

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FITBIT, INC. and WAHOO FITNESS LLC.,
Petitioner,

v.

BLACKBIRD TECH, LLC d/b/a BLACKBIRD TECHNOLOGIES, LLC
Patent Owner.

Case IPR2017-02012¹
Patent 6,434,212 B2

Before DEBRA K. STEPHENS, THOMAS L. GIANNETTI, and
CHRISTA P. ZADO, *Administrative Patent Judges*.

STEPHENS, *Administrative Patent Judge*.

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

¹ IPR2018-00275 has been joined to this proceeding.

I. INTRODUCTION

We have authority to hear this *inter partes* review under 35 U.S.C. § 6(c), and this Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that FitBit, Inc. and Wahoo Fitness LLC. (collectively, “Petitioner”) has not shown by a preponderance of the evidence that claims 2, 5, and 6 of U.S. Patent No. 6,434,212 (Ex. 1001, “the ’212 Patent”) are unpatentable.

A. Procedural History

Petitioner filed a Petition requesting an *inter partes* review of claims 2, 5, and 6 of U.S. Patent No. 6,434,212 B2 (Paper 1 (“Pet.”)). Petitioner relied on the following references in asserting its grounds:

References	Patent Number	Exhibit
Amano, et al., (hereinafter, “Amano”)	US 6,241,684 B1	1003
Kato et al. (hereinafter, “Kato”)	US 5,033,013	1004

Petitioner also relies on the Declaration of Dr. Tanzeem Choudhury (Ex. 1005). Blackbird Tech LLC (“Patent Owner”) filed a Preliminary Response (Paper 7 (“Prelim. Resp.”)). Pursuant to 35 U.S.C. § 314(a), we instituted an *inter partes* review (“Dec.”) of claims 2 and 5 as unpatentable under 35 U.S.C. § 103(a)² over Amano; and claim 6 as unpatentable under 35 U.S.C. § 103(a) over Kato and Amano.

² The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 100 et seq. effective on March 16, 2013. The ’212 Patent issued

On April 24, 2018, the Supreme Court held that a decision to institute under 35 U.S.C. § 314 may not institute on fewer than all claims challenged in the petition (*SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018)). Subsequent to the holding in *SAS* we modified our institution decision to institute on all challenged claims and all grounds presented in the Petition (Paper 11). Specifically, we modified our institution decision to include review of

Claims 2 and 5 as anticipated under 35 U.S.C. § 102³ by Amano;

Claims 2 and 5 as unpatentable under 35 U.S.C. § 103(a) over Amano; and

Claim 6 as unpatentable under 35 U.S.C. § 103(a) over Kato and Amano

(*id.*).

After institution of trial, Patent Owner filed a Patent Owner Response (Paper 16, “PO Resp.”), to which Petitioner filed a Reply (Paper 20, “Reply”). Pursuant to guidance provided in the Patent Trial and Appeal Board issued guidance for requesting sur-replies in an updated Trial Practice Guide (PTAB Trial Practice Guide Update (August 2018)). Patent Owner requested authorization to file a sur-reply (Exhibit 3001). We authorized

from an application filed before March 16, 2013; therefore, we apply the pre-AIA versions of the statutory bases for unpatentability.

³ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 100 et seq. effective on March 16, 2013. The ’212 Patent issued from an application filed before March 16, 2013; therefore, we apply the pre-AIA versions of the statutory bases for unpatentability.

Patent Owner to file a sur-reply (*id.*; Paper 25), and Patent Owner thus filed a Sur-Reply (Paper 24).

At the parties' request (Papers 22, 23), an Oral Hearing was held on December 11, 2018, a transcript of which is included in the record (Paper 27, "Tr.").

II. BACKGROUND

A. Related Matters

The parties advise us that the '212 Patent is at issue in the following:
Blackbird Tech LLC d/b/a Blackbird Technologies v. Sony Corp. et al., Case No. 16-CV-685 (D. Del.),

Blackbird Tech LLC d/b/a Blackbird Technologies v. Timex Group USA, Inc., Case No. 16-CV-686 (D. Del.),

Blackbird Tech LLC d/b/a Blackbird Technologies v. TomTom, Inc., Case No. 16-CV-687 (D. Del.),

Blackbird Tech LLC d/b/a Blackbird Technologies v. Wahoo Fitness, Inc., Case No. 16-CV-688 (D. Del.)

Blackbird Tech LLC d/b/a Blackbird Technologies v. Garmin International, Inc. and Garmin USA, Inc., Case No. 16-CV-689 (D. Del.),

Blackbird Tech LLC d/b/a Blackbird Technologies v. Fitbit, Inc., Case No. 16-CV-683 (D. Del.), and

Blackbird Tech LLC d/b/a Blackbird Technologies v. Aliphcom d/b/a Jawbone, Case No. 16-CV-684 (D. Del.)
(Pet. 4–5; Paper 4, 2).

Additionally, the '212 Patent was at issue in IPR2017-01058 (*Garmin International, Inc. v. Blackbird Tech LLC d/b/a Blackbird Technologies*), now terminated and IPR2017-02025 (*TomTom, Inc. v. Blackbird Tech LLC d/b/a Blackbird Technologies*), not instituted; and remains at issue in IPR2017-02023 (*TomTom International, B.V. v. Blackbird Tech LLC d/b/a Blackbird Technologies*).

B. The '212 Patent

The '212 Patent, entitled “Pedometer,” relates to a “pedometer having improved accuracy by calculating actual stride lengths of a user based on relative stride rates” ('212 Patent, Abstract). More particularly, the patent relates to “pedometers having a waist mounted stride-counting device and transmitter, and a wrist-mounted receiver and display” (*id.* at 1:9–11). The device calculates a distance walked or run based on converting a base stride length and a base stride rate to an actual stride length and using that to calculate distance traveled (*id.* at 1:12–16).

Specifically, a step counter which is an inertia device, counts the number of steps a user takes (*id.* at 3:7–8). A data processor includes a data archive that stores historic data on stride length and pace and closed loop or fuzzy logic programming that continually or periodically replaces the base stride rate and length with recently calculated stride rates and lengths (*id.* at 3:39–47).

The pedometer of the '212 Patent may optionally require the user to operate a “sampling mode” (*id.* at 3:56–57). In this mode, a user walks or runs a predetermined distance with the distance then divided by the number

of strides counted (*id.* at 3:58–62). The result is the average stride length, which is stored in the data archive as the “Base Stride Length” (*id.* at 3:62–64). The data processor further divides the number of strides by the time of the run or walk to calculate a “Base Stride Rate” (*id.* at 3:65–67).

According to the '212 Patent, using a fixed average stride length does not account for changes in the user's pace or improved performance (*id.* at 4:19–29). To correct for this, a “Use Mode” is activated that causes the data processor to calculate an “Actual Stride Rate” (*id.* at 4:30–33). The “Actual Stride Rate” is calculated periodically, based on data from the stride counter and the clock (*id.* at 4:30–36). An “Actual Stride Length” is calculated by determining a percentage change between the Actual Stride Rate and the Base Stride Rate (*id.* at 4:36–38). More specifically, the Actual Stride Length is calculated by:

$$\text{Actual Stride Length} = \text{Base Stride Length} + \text{Base Stride Length} * (((\text{Actual Stride Rate} - \text{Base Stride Rate})N) / \text{Base Stride Rate})$$

Where: N=1 When Actual Stride Rate is less than or equal to Base Stride Rate multiplied by 1.02, and N=3 When Actual Stride Rate is greater than Base Stride Rate multiplied by 1.02, although other N values in the range of one to three can be used (*id.* at 4:50–58). To further improve accuracy, an N value is derived for the user by using a number of samples to establish Stride Length and N (*id.* at 5:1–6:9).

Once the actual stride length is calculated for a given period of time, the value can be multiplied by the number of strides in that period to obtain a total distance for that period to be stored in a data archive file for that particular walk or run and added to other actual stride lengths or distances for other periods in which stride length was calculated

(*id.* at 6:34–38).

C. Challenged Claims

Petitioner challenges independent claims 2, 5, and 6 of the '212 Patent (Pet. 6–7). Claims 2 and 6 are illustrative of the challenged claims and are reproduced below:

2. An exercise monitoring device comprising:
 - a strap for releasably securing the exercise monitoring device to a user;
 - a step counter joined to the strap;
 - a heart rate monitor joined to the strap; and
 - a data processor programmed to calculate a distance traveled by multiplying a number of steps counted by the step counter by a stride length that varies in accordance with a stride rate, wherein the stride length is determined with reference to a plurality of calibrations that each calculate a stride length as a function of a known stride rate.

