

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PELOTON INTERACTIVE, INC.,
Petitioner,

v.

JOHNSON HEALTH TECH CO., LTD.,
Patent Owner.

IPR2023-01164
Patent 10,796,375 B2

Before JAMES P. CALVE, BART A. GERSTENBLITH, and
JULIET MITCHELL DIRBA, *Administrative Patent Judges*.

CALVE, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. BACKGROUND

A. *History of this Proceeding*

Peloton Interactive, Inc. (“Petitioner”) filed a Petition seeking *inter partes* review of claims 1–20 (the “challenged claims”) of U.S. Patent No. 10,796,375 B2 (Paper 2, “Pet.”), and Petitioner submitted a declaration of Mr. R. Lee Rawls in support (*see* Ex. 1002). Johnson Health Tech Co., Ltd. (“Patent Owner”) waived the filing of a Preliminary Response. Paper 5, 2.

Based on the preliminary record, we determined that Petitioner had demonstrated a reasonable likelihood that it would prevail in establishing the unpatentability of at least one challenged claim, and we instituted an *inter partes* review of all challenged claims on all asserted grounds. Paper 7 (“Inst. Dec.”) 24. During trial, Patent Owner filed a Response (Paper 27, “PO Resp.”), and Patent Owner submitted a declaration of Mr. Daniel van der Weide (*see* Ex. 2004) and the deposition transcript of Mr. Rawls (*see* Ex. 2005). Petitioner filed a Reply to Patent Owner’s Response. Paper 29 (“Pet. Reply”). Patent Owner filed a Sur-reply to Petitioner’s Reply. Paper 31 (“PO Sur-reply”). An oral hearing was held on September 5, 2024, and a copy of the transcript was entered in the record. Paper 37 (“Tr.”).

We have jurisdiction pursuant to 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the patentability of the claims on which we instituted trial. Petitioner bears the burden of proving unpatentability of the challenged claims. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). Having considered the full record at trial, and for the reasons explained below, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–20 are unpatentable.

B. Related Proceedings

The parties state that the '375 patent has been asserted in one district court lawsuit: *Johnson Health Tech Co. v. Peloton Interactive, Inc.*, No. 3:22-cv-606 (W.D. Wis.). Pet. 86; Paper 3 (Patent Owner's Mandatory Notices), 2. Petitioner also challenged patents related to the '375 patent in IPR2023-01163 and IPR2023-01165. Pet. 86. Final written decisions in those other proceedings are entered concurrently with this Decision.

B. Real Parties in Interest

Petitioner asserts Peloton Interactive, Inc. is a real party in interest. Pet. 86. Patent Owner identifies Johnson Health Tech Co., Ltd. and Johnson Health Tech North America, Inc. as real parties in interest. Paper 3, 2.

C. The '375 Patent

The '375 patent is titled "Exercise Apparatus with Exercise Use Verification Function and Verifying Method," and the application that led to this patent was filed on July 24, 2018, claiming priority to a provisional application filed on December 30, 2014. Ex. 1001, codes (22), (54), (60).

The '375 patent describes an exercise apparatus with an exercise use verification function. Ex. 1001, 1:17–20, 2:33–67. When a user drives the operating member of a non-motorized exercise apparatus to operate the exercise apparatus, a controller associated with the operating member creates exercise use data that is reported to the user to show their exercise habit. *Id.* at 1:45–51. With a motor-driven exercise apparatus, such as a treadmill with a motor driven running belt or a stairclimber with a motor driven staircase, a user can falsify their exercise data by starting the operating member and letting the apparatus run without actually using it, causing the apparatus to report "faked" exercise data. *Id.* at 1:61–2:11.

Figure 1 is reproduced below to illustrate an exemplary motor-driven exercise apparatus 10 with an exercise use verification function. Ex. 1001, 3:50–61.

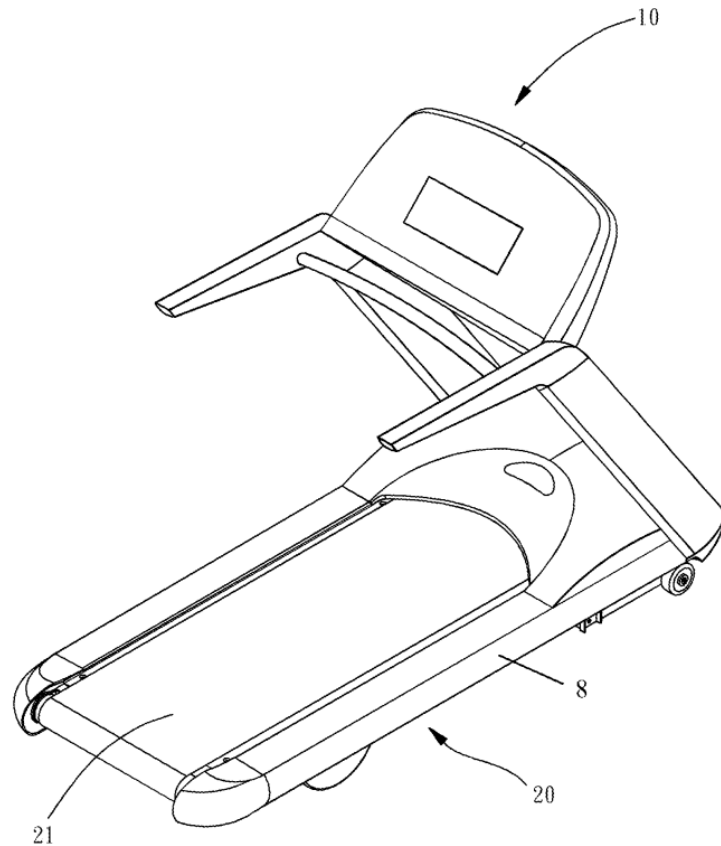


Figure 1 shows exercise apparatus 10 with motor-driven operating member 20 having operating unit 21 (an endless belt), base 8, and motor (not shown) coupled to operating unit 21. Ex. 1001, 3:50–4:5. Other apparatus include a motorized stairclimber with a motor-driven moving staircase. *Id.* at 3:66–4:2. Motor 22 connects to a power source that transmits an input current to motor 22 to power motor 22 and drive operating unit 21. *Id.* at 4:3–8. A current sensor 30 is located between motor 22 and the power source. *Id.* at 4:11–13. Figure 2 is reproduced below to illustrate a schematic of the exercise device with an exercise verification function. *Id.* at 3:50–51.

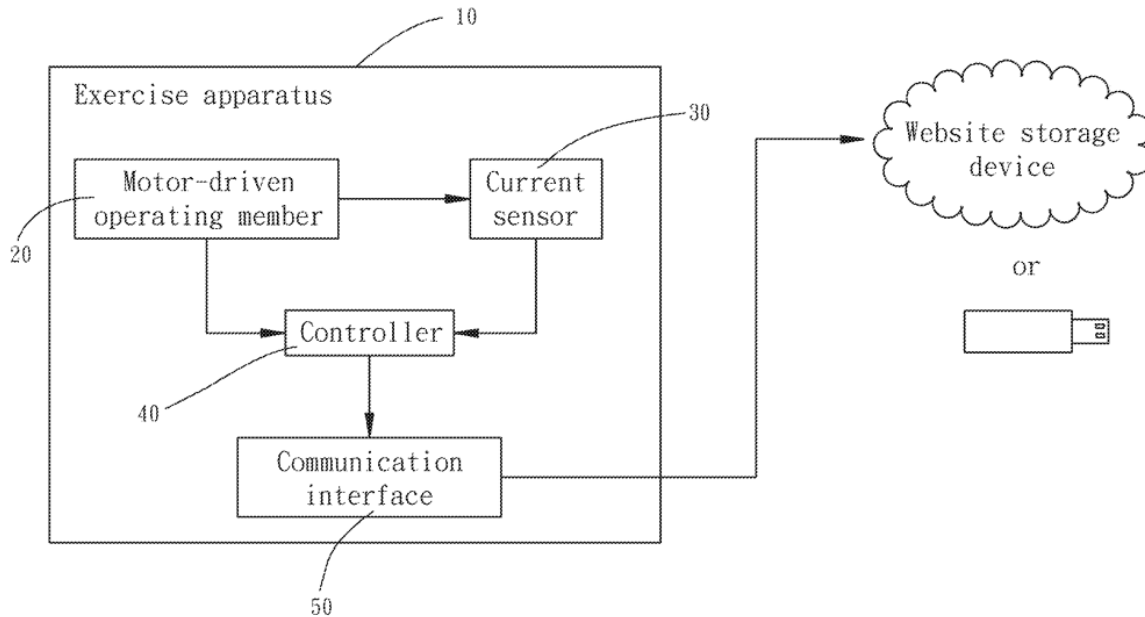


FIG. 2

Figure 2 shows exercise apparatus 10 with motor-driven operating member 20, current sensor 30, controller 40, and communication interface 50 that connects to a website storage device or a flash drive. Operating member 20 is coupled to current sensor 30 that detects current input to drive motor 22 (not shown) and generates signals proportionate to that current. Ex. 1001, 4:3–18. Controller 40 communicates with current sensor 30 to detect current changes when a user engages operating member 20 and motor 22 draws more power. *Id.* at 4:54–65. Communication interface 50 transmits exercise data to users via a display on apparatus 10 and to doctors and third parties via Internet interface. *Id.* at 6:9–52. Controller 40 analyzes data from the sensor to detect whether a user is actively engaging operating member 20. *Id.* at 7:17–19. If a user is detected engaging operating member 20, the process generates validated exercise use data that the controller can record. *Id.* at 7:31–35, 7:47–50. Validated exercise use data can be communicated to interested third parties. *Id.* at 7:50–52.

