “[t]he modes, the step-counting start/stop, the stride lengths, the target distance, and the target number of steps set by the user are user-defined operational parameters that affect the operations performed by the device.” *Id.* at 39 (citing Ex. 1101,

13:44–61, 14:65–16:27; Ex. 1001, 7:6–16, 8:56–10:23, Fig. 5; Ex. 1100 ¶ 81).

Petitioner also asserts that Ono discloses RAM 101 having registers that store various exercise data. *Id.* at 35–36 (citing Ex. 1101, 13:30–42, 13:44–45, 13:51–61, Fig. 15; Ex. 1100 ¶ 79), 39 (citing Ex. 1101, 13:65–14:29, 16:24–25, 17:19–50, 18:20–24, 20:37–53, Figs. 15, 20, 23). Petitioner contends that “[t]he number of steps taken in the last 10 seconds, mean walking speed, steps/minute, distance-walked, and accumulative number of steps taken collectively form movement data that the microprocessor receives, interprets, stores, and responds to.” *Id.* at 38 (citing Ex. 1101, 8:57–9:14, 13:18–29, 13:44–45, 14:65–16:27, Fig. 18; Ex. 1100 ¶ 80).

Furthermore, Petitioner argues that Hutchings similarly discloses allowing a user to select a run mode that is a user-defined operational parameter and in which microprocessor 64 receives signals from the measuring system and calculates the total distance traveled, speed, and the velocity of travel for storage in a non-volatile memory. *Id.* at 40–42 (citing Ex. 1102, 4:60–65, 5:9–12, 7:5–65, 8:59–64, 9:13–17, 9:48–10:30, 10:43–12:38; Ex. 1100 ¶¶ 82–84).

On this record, we are persuaded that Petitioner has made an adequate showing. In particular, Ono discloses that control section 49 receives count data from counter 48 and calculates the number of steps based on the count data or the distance walked based on the count data and the previously stored stride-length data. Ex. 1101, 8:65–9:12; *see also id.* at 13:27–29 (stating that the third embodiment of Figure 14 is substantially similar to the second embodiment). Ono also discloses storing movement data. *Id.* at 13:30–68, 14:6–29. In addition, we agree with Petitioner that Ono’s disclosure of

allowing the user to set stride length and target numbers provides user-defined operational parameters. *See* Pet. 39.

f) *“detecting a first user-defined event based on the movement data and at least one of the user-defined operational parameters regarding the movement data”*

Petitioner contends that Ono discloses detecting a user-defined event such as the accumulative number of steps reaching the target number, which is based on the number of steps movement data, or the distance walked reaching the target distance, which is based on the total distance traveled. Pet. 45–47 (citing Ex. 1100 ¶¶ 88–90; Ex. 1101, 13:40–42, 13:51–61, 15:47–16:13, 18:28–19:17, 20:8–15, Figs. 18, 20–21).

At this stage of the proceeding, we are persuaded by Petitioner’s contention that Ono discloses detecting a user-defined event based on movement data (e.g., the accumulative number of steps or the total distance traveled) and the user-defined operational parameters. *See* Ex. 1101, 13:40–42, 13:51–61, 15:47–16:13, 18:28–19:17, 20:8–15, Figs. 18, 20–21.

g) *“storing first event information related to the detected first user-defined event along with first time stamp information reflecting a time at which the movement data causing the first user-defined event occurred”*

Petitioner asserts that Ono discloses storing “the user-defined operational parameters and the movement data used to detect the user-defined event, both of which are event information related to the detected user-defined event.” Pet. 50 (citing Ex. 1101, 13:44–14:15, 14:65–16:27; Ex. 1100 ¶ 93). Petitioner also asserts that Ono discloses storing time stamp information with the event information. *Id.* Specifically, Petitioner argues that Ono discloses that its memory includes a time-counting register for storing the present-time data and a time-counting process in connection with the detection user-defined events. *Id.* at 50–51 (citing Ex. 1101, 12:10–12,

13:31–33, 15:1–5, Fig. 18). Thus, according to Petitioner, “Ono determines and stores the present time data at which the movement data causing the user-defined event occurred.” *Id.* at 51 (citing Ex. 1100 ¶ 94). Petitioner also points to Ono’s Figure 15 as showing that Ono stores “the event information related to the detected user-defined event along with the present time data at which the movement data causing the user-defined event occurred.” *Id.* at 52–53 (citing Ex. 1101, 13:44–14:15, 14:65–16:27; Ex. 1100 ¶ 95).

We have reviewed these aspects of Petitioner’s contentions and determine that the Petition makes a sufficient showing, at this stage of the proceeding, that Ono discloses this limitation.

h) “at least one user input connected to said microprocessor for controlling the operation of said device”

For this limitation, Petitioner points to Ono’s key input section 51 as being connected to the microprocessor to control operation of the device. Pet. 57–58 (citing *id.* at 33–44; Ex. 1100 ¶ 99). At this stage of the proceeding, Petitioner has made an adequate showing that Ono’s key input section 51 is a user input connected to the microprocessor for controlling the operation of the device for the reasons discussed above. *See supra* § III.D.3.e.

i) “a real-time clock connected to said microprocessor”

Petitioner contends that “Ono describes a dividing circuit 54 that provides a signal to the processor for obtaining ‘time-data, i.e., the present-time data comprising minute-data, hour-data, date-data and month-data’; the processor stores the time-data at a register of RAM.” Pet. 58 (citing Ex. 1101, 9:14–31). Relying on the testimony of Dr. Kenny, Petitioner then contends that it would have been one of ordinary skill in the art to

implement the Ono-Hutchings combination such that dividing circuit 54 provides its signal to a discrete, external real-time clock to obtain present-time data (i.e., minute-data, hour-data, date-data, and month-data), which is provided to the microprocessor. *Id.* at 58–59 (citing Ex. 1100 ¶¶ 100–102). Petitioner asserts that one of ordinary skill in the art “would have been motivated to use a real-time clock to provide the current clock time to the microprocessor, to advantageously reduce the calculations performed by the microprocessor, and conserve system power when there are no processing tasks for the microprocessor.” *Id.* at 59 (citing Ex. 1100 ¶¶ 100–102).