6. A pedometer comprising:
 - a step counter;
 - a transmitter in communication with the step counter to generate a step count signal corresponding to each step and transmit the step count signal;
 - a receiver mountable on a user body portion to receive the step count signal transmitted from the transmitter; and
 - a data processor programmed to calculate a distance traveled by multiplying a number of steps counted by a stride length that varies according to a rate at which steps are taken, and further programmed to derive an actual stride length from a range of

stride lengths calculated from a range of corresponding stride rates.

III. ANALYSIS

A. *Claim Construction*

In an *inter partes* review filed before November 13, 2018, a district court-type claim construction approach may be applied if a party requests such a construction and certifies that the involved patent will expire within 18 months from the entry of the Notice of Filing Date Accorded to Petition, in a motion under 37 C.F.R. § 42.20 within thirty days from the filing of the petition (37 C.F.R. § 42.100(b)). Here, Petitioner submitted a Motion for District Court-Type Claim Construction in accordance with 37 C.F.R. § 42.100(b), certifying that the challenged patent will expire within 18 months of the entry of the Notice of Filing Data Accorded to Petition, indicating Patent Owner did not oppose the motion (Paper 6). Patent Owner did not file an opposition within one month as permitted under 37 C.F.R. § 42.25(a)(1). Additionally, Patent Owner asserted in the Preliminary Response that district court-type claim construction should apply (Prelim. Resp. 14) and did not oppose that construction in the Patent Owner's Response (PO Resp. 8). We thus apply district court-type claim construction.

Under district court-type claim construction, claim terms are given 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 of

record (*Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc); see also *In re Rambus Inc.*, 694 F.3d 42, 46 (Fed. Cir. 2012) (“While claims are generally given their broadest possible scope during prosecution, the Board’s review of the claims of an expired patent is similar to that of a district court’s review.”) (internal citation omitted)). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence” (*DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17)). There is a “heavy presumption,” however, “that a claim term carries its ordinary and customary meaning” (*CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citation omitted)).

We determine that no claim terms require express construction (see *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (Only terms which are in controversy need to be construed, and only to the extent necessary to resolve the controversy)).

B. Principles of Law

A claim is anticipated if a single prior art reference either expressly or inherently discloses every limitation of the claim (*Orion IP, LLC v. Hyundai Motor Am.*, 605 F.3d 967, 975 (Fed. Cir. 2010)).

A claim is unpatentable under 35 U.S.C. § 103(a) if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains” (*KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007)). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations (*see Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966)).

“A determination of whether a patent claim is invalid as obvious under § 103 requires consideration of all four *Graham* factors, and it is error to reach a conclusion of obviousness until all those factors are considered” (*Apple v. Samsung Elecs. Co.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc) (citations omitted)). “This requirement is in recognition of the fact that each of the *Graham* factors helps inform the ultimate obviousness determination” (*id.*).

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable” (*Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”))). This burden never shifts to Patent Owner (*see Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review)). Furthermore, Petitioner cannot satisfy its burden of proving

obviousness by employing “mere conclusory statements” (*In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016)).

Thus, to prevail in an *inter partes* review, Petitioner must explain how the proposed combinations of prior art would have rendered the challenged claims unpatentable. At this final stage, we determine whether a preponderance of the evidence of record shows that the challenged claims would have been obvious over the proposed combinations of prior art.

We analyze the instituted grounds of unpatentability in accordance with the above-stated principles.

C. Level of Ordinary Skill in the Art

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention (*Graham*, 383 U.S. at 17). “The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry” (*Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)). The person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention (*In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995)). The level of ordinary skill in the art may be reflected by the prior art of record (*Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001)). Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational level of active workers in the field (*GPAC*, 57 F.3d at 1579). In

a given case, one or more factors may predominate (*id.*). Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art (*Innovention Toys, LLC v. MGA Entm't, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) (“A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.”)).

The level of skill in the art is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis (*Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham*, 383 U.S. at 17–18; *Ryko Mfg. Co.* at 718)).

Petitioner asserts that a person of ordinary skill in the art at the time of the invention

would have been [1] a person with a bachelor’s degree in mechanical engineering, electrical engineering, computer science, or a similar field with at least two years of experience in motion tracking, motion analysis, inertial sensing, or signal analysis, or [2] a person with a master’s degree in mechanical engineering, electrical engineering, computer science, or a similar field with a specialization in motion tracking, motion analysis, inertial sensing, or signal analysis or “[a] person with less education but more relevant practical experience. . . .” (Pet. 26–27 (citing Ex. 1005 ¶ 45–47)). Patent Owner does not dispute the educational level or experiential aspects of Petitioner’s definition in its Response (*see generally* PO Resp.).

We note that the assessment appears consistent with the level of ordinary skill in the art at the time of the invention as reflected in the prior art in the instant proceeding (*see Okajima* at 1355). Based on our review of

the '212 Patent, the types of problems and solutions described in the '212 Patent and cited prior art, and the testimony of Dr. Choudhury and Dr. Michael Caloyannides, we adopt and apply Petitioner's description of a skilled artisan as possessing (1) a bachelor's degree in mechanical engineering, electrical engineering, computer science, or a similar field with at least two years of experience in motion tracking, motion analysis, inertial sensing, or signal analysis, or (2) a master's degree in mechanical engineering, electrical engineering, computer science, or a similar field with a specialization in motion tracking, motion analysis, inertial sensing, or signal analysis, is supported by the current record.

D. Overview of the Asserted Prior Art

1. Amano

Amano is a patent entitled "Exercise Workout Support Device" (Amano, [54]). Amano is "suitable for use in a maximum oxygen uptake quantity estimating device, which enables the user to determine his own maximum oxygen uptake quantity easily" (Amano, 1:9–12). Amano's system includes a pulse wave detector that detects the user's pulse waveform; a body motion detector that detects body motion when the user is running; a recorder to record information relating to user's stride, sex, and weight; and an exercise intensity calculator that calculates exercise intensity from an obtained pitch, user's stride and body weight (*id.* at 7:6–7, 18–19, 27–28, 29–31).

The pulse wave detector is a sensor that detects the user's pulse waveform that, because the heartbeat rate equals the pulse rate, is assumed

to be the heartbeat rate (*id.* at 7:13–14). The body motion detector obtains “[t]he pitch during running, i.e., the number of steps per unit time. . .” (*id.* at 7:24–26). Amano describes when a user is running, “(1) an acceleration signal accompanying vertical motion, and (2) an acceleration signal accompanying the swinging motion of the arms are superimposed in the body motion signal at body motion detector 104” (*id.* at 11:19–23). The exercise intensity calculator calculates exercise intensity from the obtained pitch and the user’s stride and body weight (*id.* at 7:30–32). Exercise intensity may be calculated as distance run per unit time and the user’s body weight (*id.* at 7:33–35). “The distance run per unit time can be obtained by multiplying the [user’s] stride and pitch” (*id.* at 7:35–37).

2. Kato

Kato is a patent entitled “Method and Apparatus for Measuring the Amount of Exercise” (Kato, [54]). Kato is directed to “[a] method and apparatus for accurately measuring an amount of exercise taken by a walker in terms of a walking speed, the distance traveled[,] and the energy consumed” (*id.* at Abstract). Kato construes the term “walker” as including “literally a walking person,” “a jogger[,] and a runner,” and construes the terms “walking” or “walk” as including “its literal meaning,” “jogging[,] and running” (*id.* at 3:59–63). Kato teaches a detector 100 “designed to detect impacts made by the contacts of the foot of a walker with the ground, i.e., the steps of a walker”; processing means 106 for processing data received from the detector with other data including walker information; and display means 120 for receiving the processed data from processing means 106 (*id.*

at 6:58–7:16, Fig. 3). Transmitter 104, attached to detector 100, allows detector 100 to communicate with wireless receiver 110 which is attached to processing means 106 (*id.* at 6:67–7:4, Fig. 3).