D. Challenged Claims

Petitioner challenges all twenty claims of the '375 patent. Of these, claims 1 and 16 are independent with claims 2–15 depending from claim 1 and claims 17–20 depending from claim 16. Claim 1 is illustrative and is reproduced below with Petitioner's annotations.

1. [pre] An exercise apparatus comprising:
 - [a] a motor;
 - [b] an operating member driven by the motor;
 - [c] a sensor operable to detect engagement of a user with the operating member;
 - [d] a controller in communication with the operating member and the sensor, the controller configured to generate exercise use data when the operating member is driven by the motor; and
 - [e] a communication interface in communication with the controller,
 - [f] wherein the controller is configured [to] determine whether the user is engaged with the operating member in response to movement of the operating member and the sensor detecting engagement of the user with the operating member;
 - [g] wherein in response to the controller determining that the user is engaged with operating member, the controller is configured to report the exercise use data to the communication interface,
 - [h] wherein in response to the controller determining that the user is not engaged with the operating member, the controller is configured to stop reporting the exercise use data to the communication interface, and
 - [i] wherein the communication interface is configured to communicate the reported exercise use data to a third party.

Ex. 1001, 7:63–8:22; *see* Pet. App. 1–2 (Claims Listing).

E. Asserted Grounds of Unpatentability

We instituted trial on the following grounds of unpatentability:

Ground	Challenged Claims	35 U.S.C. §	Reference(s)
1	1–7, 10–20	103 ¹	Morris, ² Ray ³
2	8, 9, 18	103	Morris, Ray, Cox ⁴
3	1–3, 6, 7, 10–16, 19, 20	103	Ray, AAPA ⁵
4	8, 9, 18	103	Ray, AAPA, Cox

II. DISCUSSION

A. Level of Ordinary Skill in the Art

Petitioner asserts that the level of ordinary skill in the art corresponds to “(i) a bachelor’s degree in an exercise related field or mechanical or electrical engineering and (ii) three to five years of industry experience in designing cardiovascular exercise equipment (such as treadmills, bicycles, steppers, ellipticals) or in a similar field.” Pet. 16 (citing Ex. 1002 ¶¶ 31–34).

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. § 103 effective on March 16, 2013. Because the ’375 patent has an effective filing date after March 16, 2013, we refer to the current version of Section 103.

² US 2010/0160115 A1, published June 24, 2010 (Ex. 1006, “Morris”).

³ US 9,785,827 B1, issued Oct. 10, 2017 (Ex. 1004, “Ray”).

⁴ US 7,736,273 B2, issued June 15, 2010 (Ex. 1005, “Cox”).

⁵ Petitioner contends that column 1, line 38 to column 2, line 11 of the Specification of the ’375 patent is applicant admitted prior art (“AAPA”). See Pet. 63–64. For the reasons explained below, we do not reach the merits of this contention.

Petitioner also asserts that a person could qualify as an ordinarily skilled artisan with less education but more experience, or less experience but more education. Pet. 16 (citing Ex. 1002 ¶¶ 31–34).

Patent Owner proposes the same level of ordinary skill in the art, except that Patent Owner states that the industry experience would have been “in analyzing and/or designing exercise equipment (such as treadmills, bicycles, steppers, ellipticals) or in a similar field.” PO Resp. 8.

Having considered the record, we adopt Petitioner’s proposed level of skill, as articulated above. We are satisfied that it comports with the level of skill necessary to understand and implement the teachings of the ’375 patent. *Accord* Inst. Dec. 8. Patent Owner’s proposal adds “analyzing” and removes “cardiovascular,” but these differences are immaterial to this proceeding. *See* Pet. Reply 27 n.8. Moreover, all of our analysis in this Decision would remain the same under Patent Owner’s articulation of the level of ordinary skill in the art.

B. Claim Interpretation

We interpret claims “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b). Under that standard, words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). We only need to construe the claims to the extent necessary to resolve the parties’ disputes. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019).

Petitioner asserts that no express claim construction of any term is needed for this proceeding. Pet. 15 (citing Ex. 1002 ¶¶ 29–30).

Patent Owner asserts that the claim term “exercise use data” needs to be construed to resolve the issues raised by Petitioner. PO Resp. 4. Patent Owner asserts that exercise use data is “data that would represent an amount of exercise of the user.” *Id.*; Ex. 2004 ¶ 32. Petitioner disagreed with this proposed construction in its briefing (Pet. Reply 1–5) but adopted it during the oral hearing (Tr. 14:12–15:17). The parties also agree that “exercise use data” includes time, distance, and calories of a user exercising on an exercise apparatus. PO Resp. 4–5, 14; Pet. Reply 3–4. For purposes of this proceeding, we apply Patent Owner’s proposed construction. For the reasons explained below, we determine that Petitioner has shown that the challenged claims are unpatentable even under Patent Owner’s narrower construction. As a result, we do not need to construe this claim term further.

C. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103 if differences between the claimed subject matter 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. 35 U.S.C. § 103; *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The legal question of obviousness is resolved based on 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 ordinary skill in the art; and (4) when in evidence, objective evidence of non-obviousness. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966). The current record does not include allegations or evidence of objective indicia of non-obviousness.

D. Ground 1: Asserted Obviousness Based on Morris and Ray

Petitioner asserts that claims 1–7 and 10–20 are unpatentable under 35 U.S.C. § 103 over the combination of Morris and Ray. Pet. 16–54.

1. Morris

Morris discloses an exercise machine with user detection features such as treadmill 100, which is shown in Figure 1, reproduced below.

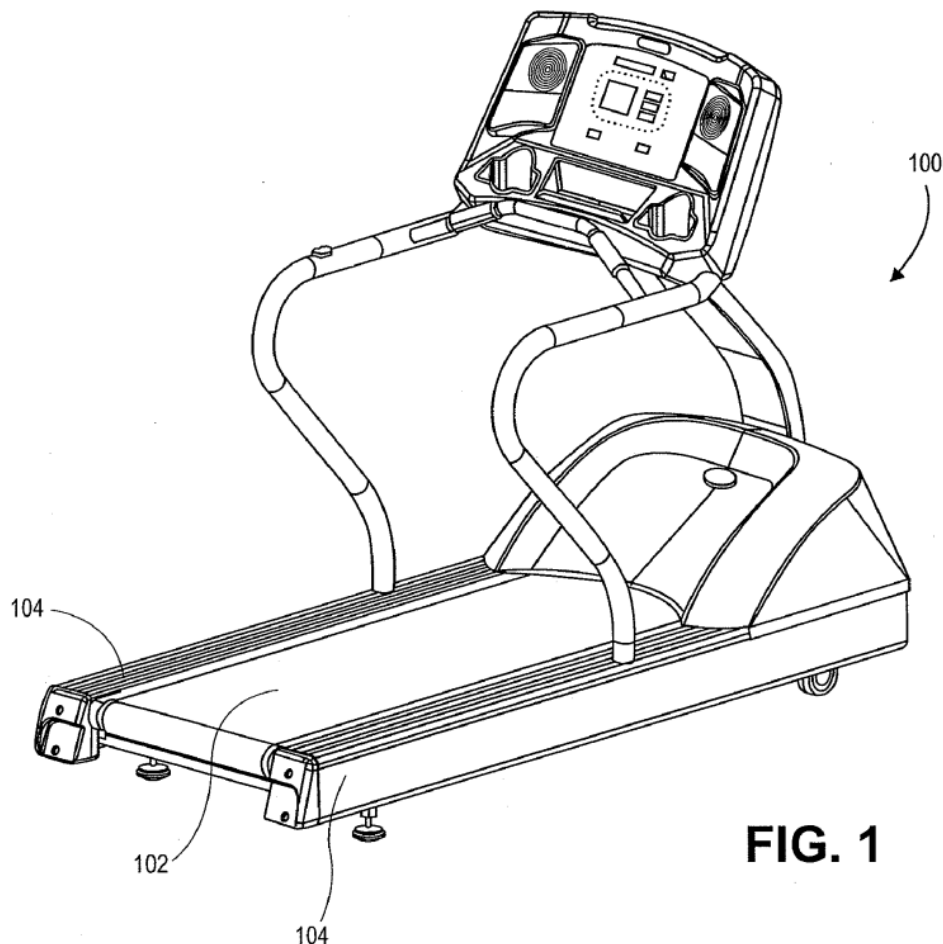


Figure 1 shows treadmill 100 including base 104 with a frame and rollers and endless belt 102 that glides over a floating deck of base 104 and is driven by a belt driving mechanism (not shown). Ex. 1006 ¶ 25. During a workout, Morris displays a user's exercise data including distance, pace, cadence, and heart rate. *Id.* ¶¶ 35, 51, Fig. 11.