We have reviewed these aspects of Petitioner’s contentions and determine that the Petition makes a sufficient showing, at this stage of the proceeding, that the combination of Ono and Hutchings discloses this limitation.

j) “*memory for storing said movement data*”

For this limitation, Petitioner asserts that Ono’s RAM 101 is a memory that stores movement data such as walking speeds, walking pitches, accumulative number of steps taken, and distance walked. Pet. 59–61 (citing Ex. 1101, 13:18–20, 13:30–31, 13:65–14:20, 14:65–16:27, 20:37–53, Figs. 15, 18; Pet. 33–44, 47–57; Ex. 1100 ¶ 103).

On the current record, we are persuaded that Petitioner has made an adequate showing that Ono discloses a memory that stores movement data for the reasons discussed above. *See supra* § III.D.3.e.

k) “*an output indicator connected to said microprocessor for signaling the occurrence of user-defined events*”

Petitioner argues that Ono-Hutchings’ microprocessor causes an alarm sound to be generated in response to the occurrence of a user-defined event, such as the distanced walked reaching the target distance or the

accumulative number of steps reaching the target number. Pet. 61 (citing Ex. 1101, 14:65–16:27, Fig. 18; Ex. 1102, 9:49–67, 10:14–18; Pet. 33–47; Ex. 1100 ¶ 104). Petitioner further argues that Ono discloses alarm-driving section 103 for generating an alarm and speaker 104. *Id.* (citing Ex. 1101, 13:23–25).

We have reviewed these aspects of Petitioner’s contentions and determine that the Petition makes a sufficient showing, at this stage of the proceeding, that the combination of Ono and Hutchings discloses this limitation.

l) “wherein said movement sensor measures the angle and velocity of said movement”

Petitioner contends that Hutchings discloses calculating velocity from the measured acceleration signals. Pet. 63–64 (citing Ex. 1102, 10:67–11:3, 12:15–38; Ex. 1100 ¶ 106). Petitioner also contends that Hutchings discloses using velocity sensors instead of accelerometers. *Id.* at 64 (citing Ex. 1102, 12:58–63; Ex. 1100 ¶ 107).

We have reviewed these aspects of Petitioner’s contentions and determine that the Petition makes a sufficient showing, at this stage of the proceeding, that the combination of Ono and Hutchings discloses this limitation.

m) Conclusion

For the above reasons, we determine, based on the current record, that the Petition shows a reasonable likelihood that Petitioner would prevail in demonstrating that claim 1 is unpatentable over Ono and Hutchings.

4. Independent Claim 20

Independent claim 20 recites a method to monitor physical movement of a body part having similar limitations as the device claim of claim 1.

Compare Ex. 1001, 1:25–50 C1, *with id.* at 2:23–42 C1. For its analysis of claim 20, Petitioner primarily refers back to its analysis of claim 1.

Pet. 70–73.

Accordingly, at this stage of the proceeding, we determine that the Petition shows a reasonable likelihood that Petitioner would prevail in demonstrating that claim 20 is unpatentable over Ono and Hutchings for the reasons discussed above in connection with claim 1.

5. Dependent Claims 3–5, 8, 10, 25, 30, 39, 41, 42, and 61–65

Claims 3–5, 8, 10, 30, 39, 41, 42, and 61–65 depend from claim 1, and claim 25 depends from claim 20. Petitioner provides reasonable and detailed explanations, supported by the testimony of Dr. Kenny, indicating where in the references the limitations of claims 3–5, 8, 10, 25, 30, 39, 41, 42, and 61–65 are disclosed. Pet. 65–70, 73–78.

Based on our review of the Petition, we determine that the information presented in the Petition establishes that there is a reasonable likelihood that Petitioner would prevail in its assertion that claims 3–5, 8, 10, 25, 30, 39, 41, 42, and 61–65 are unpatentable over Ono and Hutchings.

E. Remaining Grounds

Petitioner presents eleven more grounds that build on the combination of Ono and Hutchings. Pet. 78–106. Because Petitioner has demonstrated that it is reasonably likely that at least one claim of the '576 patent is unpatentable, we institute on all grounds and all claims raised in the Petition. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1354, 1359–60 (2018); 37 C.F.R. § 42.108(a) (“When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”).

IV. CONCLUSION

After considering the evidence and arguments of record, we determine that Petitioner has demonstrated a reasonable likelihood of success with respect to at least one of the challenged claims. Accordingly, an *inter partes* review of all of the claims and all of the grounds presented in the Petition is hereby instituted.

At this stage of the proceeding, the Board has not made a final determination as to the patentability of any challenged claims or any underlying factual or legal issues. The final determination will be based on the record as developed during the *inter partes* review.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–5, 8–11, 20, 25, 30–32, 36, 39–42, 45–51, 61–65, 144, and 147 of the '576 patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '576 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

IPR2022-00037
Patent 6,059,576 C1

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