3. *Alleged Anticipation of Claims 2 and 5 over Amano*

Petitioner contends that claims 2 and 5 are anticipated by Amano (Pet. 29–50) and are obvious over Amano (*id.* at 50–57). Petitioner provides supporting testimony from its expert, Dr. Choudhury (Ex. 1005). Specifically, Patent Owner asserts Amano does not disclose or render obvious “programmed to calculate a distance travelled by multiplying a number of steps counted by the step counter by a stride length,” as recited in claims 2 and 5 (P.O. Resp. 16–25). Further, with respect to the asserted obviousness ground, Patent Owner contends Petitioner has not established a motivation to “‘calculate a distance travelled by multiplying a number of steps counted by the step counter by a stride length,’ instead of the calculation actually described by Amano” (*id.* at 21–25).

Analysis

Petitioner asserts Amano teaches “multiplying the user’s ‘pitch’ (i.e., number of steps per unit time) by the user’s stride length to determine a distance travelled by the user over a period of time” (Pet. 43 (citing Ex. 1005 ¶¶ 106–108)). Specifically, Petitioner contends Amano teaches detection of the pitch of running, where “pitch” is defined as “***the number of steps per unit time***” (*id.* at 43–44 (citing Amano, 7:24–26, 10:63–65, 12:12–15)). Petitioner then asserts Amano discloses “CPU 201 multiplies the pitch by ‘the subject[’s] ***stride*** which is stored in RAM 203 . . . to calculate ***the***

distance run by the test subject per unit time” (*id.* at 44 (citing Amano, 12:15–18)).

Amano discloses obtaining a user’s “pitch during running, i.e., the number of steps per unit time (stride rate or “rate at which steps are counted”) from processing the user’s body motion (Amano, 7:24–26). Amano further discloses “the distance run per unit time can be obtained by multiplying the test subject[’]s stride and pitch” (*id.* at 7:34–36). According to Amano, the step count is determined through use of acceleration signals (*id.* at 11:19–40). “[T]he pitch of the running can . . . be detected as a result of . . . processing carried out by CPU **201** on the body motion signal from body motion detector **104** (*id.* at 11:50–62).

Patent Owner contends, however, Amano discloses a system in which the user’s pitch—the number of steps per unit of time or the “stride rate,” as that term is used in the ’212 Patent—is sampled at time intervals and this sampling is used “to calculate the distance run by the test subject per unit of time” (PO Resp. 16–17 (citing Amano 12:4–21)). Thus, according to Patent Owner, Amano describes calculating the “[d]istance run per unit of time” which is “a measure of speed, not distance” and “at no point . . . disclose[s] calculating the actual distance traversed by the user” (*id.* at 17 (citing Amano, 12:17–21; Ex. 2001 ¶ 38)). Patent Owner further argues “even if these disclosures could be read to disclose a distance calculation, that calculation does not involve multiplying the number of steps ‘counted by the step counter by a stride length’ as required by the claims” (*id.* at 17).

In its Reply, Petitioner explains “Amano teaches determining the pitch of a runner . . . by using FFT [(Fast Fourier Transform)] processing of

the body signal motion, and [] CPU 201 can be setup to execute calculations at specific time intervals” (Pet. Reply 6 (citing Amano, 12:4–7, 13:25–26)). According to Petitioner, Amano’s CPU 201 calculates the distance run by the test subject (*id.* at 6–7 (citing Amano, 12:15–18; Ex. 2001 ¶ 38)).

Amano describes pitch detection operation, executed in step S9 of Figure 6 (Amano, 11:15–62, Fig. 6) and further describes “in step Sa2 [of Figure 7], the body motion signal from body motion detector **104** is processed in the same way as in step S9, to detect the pitch of running” (Amano, 12:12–14, Fig. 7). Figure 7, reproduced below, illustrates a flow

chart showing the processing for calculation display in a first embodiment
(Amano, 4:13–15):

FIG. 7

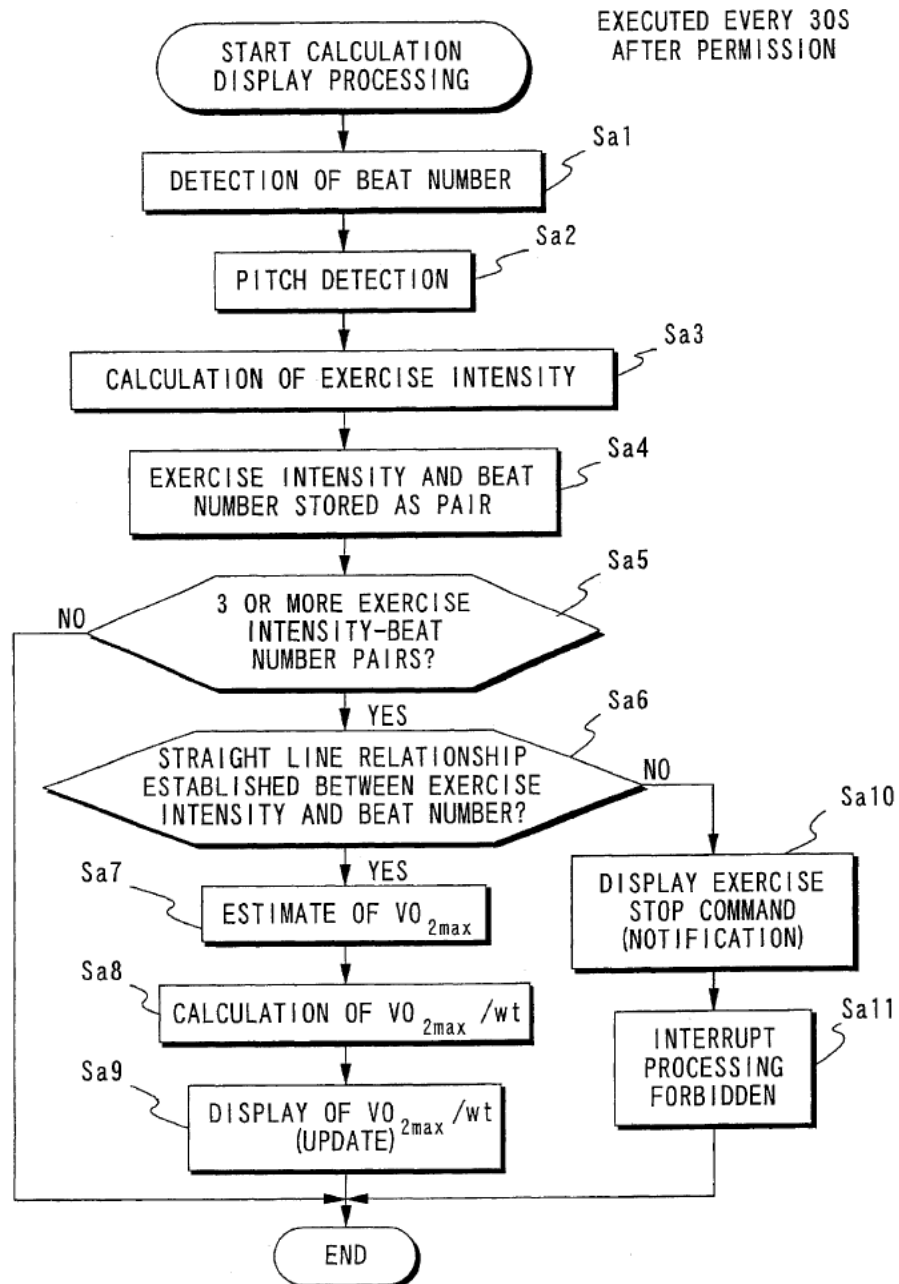


Figure 7 describes steps Sa1 through Sa11 for calculation display processing which includes pitch detection step Sa2. To determine pitch in step Sa2 of Figure 7 of Amano, FFT (Fast Fourier Transform) processing is used:

When the test subject is running, then it may be considered that (1) an acceleration signal accompanying vertical motion, and (2) an acceleration signal accompanying the swinging motion of the arms are superimposed in the body motion signal at body motion detector **104**

(Amano, 11:19–23). Amano further explains, components of the acceleration signal are detected and the period of the acceleration signal accompanying body motion is identified (*id.* at 11:24–36). Amano describes “the acceleration signal accompanying the arm swing is synchronized with the acceleration signal accompanying the vertical motion.” (*id.* at 11:36–40). Amano then processes the first order harmonic wave component (vertical motion) and the second order harmonic wave component (arm swinging motion) (*id.* at 11:41–52) to determine pitch:

it is typically the case in running that the acceleration accompanying the arm swinging motion is greater than the acceleration accompanying the vertical movement. Thus, the second order harmonic wave from the arm swinging motion is characteristically expressed in the body motion signal. Accordingly, the pitch of the running can, for example, be detected as a result of the [] processing carried out by CPU **201** *on the body motion signal* from body motion detector **104**

(*id.* at 11:52–55 (emphasis added)). Notably, Amano states the pitch is detected as a result of processing of the body motion signal. Amano further explains:

Namely, first, CPU 201 carries out FFT processing of the body motion signal from body motion detector 104. Second, the harmonic wave component having the largest pitch is defined as the second order harmonic wave component, and the peak frequency thereof is detected. Third, the aforementioned peak frequency is determined, and multiplied by $\frac{1}{2}$, to obtain the pitch

(Amano, 11:56–62). Amano therefore, determines the *pitch* through use of FFT processing of the body motion signal and in particular, by identifying the peak frequency of the second order harmonic wave component, and multiplying the determined peak frequency of the second order harmonic wave component by $\frac{1}{2}$.