A user detection mechanism in treadmill base 200 is shown in Figure 2, which is reproduced below. Ex. 1006 ¶ 27.

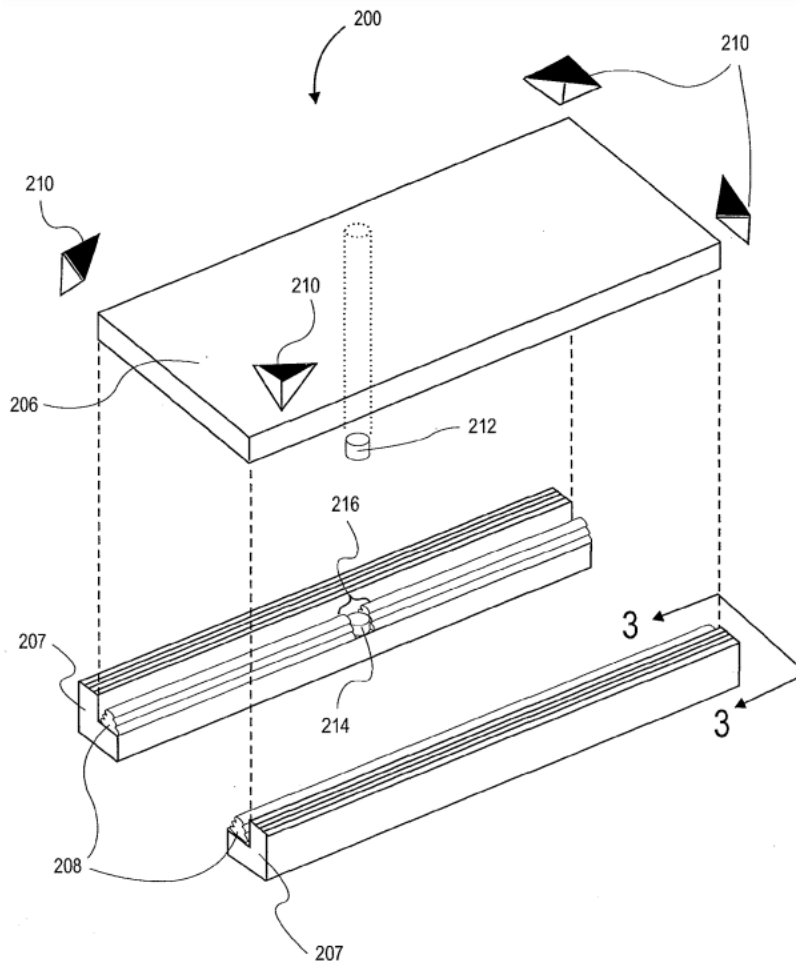


FIG. 2

Figure 2 shows a user detection mechanism comprising magnet 212 attached to, or embedded in, deck 206 to interact with induction coil 214 fixed along frame 207 in compressible supports 208 that support deck 206. Ex. 1006 ¶ 27. Magnet 212 and induction coil 214 form a reluctance sensor. *Id.* As deck 206 moves under a user's footfalls or weight shifts, compressible supports 208 allow magnet 214 to move relative to induction coil 214 to induce a current in induction coil 214. *Id.* This current is transmitted to a processor for translation as shown in Figures 3A and 3B reproduced below.

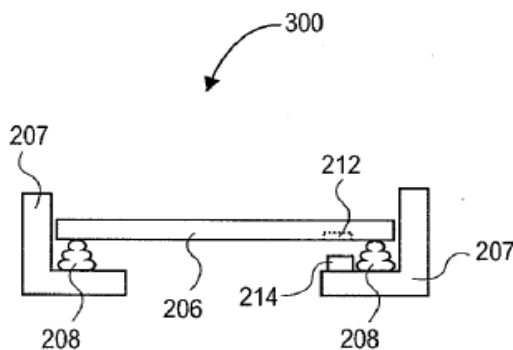


FIG. 3A

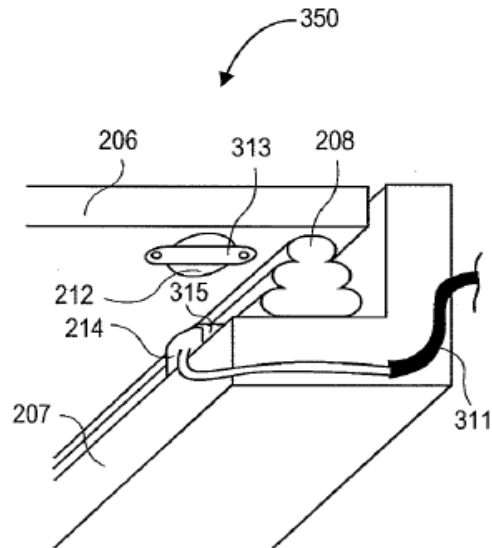


FIG. 3B

Figures 3A and 3B illustrate a user detection system including magnet 212 affixed to deck 206 to move therewith relative to induction coil 214 due to a user's footfalls or weight shifts. The movement of magnet 212 relative to induction coil 214 induces signals that are sent by wire 311 to a processor. Ex. 1006 ¶¶ 27, 31. The processor distinguishes these large signals caused by a user's footfalls or weight shifts from "baseline" signals caused by slight vibrations in the treadmill due to the electric motor driving the belt. *Id.* ¶ 31. A change from such small baseline signals to a large signal can indicate the presence of the user. *Id.* That determination can be output to a display or passed to another process for use. *Id.* Other sensors may be used, and these include magnetic sensors and optical sensors. *Id.* ¶ 33.

In one embodiment, induction coil 214, incline controller 526, and speed sensor 527 output signals to processors at translator board 518 of system 500 as shown in Figure 6, reproduced below. Ex. 1006 ¶¶ 32, 33.

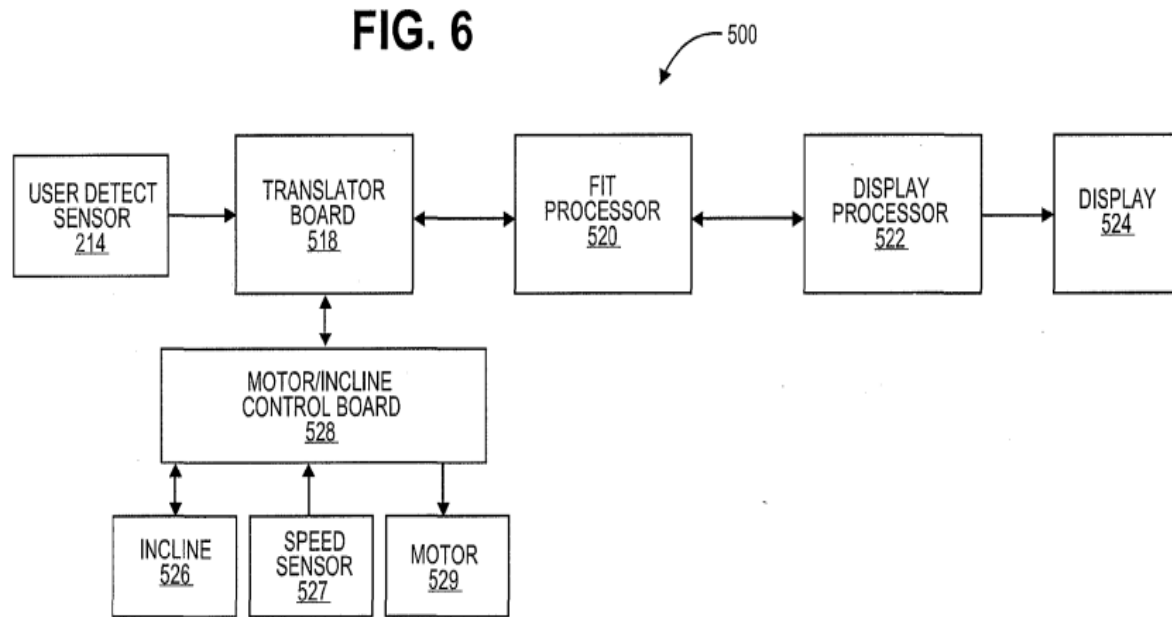


Figure 6 is a block diagram of information processing system 500 with a user detect sensor (induction coil 214), translator board 518, FIT (fitness) processor 520, display processor 522, display 524, incline controller 526, speed sensor 527, motor/incline control board 528, and motor driver 529. Ex. 1006 ¶¶ 32, 33. Translator board 518 interprets signals received from induction coil 214 and forwards them to FIT processor 520, which uses this indication of the user's presence or absence to control a workout program. *Id.* ¶ 36. FIT processor 520 may communicate the user's presence to display processor 522, which may command display 524 to display indications of the user's presence. *Id.* FIT processor 520 manages the workout program, e.g., duration, distance, incline, and intensity. *Id.* ¶ 35. Signal processors include translator board 518, FIT processor 520, and display processor 522. *Id.* ¶ 34. A user's cadence, footfall force, pace, heart rate, incline, distance, and program profile may be output as exercise information and feedback on a display panel. *Id.* ¶¶ 51–53, Fig. 11. Incline controller 526 and speed sensor 527 indicate the incline and speed of treadmill belt 102. *Id.* ¶¶ 33, 34.