Petitioner does not identify any disclosure in Amano that describes calculating pitch based on any distance. That pitch has a length/time measurement does not change the lack of disclosure of Amano of any counting of steps in determining the distance traveled. Indeed, Amano's FFT processing merely determines *when* a step has occurred through identification of peak frequency of the second order harmonic wave component, to determine pitch; however, the FFT processing does not count steps to be used in further calculation.

Petitioner further argues the next step, step Sa3, supports its contention that distance run is calculated (Pet. 44 (citing Amano 12:15–18)). Amano describes in step Sa3, exercise intensity is calculated — “CPU **201** multiplies the test subject[’s] stride which is stored in RAM **203** with the pitch detected on the immediately preceding step, to calculate the distance run by the test subject per unit time” (Amano, 12:15–18). Exercise intensity is measured in watts (*id.* at 12:20)

Thus, Petitioner contends that in Amano's step Sa3, CPU 201 calculates the distance traveled by the test subject per unit time (Pet. 44 (citing Ex. 1005 ¶ 106)). Specifically, Petitioner contends the CPU 201 performs the following calculation:

$$(\text{stride length}) \times \left(\frac{\text{number of steps}}{\text{unit time}} \right) = \frac{\text{distance run}}{\text{unit time}}$$

(*id.* (citing Ex. 1005 ¶ 106)).

In response, Patent Owner asserts that Amano's set Sa3 is used to "measure exercise intensity," and particularly, pitch, not distance run (PO Resp. 18–19 (citing Ex. 2001 ¶¶ 40, 41; Amano, 12:4–8, 15–18)).

Amano describes in step Sa3, CPU 201 calculates the distance run by the test subject *per unit time*, not the distance traveled (Amano, 12:15–18). Exercise intensity may then be calculated as "the distance run per unit time and the test subject's body weight" (*id.* at 7:33–35; 12:18–21). Thus, distance run is not being calculated. As noted by Patent Owner, the calculation in step Sa3 is multiplying the test subject's stride with "the pitch detected on the immediately preceding step" (PO Resp. 18 (quoting Ex. 1002, 12:15–18)). Whether the pitch is that determined in the immediately preceding step, step Sa2, or the runner's immediately preceding step, Amano describes determining pitch, but does not include any calculation of distance traveled as recited by claims 2 and 5.

Petitioner acknowledges that Amano's teaching of the pitch is determined by use of the FFT processing (Tr. 15:17–16:13). Petitioner, however, argues in determining the pitch, Amano describes that the distance run is determined over 30 seconds (Pet. Resp. 8; Tr. 21:12–16). As noted by

Patent Owner, however, Figure 7's annotation states the steps are "EXECUTED EVERY 30S AFTER PERMISSION" (PO Resp. 19–20 (Amano, Fig. 7)). Thus, the steps are executed every 30 seconds. The accompanying description of Figure 7 does not indicate the unit time used in the pitch detection step. Rather, it merely describes that CPU 201 "gives permission to *execute* the calculation display processing shown in Fig. 7 at specific time intervals (30 sec., for example)" (Amano, 12:6–8 (emphasis added); Fig. 7; *see also* Amano, 33–35 ("Meanwhile, the calculation display processing is executed every 30 seconds")). Therefore, we are not persuaded Amano's pitch detection measures distance traveled or steps counted over a 30 second unit time. Rather, Amano discloses use of FFT processing to determine pitch (Amano, 11:39–40; *see* PO Sur-Reply 5). Indeed, Amano discloses the pitch is determined based on acceleration accompanying vertical motion and arm swinging and FFT processing of the body motion signal over one period.

Petitioner further contends because Amano is using FFT processing, a window of data is required to "accurately estimate the rate of change" (Pet. Reply 13 (citing Ex. 2003, 45:21–46:4)). However, Amano discloses the "peak frequency [of the body motion signal] is determined, and multiplied by $\frac{1}{2}$, to obtain the pitch" (Amano, 11:60–62). Amano does not describe any process of getting "multiple samples" of peak frequencies to be used in determining the pitch. Rather, Amano describes looking for the peak frequency of the second harmonic wave component in one period of motion, without any reference to distance traveled or specific time period (*id.* at 19–62).

In their Reply, Petitioner newly contends Amano describes “calculating distance run over a particular time interval (30 seconds in this example), and does not merely perform a speed calculation based upon data consisting of a single step every 30 seconds” pointing to a new section of Amano (Pet. Reply 7–8 (citing PO Resp. 2; Ex. 1021, 142:15–143:6; Amano 18:40–44); (*comp. Pet. 43–46 with Pet. Reply 7*)). Specifically, Petitioner identifies Amano’s description that “if an altitude difference is present, then in step Sa103, ***CPU 201 first determines the slope from the aforementioned altitude distance and the distance run during the 30 seconds***” (Pet. Reply 7 (quoting Amano 18:40–44 (emphasis added))).

This description is identified as “Embodiment 3” (Amano, 17:21–19:6). Embodiment 3 includes an additional feature to account for different strides due to slopes on the running path (*id.* at 17:25–37). To that end, Amano includes additional hardware and various additional steps to account for the path slope — step Sa103 is only described with respect to Embodiment 3 (*id.* at 17:46–18:51; Fig. 10). Amano does not disclose how the “distance run” is calculated, nor does Figure 12 (which has step Sa103) show any step performing a distance calculation. More specifically, in Figure 12, the pitch detection, which uses the FFT processing, is performed in step Sa2 and not Sa103.

[W]hen the pitch during running is detected in Step Sa2, then, in step Sa102, CPU 201 obtains information regarding the altitude difference detected by altimeter 210. CPU 201 stores this information in RAM 203, and, in step Sa103, determines whether or not an altitude difference is present based on the obtained information.

(*id.* at 18:27–32). Thus, the FFT processing to determine pitch, has already been performed before step Sa103 is performed. Additionally, although Amano describes that in step Sa103, “if an altitude difference is present, CPU **201** first determines the slope from the aforementioned altitude difference and the distance run during the 30 seconds” (*id.* at 18:40–43), Amano does not describe how that distance run is acquired. Indeed, Petitioner has not identified where Amano describes any calculation of distance traveled by multiplying a number of steps counted by stride length — there is no reference back to step Sa2 or any discussion about how distance run is calculated.

As discussed above, we find Amano describes determining the pitch, in step Sa2, based on a period of the motion. Amano’s Embodiment 3 discusses additional hardware and steps without further description of how distance travelled is calculated. Accordingly, Petitioner has not shown Amano discloses “a data processor programmed to calculate a distance traveled by multiplying a number of steps counted by the step counter by a stride length that varies in accordance with a stride rate,” as recited in claim 2 and commensurately recited in claim 5. Having considered the full record developed during trial, we conclude Petitioner has failed to show by a preponderance of the evidence, that the subject matter of claims 2 and 5 is anticipated under 35 U.S.C. § 102 by Amano.

4. *Alleged Obviousness of Claims 2 and 5 over Amano*
Analysis

Petitioner asserts “a POSITA would have found Claims 2 and 5 obvious, in view of his or her own knowledge and/or the disclosure provided by *Amano*’s other embodiments” (Pet. 50–51 (citing Ex. 1005 ¶ 114)).

Patent Owner contends “Petitioner has provided no explanation whatsoever as to why a skilled artisan would have been motivated to ‘calculate a distance travelled by multiplying a number of steps counted by the step counter by a stride length,’ instead of the calculation actually described by *Amano*” (PO Resp. 22).

We agree with Patent Owner that *Amano* does not disclose calculation of distance travelled, as recited in claims 2 and 5, as set forth above. Further, Petitioner has not persuaded us an ordinarily skilled artisan would have found it obvious to modify the FFT processing which identifies a peak frequency of a second harmonic to measure the pitch, to calculate a distance travelled as recited in claims 2 and 5 instead. Petitioner provides no additional discussion of this limitation in its Petition, instead relying on its anticipation arguments (Pet. 50–51). Thus, Petitioner has not articulated any reason why an ordinarily skilled artisan would have understood *Amano* to teach calculating a distance travelled.

Petitioner, in its Reply, points to disclosures in *Amano* not relied upon in its Petition (Pet. Reply 14 (citing *Amano*, 15:66–16:4)). Specifically, Petitioner argues *Amano*’s disclosure that “it is also acceptable to employ MEM analysis, wavelet analysis or the like,” teaches a longer duration of acquiring data (*id.* (*Amano*, 15:66–16:4)). Petitioner then relies on this

disclosure to assert that signal processing techniques analyze data based upon a time window of data and would use that time window to determine a distance traveled (Pet. Reply 15–16). However, Amano’s disclosure merely mentions these techniques and does not specify they would be used to measure distance a user travels as recited in claims 2 and 5:

In the above-described embodiment, FFT processing was employed to obtain the pulse wave signal, or to obtain the heartbeat rate or pitch from the body motion signal. However, the present invention is not limited thereto. Rather, it is also acceptable to employ MEM analysis, wavelet analysis or the like. Further, simple peak detection may also be used

(Amano, 15:66–16:4). Amano again focusses on obtaining the pitch. Amano does not indicate any duration for acquiring data; rather as noted above, Amano teaches the process illustrated in Figure 7 is executed every 30 seconds and that process is calculating pitch by identifying the peak frequency of a second order harmonic wave (Amano, 11:56–60).

Accordingly, Petitioner has not shown Amano teaches “a data processor programmed to calculate a distance traveled by multiplying a number of steps counted by the step counter by a stride length that varies in accordance with a stride rate,” as recited in claim 2 and commensurately recited in claim 5. Having considered the full record developed during trial, we conclude Petitioner has failed to show by a preponderance of the evidence, that the subject matter of claims 2 and 5 is obvious under 35 U.S.C. § 103 over Amano.

5. *Alleged Obviousness of Claim 6 over Kato and Amano*
Analysis

Petitioner contends that claim 6 is obvious over the combination of Kato and Amano (Pet. 57–75)). Petitioner also provides supporting testimony from its expert, Dr. Choudhury (Ex. 1005 ¶¶ 126–150). In response, Patent Owner contends the combination of Kato and Amano fails to disclose (i) “programmed to calculate a distance traveled by multiplying a number of steps counted by a stride length that varies according to a rate at which steps are taken,” as recited in claim 6 and (ii) Petitioner does not establish motivation to combine Kato’s components with (a) Amano’s speed calculation feature or (b) Amano’s data processing steps (Prelim. Resp. 43–54).

a. *“programmed to calculate a distance traveled by multiplying a number of steps counted by a stride length that varies according to a rate at which steps are taken”*

Petitioner asserts Kato teaches the processing means counts “[t]he number of the contact signals in a predetermined unit of time . . . to obtain a pitch in a selected unit of time” (Pet. 71–72 (citing Kato, 4:4–6)). Petitioner asserts *Kato* determines the stride of the walker based in part on the pitch specifically because the stride varies according to the pitch (*id.* at 72 (citing Kato, 4:6–19)). Petitioner further contends Kato teaches that after determining the user’s pitch in a selected unit of time, “the stride [is multiplied] . . . by the pitch, to obtain a walking speed of the walker in said unit of time” (*id.* (citing Kato, 4:50–51)). Petitioner thus contends *Kato* multiplies this walking speed by the unit of time to obtain the distance

travelled and integrates “these distances over a period of time to obtain the total distance travelled by the user” (*id.* (citing Kato, 4:62–68, 5:5–11)).

Patent Owner contends “Kato expressly discloses, in the portions to which Petitioner points, calculating the distance travelled by multiplying the user’s **speed** by the time traveled” (PO Resp. 26 (citing Kato, 4:62–69)).

More specifically, Patent Owner argues

[t]o the extent the total distance travelled is determined by Kato, it is determined by “the same steps as the method of measuring the distance traveled by a walker,” *i.e.*, by multiplying the user’s speed by the time travelled, and “integrating the distance travelled by the walker in said unit of time for the entire session of walking to obtain the corresponding cumulative distance travelled by the walker”

(*id.* at 26). Patent Owner emphasizes that “Kato uses **speed** multiplied by **time** to determine distance travelled, which is not the same calculation as **number of steps** multiplied by **stride length**, as recited in claim 6” (*id.* (citing Ex. 2001 ¶ 53)). Moreover, Patent Owner asserts, Petitioner “offers no argument” that Kato’s use of speed multiplied by time instead of number of steps multiplied by stride length are equivalent (*id.*; Tr. 44:11–45:3).

Kato describes “impacts made by the contacts of a foot of the walker with the ground are detected . . . to produce corresponding contact signals” (*id.* at 1:50–52). Kato further describes “[t]he number of contact signals in a predetermined unit of time is counted by processing means to obtain a pitch in a selected unit of time” (*id.* at 1:53–55, 4:4–6). The stride of the walker is obtained from the pitch (number of steps in a unit of time) according to the equation:

$$ST = \frac{0.1688 \times HT}{1 - (0.0174 \times PI \times HT)}$$

where ST is the stride in meters, PI is the pitch in number of steps every ten seconds, and HT is the height of the walker in meters (*id.* at 4:7-19). The speed of the walker is determined by the stride (ST) multiplied by the pitch (PI) (*id.* at 4: 25–27). Kato further teaches “a method of measuring distance travelled by a walker in a unit of time” that comprises the step of “multiplying the walking speed [(SP)] by said unit of time after the walking speed is calculated to obtain the distance travelled by the walker in said unit of time” (*id.* at 4:60–68, 25–27). Thus, the distance traveled is (ST*PI) * unit time or in measurement terms: meters * (steps/time) * (time).

We find Kato teaches counting steps (Kato, 1:50–52). This count is used in determining PI (number of steps per ten seconds). PI is multiplied by the stride length (ST) and unit time to determine the distance traveled. The unit time can be set to any period of time, including 10 seconds. In that example, the distance traveled would equal the number of steps * stride length. Thus, Patent Owner’s argument that a user’s speed (PI) is multiplied by time ignores the earlier calculation of PI in Kato, in which PI is calculated by determining the number of steps counted in a period of time, in this example, 10 seconds. Nothing in Kato precludes the period of time and unit time from being the same. Thus, Kato teaches determining the number of steps and multiplying them by a stride length. It follows, Petitioner has shown Kato teaches “a data processor programmed to calculate a distance traveled by multiplying a number of steps counted by a stride length,” as

recited in claim 6.

Petitioner further asserts Amano teaches the recited limitation as argued with respect to claims 2 and 5 (Pet. 72). As set forth above with respect to claims 2 and 5, however, Petitioner did not show Amano discloses or teaches the calculation of a distance traveled.

b. Asserted motivation to combine

Petitioner asserts an ordinarily skilled artisan would have been motivated to combine the teachings of Kato and Amano because “both *Kato* and *Amano* recognize that a user’s stride length can vary with the user’s stride rate” and specifically, “both [references] recognize the same basic solution” of measuring the user’s stride rate, calculating a user’s stride length based on the measured stride rate, and calculating a distance based on the measured stride rate and stride lengths (Pet. 58–59 (citing Amano, 16:30–17:13; Kato, 1:47–2:20)).

Patent Owner asserts Petitioner fails to explain how its assertion that a skilled artisan would have been motivated to combine the components of Kato with the data processing steps of Amano, relate to the specific limitation of “programming ‘to calculate a distance traveled by multiplying a number of steps counted by a stride length that varies according to a rate at which steps are taken’” (PO Resp. 29). According to Patent Owner, Amano relates to the optional feature of calibration of varying stride lengths — “a process completely lacking from Kato” (*id.*). Specifically, Patent Owner contends the “data processing steps” of Amano do not “solve the same problem at issue in Kato” — Amano “is generally directed to a device that

measures exercise intensity at a particular instant in time” whereas Kato is “in general directed to ‘[a] method and apparatus for accurately measuring an amount of exercise taken by a walker in terms of a walking speed, the distance traveled and the energy consumed’” (*id.* at 30 ((citing Ex. 2001 ¶ 54; quoting Kato, Abstract)).