Figure 11 of Morris is reproduced below to illustrate exemplary display panel 1182 that may be used with the user detection system described in Morris. Ex. 1006 ¶ 51.

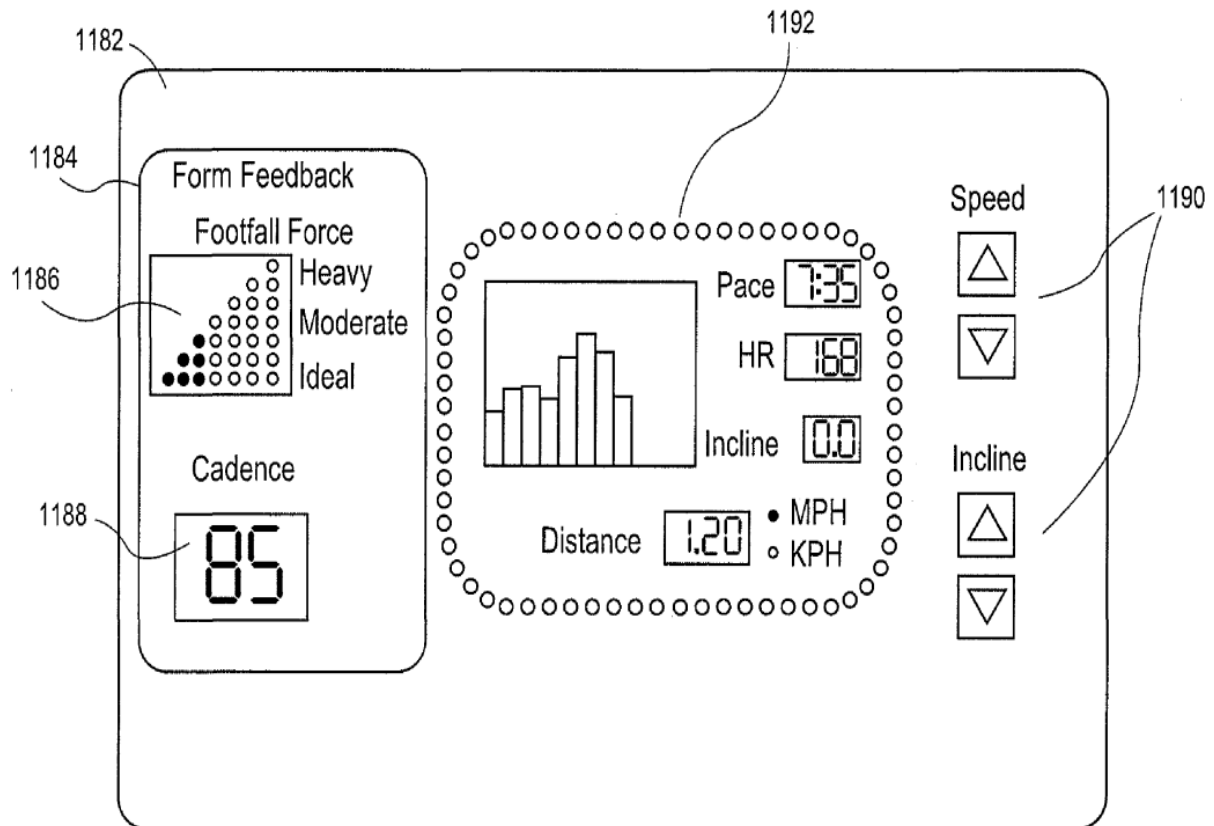


Figure 11 depicts display panel 1182 with control buttons 1190 and exercise program information panels 1192 that display a user's cadence 1188 and footfall force 1186 of impact for a user's footfalls in feedback panel 1184 and a user's pace, heart rate ("HR") when available, distance, incline, and program profile. Ex. 1006 ¶¶ 51–53. When a user is detected, the display shows the current program. When a user is not detected, the display changes to "Please return to the treadmill to complete your workout or stop the machine." *Id.* ¶ 45. If the user does not return, a controlled slowdown is triggered to stop the treadmill. *Id.*

2. Ray

To verify a user's identity and exercise data, Ray detects the user's movement on treadmill exercise machine 40 with camera 32 when exercise machine 40 is moving and exercise data 24 is being produced by exercise machine 40. Ex. 1004, 6:43–7:10, 13:20–30, 14:6–46. The system can be merged easily into current exercise machines. *Id.* at 9:55–60. Figure 1 of Ray is reproduced below to illustrate this user detection arrangement.

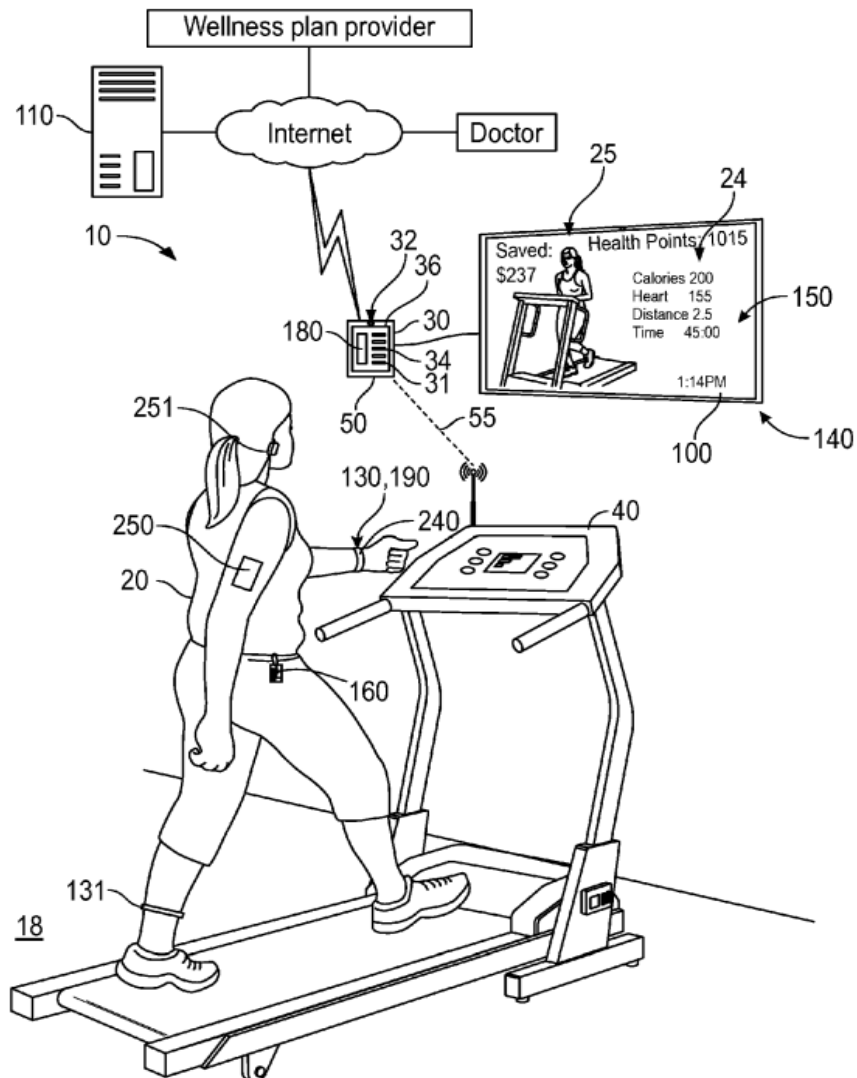


FIG. 1

Figure 1 shows a user exercising on exercise machine 40.

As a user exercises, camera 32 of electronic device 30 records their exercise data. Ex. 1004, 13:7–30. When camera 32 detects movement of a user's shoulders up and down while the treadmill is moving, as indicated at interface 55, camera 32 records still or video images of the user exercising and/or produces a live feed to motivate the user. *Id.* at 6:43–56, 13:20–24, 14:6–46. As long as the user exercises on exercise machine 40, camera 32 captures the user's image at pre-set intervals. *Id.* at 6:49–60, 14:31–40.

The system displays exercise data 24 (including time 140 and duration 150) and motivational image 25 (which may be a thinner image of the user based on the intensity or duration of the user's exercise). Ex. 1004, 5:41–58, 13:50–67. The user's identity, motivational image, and exercise data may be received from electronic device 30 and sent over the Internet to a doctor, a wellness manager, other authorized practitioner, or remote server 110. *Id.* at 6:63–7:8, 13:7–30.

3. *Motivation to Combine and Expectation of Success*

Petitioner contends that a person of ordinary skill in the art would have been motivated to combine the complementary teachings of Morris and Ray to improve the capabilities of Morris' treadmill. Specifically, Petitioner asserts that a person of ordinary skill in the art would have been motivated to add several of Ray's features to Morris' treadmill (including Ray's camera, software instructions for validating user exercise data, its functionality of displaying a motivational image, and its ability to transmit exercise data to a remote location to allow a more efficient flow of that data to a physician or a personal trainer), and that the ordinarily skilled artisan would have had a reasonable expectation of success in achieving the proposed combination. Pet. 16–19.

Petitioner contends that an ordinarily skilled artisan would have been motivated to combine Morris and Ray because they provide complementary teachings and address similar objectives. Pet. 16 (citing Ex. 1004, Abstr., 5:41–48, 8:22–26, 11:56–61, 13:20–30; Ex. 1006 ¶¶ 6, 25, 33, 35, Abstr.; Ex. 1002 ¶¶ 135–138). Petitioner asserts that Morris contemplates the use of an optical sensor, which provides express motivation to install and use Ray’s camera for user detection. *Id.* at 17 (citing Ex. 1006 ¶ 33). Petitioner asserts Morris provides exercise data and “a human analog display that mimic[s] the user’s bouncing motion,” and has a signal processing and display system with the necessary capabilities to implement the combination. *Id.* (citing Ex. 1002 ¶¶ 139–143; Ex. 1006 ¶¶ 32, 34–36, 50, 56–58, claims 29–37, Figs. 6, 11–12C); *see also id.* at 23–24 (asserting that “including multiple sensors in treadmills was a routine and well-known task”) (citing Ex. 1002 ¶¶ 155). Petitioner also asserts that Ray teaches that “its user validation and motivation technology could be ‘easily and affordably merged’ into a treadmill.” *Id.* at 18 (quoting Ex. 1004, 9:55–57) (citing Ex. 1002 ¶¶ 145–146). Finally, Petitioner contends that an ordinarily skilled artisan would have been motivated to make the proposed combination because it would have improved Morris’ treadmill to add “Ray’s motivational image that showed a thinner image of the user as the intensity and duration of exercise increased” and Ray’s ability to share exercise data with a remote location. *Id.* at 18–19 (citing Ex. 1004, 7:11–22, 11:55–59, 13:50–57; Ex. 1006 ¶ 50; Ex. 1002 ¶ 147); *id.* at 16 (arguing user motivation resulting from detecting a user’s presence would motivate the combination (citing Ex. 1004, 8:22–26, 11:56–61; Ex. 1006 ¶ 25)), 40 (arguing that data transmission to a remote location was “a well-known and routine task” (citing Ex. 1002 ¶¶ 184–185)).

Patent Owner does not dispute Petitioner's contentions. *See* PO Resp.

We find that Petitioner has established that a skilled artisan would have been motivated to improve Morris' treadmill by adding Ray's camera, software instructions for validating user exercise data, its functionality of displaying a motivational image, and its ability to transmit exercise data to a remote location, and would have had a reasonable expectation of success. *See* Pet. 16–19, 27–28; Ex. 1002 ¶¶ 137–147, 161–163; Ex. 1004, 5:27–29, 7:11–22, 9:55–57; Paper 8 (Scheduling Order), 9 (cautioning Patent Owner that any arguments not raised in the response may be deemed waived).

4. *Independent Claim 1*

a. *1[pre]: “An exercise apparatus comprising:”*

Petitioner asserts that Morris discloses an exercise machine with user detection features as treadmill 100. Pet. 19 (citing Ex. 1006 ¶¶ 6, 7, Title, Abstr., claim 29, Fig. 1). Patent Owner does not dispute that Morris discloses the preamble. *See* PO Resp. We have reviewed Petitioner's evidence and arguments, and we find that Petitioner has shown that Morris discloses element 1[pre]. *See, e.g.,* Ex. 1006 ¶¶ 6, 7, Fig. 1. Thus, we do not need to decide whether the preamble is limiting.

b. *1[a]: “a motor;”*

Petitioner asserts that Morris' treadmill includes an electric motor for driving the belt, a motor feedback system for monitoring the treadmill's incline and speed, and drivers for the motor. Pet. 20 (citing Ex. 1006 ¶¶ 31–33, Fig. 6; Ex. 1002 ¶¶ 148–149). Patent Owner does not dispute that Morris discloses element 1[a]. *See* PO Resp. We have reviewed Petitioner's evidence and arguments, and we find that Petitioner has shown that Morris discloses element 1[a]. *See, e.g.,* Ex. 1006 ¶¶ 31–33, Fig. 6.

c. 1[b]: “an operating member driven by the motor;”

Petitioner asserts that Morris discloses endless belt 102 driven by an electric motor, and the endless belt is positioned above stationary deck 206. Pet. 20–21 (citing Ex. 1006 ¶¶ 25, 27, Fig. 1; Ex. 1001, 3:1–4, 3:59–66 (the operating member includes an endless belt), Fig. 1; Ex. 1002 ¶ 150). Patent Owner does not dispute these contentions. *See* PO Resp. We have reviewed Petitioner’s evidence and arguments, and we find that Petitioner has shown that Morris discloses element 1[b]. *See, e.g.*, Ex. 1006 ¶ 25, Fig. 1.

d. 1[c]: “a sensor operable to detect engagement of a user with the operating member;”

Petitioner asserts that Morris describes a sensor such as a reluctance sensor comprising magnet 212 and induction coil 214 used to detect a user’s footfalls engaging the deck and endless belt operating member, and indicates that other magnetic and optical sensors can be used to detect users. Pet. 21–22 (citing Ex. 1006 ¶¶ 27, 31, 33, Figs. 3A, 3B; Ex. 1002 ¶¶ 151, 152).

Petitioner asserts that Ray discloses an optical sensor (camera) and a data processor connected to a treadmill to detect a user’s engagement with a moving belt and movement on the treadmill by taking real-time images of the user exercising, and by providing a *live feed* of the exercising user when the camera detects a user’s shoulders moving up and down. Pet. 22–23 (citing Ex. 1004, 6:53–56, 9:55–57, 10:36–50, 10:59–64, 13:20–24, 14:6–14, 14:34–40, 15:55–65, 16:47–50, claim 1). Petitioner asserts that it would have been obvious to combine Ray’s camera and exercise analysis software with Morris’ treadmill to augment the reluctance sensor’s detection of force exerted by a user on the treadmill as the user exercised on the treadmill and to modify the user’s virtual image. Pet. 23–24 (citing Ex. 1001, 5:31–54, 7:9–16, Fig. 5; Ex. 1002 ¶¶ 151–156).

Patent Owner does not dispute that Morris and Ray disclose element 1[c]. *See* PO Resp.

We have reviewed Petitioner’s evidence and arguments and find that Petitioner has shown that the Morris-Ray combination teaches element 1[c]. The combination includes both Morris’ reluctance sensor (i.e., magnet 212 and inductance coil 214) and Ray’s camera, and these sensors operate to detect the engagement of a user with the operating unit (i.e., the treadmill’s belt). *See, e.g.*, Ex. 1006 ¶¶ 27, 31, 33; Ex. 1004, 13:20–24, 14:6–14; *see also* Ex. 1002 ¶¶ 151–156.

- e. 1[d]: “a controller in communication with the operating member and the sensor, the controller configured to generate exercise use data when the operating member is driven by the motor; and”*

Petitioner asserts that Morris discloses a controller as FIT processor 520 (or as a combination of FIT processor 520, translator board 519, and/or display processor 522) that communicates with a motor that drives the endless belt and with user detect sensor 214. Pet. 24–25 (citing Ex. 1006 ¶ 35, Fig. 6; Ex. 1002 ¶¶ 157–159). Petitioner asserts that translator board 518 interprets signals from sensor 214 and sends them to FIT processor 520 to control a workout program. *Id.* at 25–26 (citing Ex. 1006 ¶¶ 35, 36, claims 24, 32, Fig. 6; Ex. 1001, 4:19–31; Ex. 1002 ¶¶ 157–160). Petitioner asserts that the Morris’ controller generates exercise use data of distance, pace, cadence, and footfall force when a user is detected exercising on a treadmill and the treadmill belt is moving. *Id.* at 26–28 (citing Ex. 1006 ¶¶ 40, 50, 51, 53; Ex. 1002 ¶¶ 161–163). Petitioner supports its contentions by annotating Figure 11 of Morris to show the exercise use data that Morris generates and displays as shown below.