Amano “relates to an exercise workout support device” that calculates exercise intensity from pitch, stride, and body weight (Amano, 1:6–8, 7:30–32). Kato “relates to a method and apparatus for measuring an amount of exercise of a walker in terms of speed of the walker, traveling distance or in terms of consumed energy in calories” (Kato, 1:16–19). Thus, both Amano and Kato are directed to devices used during exercise that measure exercise results and both are directed to obtaining those measurements, in part, on stride length. We further credit Dr. Choudhury’s testimony that both Kato and Amano are directed to exercise science and both “recognize that a user’s stride length can vary with the user’s stride rate” (Ex. 1005 ¶ 127 (citing Amano 16:19–21; Kato 4:28–29); Pet. 58)). Accordingly, we find both references are from the same field and both seek to measure exercise results while accounting for varying user stride rates.

- (1) “programmed to calculate a distance traveled by multiplying a number of steps counted by a stride length that varies according to a rate at which steps are taken”

Patent Owner asserts “even if the ‘data processing steps’ do solve the same problem, and the devices disclosed in Kato and Amano were actually similar,” Petitioner has not shown a motivation to combine the teachings of the references or explained why a skilled artisan would have combined these

references in the alleged way (*id.* at 31). According to Patent Owner, “because Petitioner’s entire argument on motivation to combine for this limitation is an incorporation by reference from another limitation, Petitioner does not address why a skilled artisan would have been motivated to replace the distance-calculating ‘data processing steps’ of Kato with the allegedly similar steps of Amano” (*id.* at 31–32). Patent Owner contends Petitioner argues “simply that, in light of ‘design incentives,’ a skilled artisan would have been motivated to use Amano’s user-specific stride-length data, rather than Kato’s third-person data, to determine stride length because it is more accurate” (*id.* at 32).

As discussed above, we find Kato alone teaches this limitation. Thus, Patent Owner’s arguments are not persuasive.

- (2) “an actual stride length from a range of stride length calculated from a range of corresponding stride rates”

Petitioner relies on Amano’s teaching of determining stride length to teach this disputed limitation (Pet. 46–48). Amano teaches matching individual characteristics of a user to determine the relationship between pitch and a stride correction coefficient (Amano, 16:53–17:4, Fig. 9). This is then used to correct the stride (*id.* at 17:14–17). Petitioner next asserts an ordinarily skilled artisan would have been motivated to combine Kato and Amano “by using *Amano*’s data processing steps in conjunction with *Kato*’s components and the arrangement thereof” (Pet. 74). Petitioner further contends:

A POSITA would have recognized that receiving and interpolating a user's own data (as taught by *Amano*) would improve *Kato* in the same way (accounting for varying stride length based on the user's own data, as opposed to third-person data). A POSITA would have also been prompted to modify *Kato* to rely on a user's own data (as taught by *Amano*) based on design incentives: the computing power of wearable devices steadily improved throughout the 1990s, and a POSITA would have been motivated to use that improved computing power to determine the relationship between stride rate and stride length for the specific user, which, as discussed above, is more accurate than relying on a relationship derived from third-person data. It would have been well within the ability of a POSITA to modify *Kato* (which already discloses a processing means) to incorporate the specific data processing steps taught by *Amano*.

(Pet. 74–75 (citing Ex. 1005 ¶ 150)).

Upon review of the record, we find an ordinarily skilled artisan would have been motivated to combine the teachings of *Kato* and *Amano*.

Patent Owner contends:

Petitioner offers no evidence that the “data processing steps” set forth in *Amano* would yield “more accurate” measurements than those of *Kato*. As an initial matter, a skilled artisan would have been skeptical that the steps recited in *Amano* would have improved on the accuracy of the system of *Kato* because *Amano* and *Kato* are based on different understandings over what should be considered when determining the stride of a walker/runner. Ex. 2001 at ¶ 56. *Amano* discloses that “[a]lthough there are slight differences between individuals, stride is generally viewed to become **shorter** when the pitch of running is increased.” [*Amano*] 16:19–23

(PO Resp. 33–34).

We are not persuaded. Specifically, Petitioner has shown sufficiently that such combination is no more than a simple arrangement of old elements,

with each performing the same function it had been known to perform, yielding no more than one would expect from such an arrangement (see *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007)). Here, both Amano and Kato perform a calculation to determine stride length. Although performed in different ways, both methods calculate stride length and could be used in Kato's method system. An ordinarily skilled artisan would "be able to fit the teachings of multiple patents together like pieces of a puzzle" because the skilled artisan is "a person of ordinary creativity, not an automaton" (*id.* at 420-21). Moreover, we are not persuaded substituting one method of calculating stride length for another would have been "uniquely challenging or difficult for one of ordinary skill in the art" or "represented an unobvious step over the prior art" (see *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (citing *KSR*, 550 U.S. at 418-19)). In this case, an ordinarily skilled artisan would use the method disclosed in Amano to determine stride length, in Kato's calculation.

Moreover, we find an ordinarily skilled artisan would have been motivated to use the technique described in Amano because it relied on a user's own data, as argued by Petitioner. Patent Owner argues Kato and Amano "are based on different understandings over what should be considered when determining the stride of a walker/runner" and consider different factors (PO Resp. 33–38). In particular, Patent Owner points to Kato's use of height (*id.* at 35). We are unpersuaded, however, an ordinarily skilled artisan would not have been motivated to use Amano's teaching with Kato because they calculate stride length differently or consider different factors more critical. Indeed, both Kato's method and Amano's method

calculate a stride length — they do not need to do it the same way for an ordinarily skilled artisan to be motivated to substitute in a different method for calculating the stride length.

Patent Owner further argues that Petitioner has not provided any evidence that a skilled artisan would have recognized Amano's receiving and interpolating of a user's own data would improve Kato (PO Resp. 38). We find Petitioner has demonstrated an ordinarily skilled artisan would have been motivated to incorporate a user's own data to calculate stride length under the belief that it would provide a more accurate measurement than using third party data. We credit Dr. Choudhury's testimony to support that rationale (Ex. 1005 ¶ 150).

Patent Owner further argues that an ordinarily skilled artisan would not rely on Amano because Kato already relies on the user's own data to calculate stride length (PO Resp. 39). As noted by Patent Owner, Kato allows a user to input his or her height, which is then used in calculating stride (*id.* (citing Ex. 1004, 1:54–2:2)). However, although Kato does rely on a user's height, the remainder of Kato's formula is derived from third party test data (Pet. Reply 18 (citing Ex. 1004, 4:7–49)). We are persuaded an ordinarily skilled artisan would have sought to determine stride length based solely on a user's own data, without reference to third party data under the belief it would be more accurate. Therefore, we find an ordinarily skilled artisan would be motivated to improve on the calculation of stride length and thus, would have been motivated to combine the teachings and suggestions of Amano and Kato.

c. Conclusion

Accordingly, Petitioner has shown the combination of Kato and Amano teaches

a data processor programmed to calculate a distance traveled by multiplying a number of steps counted by a stride length that varies according to a rate at which steps are taken, and further programmed to derive an actual stride length from a range of stride lengths calculated from a range of corresponding stride rates,

as recited in claim 6.

We further find an ordinarily skilled artisan would have been motivated to combine the teachings and suggestions of Kato and Amano. Having considered the full record developed during trial, we conclude Petitioner has shown by a preponderance of the evidence, that the subject matter of claim 6 is obvious under 35 U.S.C. § 103 over the combination of Kato and Amano.