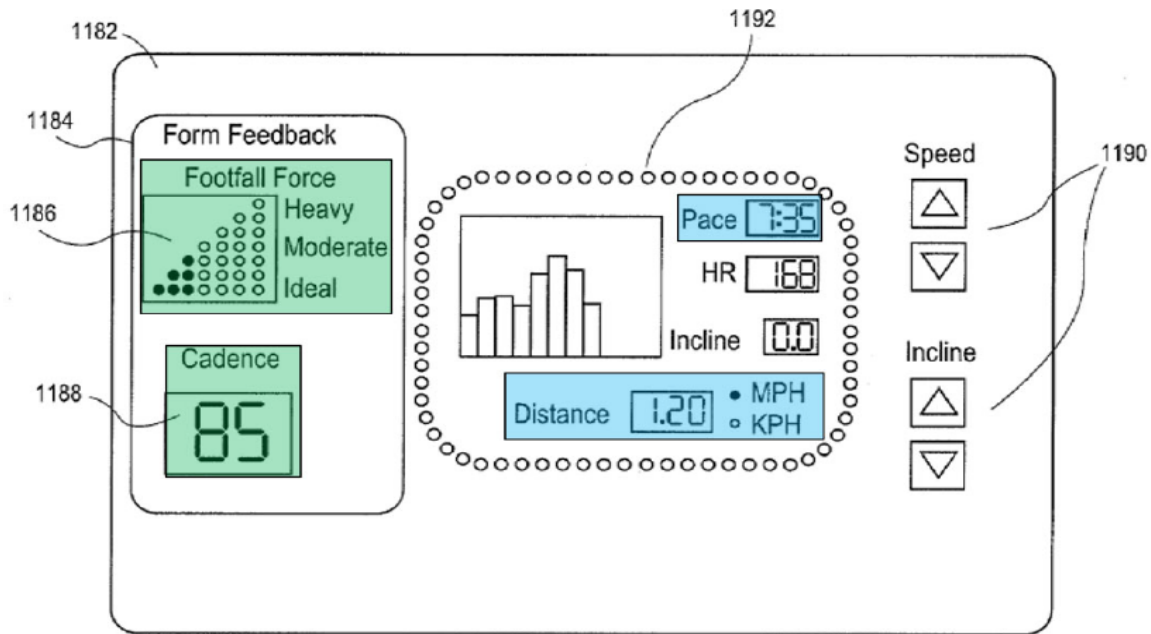


Figure 11 depicts exercise use data displayed when a user is exercising on the treadmill with Petitioner's annotation of a display of distance and pace 1192 in blue and cadence 1188 and footfall force 1186 in green. *Id.* at 27.

Petitioner asserts that, when the belt is moving and a user is detected exercising, Ray generates exercise use data, namely distance, time, calories and an image of the user that becomes thinner, healthier, and more appealing based on the speed, intensity, and duration of the user's workout. Pet. 28–30 (citing Ex. 1004, Abstr., 4:66–5:14, 5:23–29, 5:41–48, 6:54–56, 10:59–67, 13:24–36, 14:7–11, Fig. 1; Ex. 1002 ¶¶ 164–167).

Patent Owner does not dispute that Morris and Ray disclose element 1[d]. *See* PO Resp.

We have reviewed Petitioner's evidence and arguments, and we find that Petitioner has shown that the Morris-Ray combination teaches element 1[d]. *See* Ex. 1006 ¶¶ 35, 36, 40, 50, 51, 53, claims 24, 32, Figs. 6, 11; Ex. 1004, 4:66–5:14, 5:23–29, 5:41–48, 6:54–56, 10:59–67, 13:24–36, 14:7–11, Fig. 1.

f. 1[e]: “a communication interface in communication with the controller,”

Petitioner contends that the '375 patent states that a communication interface can be a Wi-Fi Internet module, Internet port, or a display device. Pet. 30–31 (citing Ex. 1001, 6:13–16, 6:23–26; 6:44–47, 6:54–58).

Petitioner asserts that Morris' display processor 522 communicates with display device 524 as a communication interface to display indications of a user's presence or absence on a television or display interface, and display processor 522 can be separate from FIT processor 520 or combined with it. *Id.* at 31 (citing Ex. 1006 ¶¶ 23, 24, 35, 36, Figs. 6, 11, 12A–12C).

Petitioner asserts that Ray's treadmill includes a display that can be integrated into the treadmill and a communication interface that allows a user's motivational image and other exercise use data to be transmitted over the Internet via a live feed to another device, a remote location, or storage, and these interfaces can be used in Morris' treadmill. *Id.* at 32–34 (citing Ex. 1004, 3:46–51, 5:65–6:5, 6:67–7:10, 8:1–10, 9:55–57, 12:59–67, 13:31–36 (interface 55, interface in electronic device 30), 13:50–54, 13:65–67, Figs. 1–3; Ex. 1002 ¶¶ 146, 185, 168–172). Petitioner asserts that one of Ray's treadmill embodiments includes interface 55 that can transmit exercise data to another device. *Id.* at 32 (citing Ex. 1004, 13:31–36, Fig. 3).

Patent Owner does not dispute that Morris and Ray disclose element 1[e]. *See* PO Resp.

We have reviewed Petitioner's evidence and arguments, and we find that Petitioner has shown that the Morris-Ray combination discloses element 1[e]. *See* Ex. 1006 ¶¶ 23, 24, 35, 36, Figs. 6, 11; Ex. 1004, 3:46–51, 5:65–6:5, 6:67–7:10, 8:1–10, 13:31–36, 13:65–67, Figs. 1–3.

- g. *1[f]: “wherein the controller is configured [to] determine whether the user is engaged with the operating member in response to movement of the operating member and the sensor detecting engagement of the user with the operating member;”*

Petitioner asserts that Morris uses a reluctance sensor to detect a user engaging a treadmill, and Morris transmits signals to the processor that uses signal strength, duration, and changes from baseline signals to detect a user’s presence on the treadmill and whether the user is walking, jogging, running, or sprinting. Pet. 34–35 (citing Ex. 1006 ¶¶ 31, 36–38, 42; Ex. 1002 ¶¶ 173, 174). Petitioner asserts that Ray’s controller detects a user’s presence by sensing their shoulders moving or by taking real-time images of the user exercising when the belt is moving and exercise data is produced. Pet. 35 (citing Ex. 1004, 6:53–57, 14:6–14, 14:35–40; Ex. 1002 ¶¶ 173–176).

Patent Owner does not dispute that Morris and Ray disclose element 1[f]. *See* PO Resp.

We have reviewed Petitioner’s evidence and arguments, and we find that Petitioner has shown that the Morris-Ray combination discloses element 1[f]. *See* Ex. 1006 ¶¶ 31, 36–38, 42; Ex. 1004, 6:53–57, 14:6–40.

- h. *1[g]: “wherein in response to the controller determining that the user is engaged with operating member, the controller is configured to report the exercise use data to the communication interface,”*

Petitioner asserts that Morris and Ray report exercise use data of time, distance, and a user’s virtual image to a display or a remote location/storage, and Ray’s display can be merged easily and affordably into exercise machines. Pet. 35–38 (citing Ex. 1004, 6:53–57, 14:35–40, Fig. 1; Ex. 1006 ¶ 53, Fig. 11; Ex. 1002 ¶¶ 177–179; contentions for elements 1[d]–1[f]).

We reproduce Figure 1 of Ray below with Petitioner’s annotations that show how Ray reports and displays exercise data 24 of time and distance and motivational image 25 while the treadmill is moving and the user is determined to be exercising on the treadmill. Pet. 28–30, 36–37.

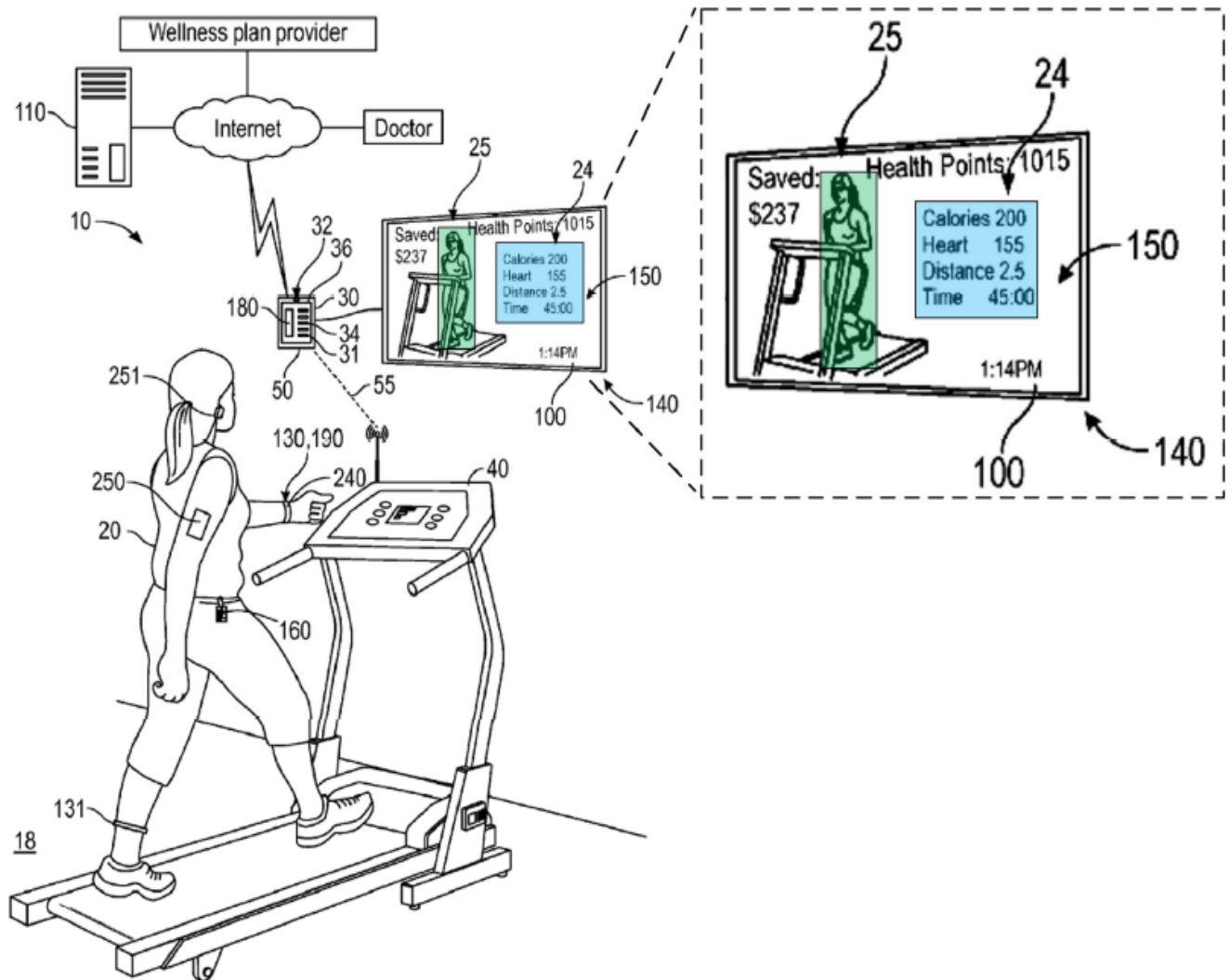


FIG. 1 (Annotated and Display Area Enlarged)

Petitioner’s annotations of Figure 1 show how Ray’s controller displays exercise use data of a user’s motivational image 25 engaging the treadmill belt in real time (green) and the user’s distance and time (blue) 24. Pet. 37.

Petitioner asserts that a user's image is taken when the treadmill is moving and exercise data 24 is produced by exercise machine 40. Pet. 38 (citing Ex. 1004, 6:53–57; 14:35–40). Petitioner asserts that a user's time, distance, and virtual image are displayed or reported to a communication interface that enables a live feed of the user's exercise use data to a remote location. *Id.* at 36 (citing contentions for elements 1[d]–1[f]).

Patent Owner argues that Morris does not report exercise use data *in response to* the controller determining the user is engaged with the operating member. PO Resp. 9. Patent Owner argues that pace, cadence, and footfall force are not exercise use data because these metrics do not represent an *amount* of exercise, and they are not reported *in response to* a controller determining the user is engaged with the operating member. *Id.* at 10–12. Patent Owner asserts that Ray's virtual image is not exercise use data (*id.* at 12–14), and Ray does not report time or distance in response to detecting the user engaging the operating member in 1[g] or claims 2 and 3 (*id.* at 14–15).

We have reviewed the parties' evidence and arguments, and we find that Petitioner has shown that the Morris-Ray combination discloses or at least suggests element 1[g].

Petitioner asserts that Morris displays distance when detecting the user exercising on the belt. Pet. 36 (citing Ex. 1006, Fig. 11; elements 1[d]–1[f]); *id.* at 25–28, 34. As combined with Ray's validation and motivation software, Morris' controller would report this exercise use data (and Ray's exercise use data) to display processor 522 and third parties in response to detecting a user engaged with the treadmill belt and exercising or moving. *See* Pet. 35 (Ray's camera senses user on moving belt), 36–38 (Ray's invention can be merged easily into fitness machines); Pet. Reply 13–14.

Ray's system reports exercise use data to a communication interface as a live feed in response to determining the user is engaging the operating member and exercising on a treadmill in the following way. First, Ray uses a camera to detect a user is exercising and, if so, Ray captures images of the user engaging the treadmill belt and exercising on the treadmill. *See, e.g.*, Ex. 1004, 6:53–56 (“[A]s long as the treadmill is moving the camera will operate to take their real time image while exercising. If the user stops exercising, the camera will no longer record images.”), 14:6–14 (“[M]ovement is sensed by the camera 32 (such as the user’s shoulders moving up and down), resulting in the set of instructions causing the camera 32 to periodically take a photo.”), 14:35–46 (“[A]s long as the user 20 continues exercising, the camera 32 will continue to capture the user’s image . . .”).

Second, Ray uses the user’s exercising image to validate the user’s identity *and* report the user’s exercise use data to a communication interface that sends the data to third parties. *See, e.g.*, Ex. 1004, 13:20–30 (electronic device 30 causes camera 32 to record still or video images or provide a live feed of a user exercising when movement is detected by camera 32, validate and transmit the identity of the user performing the exercise with “the time 140 and duration 150 of the exercise performed by the user 20” to server 110); 6:43–46 (the camera allows “the user’s identification and method of exercise [to be] confirmed during the exercise routine”), 6:63–66 (“This information can be sent to someone in the medical industry or wellness manager to confirm the user’s amount of exercise and validating the user’s identity.”), 8:26–28 (“Using the validation process of the invention, the [user’s] identity and exercise routine are confirmed simultaneously.”). Ray also reports the user’s exercise use data to the display. *E.g., id.* at Fig. 1.

Ray notes that its system satisfies a need to “validat[e] the identity of the user and the exercise performed” to prevent a user from fraudulently claiming wellness program benefits and health insurance discounts for exercise they did not actually perform. *Id.* at 9:31–47; *see id.* at 3:37–42.⁶

Based on these disclosures, we find that Ray teaches, in response to detecting a user engaging a treadmill belt, reporting time and distance associated with exercise actually performed by a user. *See, e.g.*, Ex. 1004, Abstr. (“the system is able to validate the user’s identity and exercise achieved”), 6:43–66 (user’s recorded exercise image will be sent to someone in the medical industry or a wellness manager to confirm the user’s amount of exercise and validate the user’s identity), 13:27–30 (transmitting “the time 140 and duration 150 of the exercise performed by the user”). Although Ray does not state *in haec verba* that its system reports time and distance in response to detecting the user exercising on the belt, we are persuaded that an ordinarily skilled artisan would have understood Ray in this manner.⁷ *See* Ex. 1002 ¶ 179. Moreover, even if Ray does not teach these claimed aspects, it suggests them—Ray repeatedly states that it uses the image taken by its camera to validate the exercise actually performed by the user and can transmit the amount of exercise performed by the user. *See, e.g.*, Ex. 1004, 6:43–7:10, 8:26–28, 13:27–30; *see also* Ex. 1002 ¶ 179; Ex. 1004, 9:40–47 (stating the invention “validat[es] the identity of the user and the exercise performed” to solve the problem of people fraudulently submitting erroneous exercise data).

⁶ Incidentally, the ’375 patent also seeks to prevent a user from submitting “faked” exercise data to insurance companies. Ex. 1001, 1:21–2:23.

⁷ We do not rely on inherency in this Decision.

As a result, Patent Owner’s argument that Ray’s time and distance are not reported by the controller “in response to” detecting the user engaging with the moving belt (PO Resp. 14–16) is unavailing.⁸

Ray’s thinning user image based on the intensity and the duration of a user’s workout also represents an amount of exercise that is reported with the time and distance that a user has exercised. Ex. 1004, 5:41–58, 10:59–67, 13:50–67; *see* Pet. 28–30; Pet. Reply 11–12. We disagree with Patent Owner’s argument that this image is not exercise use data because it does not represent an *amount* of exercise.⁹ PO Resp. 13–14; PO Sur-reply 6–7.

Ray’s motivational image changes based on the intensity and duration of the user’s workout by becoming “thinner and more appealing” as the user performs more exercise. *E.g.*, Ex. 1004, Abstr., 5:44–46; *see id.* at 13:50–61. As a result, the motivational image conveys the intensity and/or duration of the user’s exercise, and consequently, it represents an amount of exercise. *See* Pet. Reply 5–6. Although the motivational image does not provide a precise measurement (*see* PO Resp. 13–14; PO Sur-reply 6–7), precision is not required (*see* Pet. Reply 6–7; *cf.* PO Sur-reply 8 (Ray’s thinning image is not a precise measurement)). Also, under the agreed construction (advanced by Patent Owner), “exercise use data” is data that would *represent* an amount of exercise, not data that *quantifies* the amount of exercise.

⁸ Even if we found that Ray does not teach or suggest generating validated time and distance in response to detecting a user exercising, we still would find that the combination satisfies element 1[g] because Ray generates a motivational image in response to detecting a user exercising.

⁹ Even if we agreed that Ray’s motivational image does not represent an amount of exercise, we still would find that the combination satisfies element 1[g] because Ray discloses and/or suggests generating validated exercise data (time and distance) in response to detecting a user exercising.

Also, we disagree with Patent Owner’s arguments that “Ray’s virtual image is not ‘exercise use data’” (PO Resp. 14) and “Petitioner has no evidence that Ray’s virtual image represents an amount of exercise of the user” (PO Sur-reply 6). Contrary to Patent Owner’s assertions, Petitioner does, in fact, identify evidence to support its position that Ray discloses its virtual image as exercise use data (i.e., an amount of exercise), and that Ray also reports the virtual image to a communication interface to report to third parties in response to determining that the user is engaged with the treadmill belt. *See* Pet. 28–30 (Ray generates and displays a virtual image of the user becoming thinner based on the intensity, speed, and/or *duration* of the user’s workout in real time), 32–33 (Ray’s virtual thinning image and the other exercise use data of (e.g., time and distance shown in Figure 3) are sent as a live feed over the Internet to a remote location), 36–38 (Ray sends exercise use data of distance, time, and a virtual image to a communication interface and remote location as a live feed with the user’s real-time image to validate the exercise use data (citing contentions for elements 1[d]–1[f])). To the extent Patent Owner complains that Petitioner’s expert never testified that Ray’s virtual image represents an amount of exercise, this argument is unavailing—we do not need expert testimony on this point because Ray itself is clear.