E. Assertion that Statutes Governing Inter Partes Review Require Dismissal of the Proceeding

Patent Owner asserts “[t]he Board’s partial institution decision [] was unlawful under 35 U.S.C. § 134, and the Board cannot correct that unlawful order by issuing an unauthorized and untimely Order (Paper 11) attempting to modify the institution decision outside of the statutory period for issuing institution decisions” (PO Resp. 8). Specifically, Patent Owner argues:

First, the Board’s institution “modification” order [of its prior institution decision] improperly attempts to address, without the statutorily-mandated rulemaking, how to govern a proceeding covering all challenged claims and all asserted grounds, including those for which a petitioner failed to establish a reasonable likelihood

of prevailing. Second, the Board lacks authority to modify an unlawful institution decision once the statutory timeframe for issuing an institution decision has expired. Because full institution of this IPR did not occur until after the three-month statutory period for making the requisite determination, the Agency has no authority to carry out this proceeding and the IPR must be terminated

(*id.* at 1–2). For those reasons, Patent Owner asserts the issuance of a final written decision in this case would be improper and seeks dismissal of the Petition (*id.* at 8–16). For the reasons discussed below, we reject both aspects of Patent Owner’s reasoning and decline to dismiss the Petition on these bases.

1. Modification of Decision to Institute

In the Decision on Institution, we determined that Petitioner demonstrated a reasonable likelihood of prevailing on some claims and grounds, but had not demonstrated a reasonable likelihood of prevailing on other claims and grounds. We are not persuaded by Patent Owner’s argument that, absent promulgation of new rules, we are precluded from reaching a final written decision with respect to the claims and grounds for which we determined Petitioner had failed to persuade us there was a reasonable likelihood of success at the time of institution of review.

Rather, the current rules cover the scenario in which, at the time of institution of review, the Board determines Petitioner has not shown a reasonable likelihood of prevailing at trial on certain claim(s) and ground(s). Specifically, as noted by Patent Owner (PO Resp. 9), 37 C.F.R. § 42.108(a) (2016) allows the Board to “authorize the review to proceed on all or some of the challenged claims and on all or some of the grounds of unpatentability

asserted for each claim.” Additionally, as also noted by Patent Owner (PO Resp. 9–10), 37 C.F.R. § 42.108(b) (2016) states “At any time prior to institution of *inter partes* review, the Board may deny some or all grounds for unpatentability for some or all of the challenged claims. Denial of a ground is a Board decision not to institute *inter partes* review on that ground.” Neither 37 C.F.R. § 42.108(a) nor 37 C.F.R. § 42.108(b) prohibit inclusion of claims or grounds for which we determined Petitioner had not shown a reasonable likelihood of prevailing at trial in our Decision on Institution.

Patent Owner further notes 37 C.F.R. § 42.108(c) provides that “*Inter partes* review ***shall not be instituted for a ground of unpatentability*** unless the Board decides that the petition supporting the ground would demonstrate that there is a reasonable likelihood that at least one of the claims challenged in the petition is unpatentable” (PO Resp. 10 (quoting 37 C.F.R. § 42.108(c))). However, this rule does not prohibit *inter partes* review on all claims and all grounds; rather, 37 C.F.R. § 42.108(c) allows the Board to institute if “there is a reasonable likelihood that *at least one* of the claims challenged . . . is unpatentable.” Here, we found Petitioner had established a reasonable likelihood that *at least one* of the claims challenged is unpatentable (*see* Dec. 22, 28–29).

Accordingly, contrary to Patent Owner’s assertion, none of these referenced parts of 37 C.F.R. § 42.108 requires exclusion of any claim or ground from an instituted proceeding—including those for which the Board has determined that Petitioner has not shown a reasonable likelihood that it would prevail in establishing unpatentability. Thus, the rules in effect at the

time of institution of review in this proceeding already covered the situation in which the trial includes challenged claims and corresponding grounds of unpatentability for which the Petitioner has not shown a reasonable likelihood of prevailing.

Patent Owner further asserts:

In implementing these final rules, the Agency stated, “The Board will identify the grounds upon which the review will proceed on a claim-by-claim basis. Any claim or issue not included in the authorization for review is not part of the review.” 77 Fed. Reg. 48,689. Indeed, the Agency specifically stated that the regulations ***did not adopt*** comments requesting that “all challenged claims to be included in the *inter partes* review when there is a reasonable likelihood of prevailing with respect to one challenged claim.” 77 Fed. Reg. 48,702–03

(PO Resp. 10). Thus, according to Patent Owner, “the Board’s decision not to institute became final and non-reviewable when [Petitioner] did not request [a] rehearing of the institution decision,” as permitted under 37 C.F.R. § 42.71(c) (*id.* at 10 (citing 77 Fed. Reg. 48,702)). Patent Owner contends the Supreme Court decided partial institution decisions are unlawful in SAS; however, “no new rules have been promulgated and the modification order violated the still-existing rules by instituting a challenge[d] ground . . . for which there was no reasonable likelihood that at least one of the challenged claims was unpatentable” (*id.* at 11).

As with 37 C.F.R. § 42.108, however, such statements do not indicate the Board is *prohibited* from including all challenged claims in the *inter partes* review—including when a petitioner shows a reasonable likelihood of success at trial with respect to just some (or even only one) of the challenged claims and just some (or even only one) of the asserted grounds of

unpatentability (*see, e.g., FMC Techs., Inc. v. OneSubsea IP UK Ltd.*, Case IPR2016-00378, Paper 7, 2016 WL 5219870 (PTAB June 30, 2016) (instituting review “on all of the challenged claims and on all of the asserted grounds, as raised in the Petition,” upon finding a reasonable likelihood of success with respect to one claim)).

In short, Patent Owner asserts that for this case, issuing a final written decision on all challenged claims and grounds identified in the Petition is “expressly contrary to and specifically rejected by the regulations promulgated by the Agency to govern *inter partes* review,” and the Board “must adhere to its own rules and regulations” (PO Resp. 11–12 (citing *Reuters Ltd. v. FCC* 781 F.2d 946, 950–51 (D.C. Cir. 1986))). According to Patent Owner, “the Board essentially operated under a new, *de facto* set of rules that did not go through any of these proper channels . . . the Board’s modification Order is improper as it constitutes improper rulemaking by the Board, and conflicts with 35 U.S.C. § 316 and the Administrative Procedure Act (*id.* at 12).

For reasons discussed above, we reject Patent Owner’s contention that issuing a final written decision with respect to all challenged claims and grounds identified in the Petition is contrary to regulation, i.e., that it constitutes improper rulemaking or conflicts with 35 U.S.C. § 316 and the Administrative Procedure Act.

2. Statutory Due Date

Patent Owner additionally asserts “the Board lacks authority to modify an unlawful institution decision once the statutory timeframe for

issuing an institution decision has expired” (PO Resp. 9). We are not persuaded that the statutory due date under 35 U.S.C. § 314(b) for determining whether to institute an *inter partes* review, was violated in this proceeding.

Patent Owner contends “The Board’s modification Order (Paper 11) attempted to bring the content of the Board’s Institution Decision into compliance with § 314(a), but the modification Order also fails to comport with the governing statute by violating the mandatory timing of institution decisions, 35 U.S.C. § 314(b)” (PO Resp. 13). Patent Owner further asserts that under 35 U.S.C. § 314(b), the Board’s statutorily-required decision whether to institute is due within three months of filing of Patent Owner’s Preliminary Response (*id.*).

We agree with Patent Owner’s articulation of the due date for the Board to determine whether to institute *inter partes* review and also agree that in this case, because Patent Owner filed a preliminary response on December 14, 2017 (Paper 7), the due date for the Board to determine whether to institute review was March 14, 2018 (PO Resp. 13). Here, we decide to institute *inter partes* review on March 12, 2018 (Dec.).

Patent Owner argues, however, the Board’s complete determination of whether to institute an *inter partes* review did not occur until May 16, 2018, with the issuance of an Order (Paper 11), which was outside of the time period required under the statute (PO Resp. 13). According to Patent Owner, “the Board’s final written decision must address all claims in the petition but a corrected institution decision instituting all claims and all challenges would be out of time” (*id.*). Thus, Patent Owner asserts, the

Board should have dismissed the *inter partes* review “[b]ecause the Board’s attempt to correct the improper institution was untimely under 35 U.S.C. § 314(b)(1) and in violation of the Director’s obligation to engage in formal rulemaking under 35 U.S.C. § 316” (*id.* at 14).

We determine that Patent Owner’s contention is misplaced. In particular, we determine the question before us and decided by the U.S. Supreme Court in *SAS*, was not whether a partial institution decision was null and void, as though the Board never determined whether to institute an *inter partes* review, but whether the Board, after instituting an *inter partes* review, must issue a final written decision with respect to the patentability of every patent claim challenged by a petitioner. In *SAS*, the Supreme Court framed the issue before it as:

When the Patent Office initiates an *inter partes* review, must it resolve *all* of the claims in the case, or may it choose to limit its review to only *some* of them? The statute, we find, supplies a clear answer: the Patent Office must “issue a final written decision with respect to the patentability of *any* patent claim challenged by the petitioner.” 35 U.S.C. § 318(a) (emphasis added). In this context, as in so many others, “any” means “every.” The agency cannot curate the claims at issue but must decide them all

(*SAS*, 138 S. Ct. at 1352–1353). We recognize that the Supreme Court explained: “The Director, we see, is given only the choice ‘whether’ to institute an *inter partes* review. That language indicates a binary choice—either institute review or don’t” (*id.* at 1355). “The text says only that the Director can decide ‘whether’ to institute the requested review—not ‘whether and to what extent’ review should proceed” (*id.* at 1356 (citing 35 U.S.C. § 314(b))). Thus, the Supreme Court did not hold that the Board’s

institution decision in SAS was null and void. Rather, the Court in SAS simply recognized that, in the case before it, the Board instituted review, but incorrectly limited the scope of the review: “Because everything in the statute before us confirms that SAS is entitled to a final written decision addressing all of the claims it has challenged . . . the case is remanded for further proceedings consistent with this opinion” (*id.* at 1359–60).

Therefore, SAS did not preclude a scope correction of an already instituted case by the Board, including corrections made after the due date for the Board to decide whether to institute review. Similarly, the U.S. Court of Appeals for the Federal Circuit, subsequent to the Supreme Court’s decision in SAS and for the Board proceeding underlying SAS, did not vacate the Board’s initial institution decision in that proceeding (*see also AC Techs. S.A. v. Amazon.com, Inc.*, No. 2018-1433, slip op. at (Fed. Cir. Jan. 9, 2019) (“[N]either § 314(b)’s timing requirements nor § 314(d)’s limits on appealability alter the Board’s statutory obligation to rule on all claims and grounds presented in the petition.”) (citing SAS, 138 S. Ct. at 1356)).

Here, the Board’s decision to institute review (Paper 8) was issued on March 12, 2018. The subsequent order (Paper 11) correcting the scope of review, dated May 16, 2018, did not change that the Board decided on March 12, 2018, to institute review. Thus, we determine that our Institution Decision (Paper 8) was not unlawful.

Accordingly, Patent Owner’s assertion is not persuasive.

F. Assertion that Petitioner Cannot Salvage its Petition's Deficient Challenges Post-Institution

Patent Owner asserts “Petitioner is prohibited from introducing new theories of unpatentability in a reply or otherwise post-institution . . . in an attempt to remedy shortcomings identified in the Board’s Institution Decision” (PO Resp. 14 (citing 37 C.F.R. § 42.23(b); *Dell Inc. v. Accelaron, LLC*, 818 F.3d 1293 (Fed. Cir. 2016))). Specifically, Patent Owner contends the “sole permissible outcome is for the Board to confirm that [claims 2 and 5] are not anticipated by Amano” (*id.*). Patent Owner contends “SAS does not allow Petitioners to modify or otherwise pivot from the Petition’s challenges, which have already been deemed insufficient in the Board’s Institution Decision” (*id.* at 15). According to Patent Owner, Petitioner “is prohibited from introducing a newly modified argument of unpatentability post-institution, or new evidence or testimony in support of such improper argument” and, with respect to the non-instituted claims, “[n]othing in SAS enables a different result in the final written decision” than that set forth in the Decision to Institute (*id.*).

We direct the parties’ attention to the Trial Practice Guide Update which states:

A petitioner may file a reply to a patent owner response, and a patent owner may file a reply to an opposition to a motion to amend. 37 C.F.R. § 42.23. Additionally, in response to issues arising from the Supreme Court’s decision in *SAS* (138 S. Ct. at 1358), the Board will permit the petitioner, in its reply brief, *to address issues discussed in the institution decision . . .* Petitioner *may not submit new evidence or argument* in reply that it could have presented earlier, e.g. to make out a prima facie case of unpatentability. But a petitioner may submit directly responsive rebuttal evidence in support of its reply. See

Belden Inc. v. Berk-Tek LLC, 805 F.3d 1064, 1077–78 (Fed. Cir. 2015). If a party submits a new expert declaration with its reply, the opposing party may cross-examine the expert, move to exclude the declaration, and comment on the declaration and cross-examination in any sur-reply. *Id.* at 1081–82

(*Trial Practice Guide Update* 14 (2018)). Thus, Petitioner is limited in issues that may be addressed, and evidence or argument that may be presented. The Trial Practice Guide Update further states that

Generally, a reply or sur-reply may only respond to arguments raised in the preceding brief. 37 C.F.R. § 42.23, except as noted above. To the extent that a reply or sur-reply “responds” to the institution decision as discussed above, “respond,” in the context of § 42.23(b), does not mean embark in a new direction with a new approach as compared to positions taken in a prior filing

(*id.* at 15). Therefore, Petitioner cannot “embark in a new direction with a new approach.” The Trial Practice Guide Update provides examples of new issues: new theories or arguments, such as a newly raised rationale to combine prior art references not expressed in the Petition; and new evidence that could have been previously presented, e.g., newly cited prior art references (*id.*). Similarly, sur-replies are held to a similar standard (*id.* at 14–15).

Thus, to the extent the parties’ adhere to the Trial Practice Guide Update, the reply and/or sur-reply will be considered by the Board. The Board is not required to reach the same “outcome” as set forth in our Decision to Institute because the burdens of proof differ between institution and final decision, and additional briefing and evidence may be proffered according to the rules, after the Decision to Institute.

G. Constitutionality of Alleged Retroactive Application of Inter Partes Review

Patent Owner argues “At the time Patent Owner’s patent issued, the express provisions of the Patent Act did not make patent revocable through *inter partes* review” (PO Resp. 40). According to Patent Owner, “Retroactively subjecting Patent Owner’s vested patent rights to new qualifications . . . presents a constitutional concern sufficient to preclude invalidation of the claims” (*id.* at 40–41).

Petitioner contends *inter partes* review only provides prospective relief and thus, is not a retroactive application of law (Pet. Reply 22). Petitioner further contends *inter partes* review “does not qualify as a retroactive application of law because the intervening change in law that created *inter partes* review merely effected procedural changes over what was previously available under the law” and effects “no relevant change in substance compared to what applicants and patentees faced before” (*id.* at 22–23). Lastly, Petitioner asserts the Supreme Court held in *Oil States Energy Servs, LLC v. Greene’s Energy Grp., LLC*, 138 S. Ct. 1365, 1379 (2018)(“*Oil States*”) “that a patent is a ‘public franchise’ that Congress grants and thus one which Congress has the power to limit” (*id.* at 23).

The Supreme Court has held that “*inter partes* review does not violate Article III or the Seventh Amendment” (*Oil States* at 1379). The Court did emphasize the narrowness of its holding, stating that *Oil States* did not challenge the retroactive application of *inter partes* review to patents that had issued before the process was put in place (*id.*).

The Board previously has declined to consider constitutional challenges because “generally, ‘administrative agencies do not have jurisdiction to decide the constitutionality of congressional enactments.’” *Square Inc. v. Unwired Planet LLC*, Case IPR2014-01165, slip op. at 25 (PTAB Oct. 30, 2015) (Paper 32) (quoting *Riggin v. Office of Senate Fair Emp’t Practices*, 61 F.3d 1563, 1569 (Fed. Cir. 1995)). We likewise decline to consider the merits of Patent Owner’s constitutional challenges.

IV. CONCLUSION

For the reasons discussed above, we determine Petitioner has not proven, by a preponderance of the evidence that claims 2 and 5 of the ’212 Patent are (i) unpatentable under 35 U.S.C. § 102(a) over the teachings of Amano and (ii) unpatentable under 35 U.S.C. § 103(a) over the teachings of Amano. We further determine Petitioner has proven, by a preponderance of the evidence, that claim 6 of the ’212 Patent is unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Kato and Amano.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claim 6 of the ’212 Patent has been shown to be unpatentable;

FURTHERED ORDER that claims 2 and 5 of the ’212 Patent have not been shown to be unpatentable; and

FURTHERED ORDERED that, because this is a Final Written

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Decision, parties to the proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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