We have considered the testimony of Mr. van der Weide, who agrees with Patent Owner (*see* Ex. 2004 ¶¶ 35, 45–52), but we give his testimony on these points little weight. Mr. van der Weide discusses Mr. Rawls’ testimony, but he does not meaningfully discuss Ray’s disclosures. *See id.* As a result, he does not reconcile his opinions with the apparently conflicting portions of Ray.

In addition, Mr. van der Weide's testimony is conclusory because he does not identify evidence or reasoning sufficient to support his opinion that Ray fails to teach or suggest these aspects of the claim as discussed above. *See* 37 C.F.R. § 42.65(a) ("Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.").

Finally, we disagree with Patent Owner's argument that Mr. Rawls' deposition testimony supports Patent Owner's position. *See* PO Resp. 13–14 (citing Ex. 2005, 22:6–7), 14–15 (citing Ex. 2005, 32:4–7, 38:19–39:2). Mr. Rawls testifies that Ray's motivational image represents an amount of exercise, albeit not a precise measurement or one described extensively by Ray. *See* Ex. 2005, 20:4–24:14. Also, Mr. Rawls notes that Ray's system would continue to accumulate time and distance if the user departs from and returns to the treadmill between images captured by Ray's camera. *See* Ex. 2005, 32:4–15, 36:6–39:3. This does not mean that Ray accumulates time and distance "regardless of whether the user is on the treadmill," as Patent Owner contends (PO Resp. 15); rather, it simply shows that the accuracy of the data generated by Ray's system is affected by how frequently the system evaluates whether the user's exercise is detected. Stated differently, Ray reports validated time and distance in response to determining that a user is exercising, regardless of how frequently (or infrequently) that determination is made.

In sum, we have reviewed the parties' evidence and arguments, and we find that Petitioner has shown that the Morris-Ray combination teaches or suggests element 1[g].

- i. *1[h]: “wherein in response to the controller determining that the user is not engaged with the operating member, the controller is configured to stop reporting the exercise use data to the communication interface, and”*

Petitioner asserts that Morris suggests element 1[h] by describing a scenario in which, in response to detecting the user is not engaged with the belt, the controller displays “[p]lease return to the treadmill” and stops the treadmill if the user does not return. Pet. 38–39 (citing Ex. 1006 ¶¶ 8, 45). Petitioner asserts it would have been obvious to stop reporting exercise use data when the user was not detected exercising. *Id.* at 39 (citing Ex. 1002 ¶ 180). Petitioner asserts that Ray explicitly discloses this element by only reporting a virtual user image while a person is exercising and “***[i]f the user stops exercising, the camera will no longer record images***” of the user. *Id.* at 39 (quoting Ex. 1004, 6:55–57). Petitioner asserts that it would have been obvious to a skilled artisan to stop reporting this image when the user is not present because the virtual image is provided “*in real-time while exercising*” so when no one is present, there would be no image to send to a display or a doctor. *Id.* (quoting Ex. 1004, 6:17–20; citing Ex. 1004, 7:4–10, 13:50–56).

Petitioner also asserts that the Morris-Ray combination would stop reporting a user’s virtual image when the controller determines the user is not engaging the treadmill belt, and it would have been obvious to stop the reporting of other exercise use data such as time and distance when the user no longer is exercising because the user would have finished exercising so there is no exercise use data to report, and it would have been unnecessary to continue reporting such exercise use data in such circumstances. *Id.* at 39–40 (citing Ex. 1002 ¶¶ 181–183); Pet. Reply 18–19.

Patent Owner argues that Petitioner has not established that Morris' controller or Ray's camera determines the validity of time or distance data during a slowdown period and "time data would continue to be generated . . . without the user being detected by the sensor – just as it did when the user was detected by the sensor." PO Resp. 16–17.

We have reviewed the parties' evidence and arguments, and we find that Petitioner has shown that the Morris-Ray combination discloses or at least suggests element 1[h].

We agree with Petitioner that Morris stops *reporting* exercise use data (time, distance) in response to the controller determining a user no longer is engaging the treadmill belt by changing the display when the user leaves and terminating the program that reports the data. Ex. 1006 ¶¶ 8, 45, Fig. 9; *see* Pet. 38–39; Pet. Reply 17. We also agree with Petitioner that it would have been obvious to stop reporting time and distance and the user's virtual, thinning image in real time in response to detecting a user no longer is exercising, because Ray morphs the motivational image based on "the speed and duration of the detection of movement of the user 20 by the camera 32" in order to "improve the user's internal dialog and self-esteem by seeing themselves thinner and more fit *in real-time while exercising*." Ex. 1004, 13:50–56, 6:17–20 (emphasis added); Ex. 1003 ¶ 181 ("Thus, when no one was present on the exercise machine, it would not make sense to present the person's image"); *see* Ex. 1004, 5:64–6:5, 13:20–67 (explaining that time, distance, and motivational image are reported as "a live feed"); Pet. 39.

We also agree with Petitioner that it would have been obvious to stop reporting the exercise use data to a communication interface in response to the controller detecting that a user is not exercising based on Ray's teaching to report a virtual image of a thinning exercising user in *real time* to a third party as long as a user is detected exercising along with the user's time and distance exercise use data. Ex. 1004, 5:41–51 (treadmill reports (displays) a user's virtual image that becomes thinner and healthier in real time the faster and/or more intensely that the user exercises along with the user's exercise use data such as distance advanced, and the thinner image is reported in *real time* via the Internet to a doctor or a wellness manager while the user is exercising), 13:50–67 (electronic device 30 displays a thinner image of a user exercising in response to camera 32 detecting the movement of the user exercising on the treadmill and continues to display the user's virtual image in real time while the user is detected exercising based on the user's exercise use data 24 (speed and duration of the user's movement) detected by camera 32; “The motivational image 25 may be a real-time virtual image displayed to the user 20 or a live feed image broadcast to a remote location.”), 13:7–19 (device 30 reports a user's motivational image 25 and other exercise use data from machine 40 to server 110, which reports the exercise use data over the Internet to a doctor or wellness program).

As discussed in Section II.D.4.h. *supra*, Ray's thinning virtual image represents an amount of exercise and therefore qualifies as exercise use data. Ray also takes images of a user in response to detecting them exercising and sends the images to a third party with the user's time and duration exercise data to confirm the user's amount of exercise. Ex. 1004, 6:49–67, 13:7–30.

Mr. Rawls testifies that Ray provides real-time images when exercise data 24 (including time and distance) is generated by exercise machine 40 and would not record this exercise use data when the user stops exercising. Ex. 1002 ¶ 179. Mr. Rawls testifies that a skilled artisan would understand that Ray's controller would provide such exercise data 24 and a virtual image on the display only when the user is exercising on the treadmill (i.e., engaging the operating member) and would stop that presentation when the user no longer is detected engaging the treadmill belt. *Id.* We find his testimony persuasive and supported by Ray's teachings discussed above.

Based on the foregoing discussion of the teachings of Morris and Ray as asserted by Petitioner and as understood by a person ordinarily skilled in the art, we disagree with Patent Owner's argument that "in Morris and Ray, there is no indication that time or distance generated while a user is not engaged with the operating member stops being reported." PO Resp. 17. This conclusory argument does not address the teachings discussed above.

We disagree with Patent Owner's argument that Ray's virtual image is not "exercise use data" for the reasons discussed *supra* in Section II.D.4.h. PO Resp. 17. For the same reason, we do not credit Mr. van der Weide's testimony on this point because he does not address the teachings of Ray that the virtual image is based on the duration (time) and intensity with which the user is detected exercising by Ray's controller. *See* Ex. 2003 ¶ 55.

Patent Owner's argument that Morris stops reporting pace, footfall force, and cadence, which is not exercise use data (PO Resp. 17–18), does not address Petitioner's contention that the Morris-Ray combination would stop the reporting of time and distance as well. Pet. 38–39, 40; Pet. Reply 17–18.

We agree with Petitioner that, in view of Morris and Ray reporting exercise use data such as distance, time, and a virtual image of the user exercising (Pet. 36–37 (citing Ex. 1006, Fig. 11 (blue); Ex. 1004, Fig. 1 (blue))), the slowdown and cessation of the exercise program in the Morris-Ray combination, when a user is not detected exercising on the treadmill, would be understood by a skilled artisan to mean that the distance and time exercise use data “would also cease to be reported when the user was no longer exercising because the user had finished exercising, or had left the premises” (*id.* at 40 (citing Ex. 1002 ¶¶ 181–183)).

We also agree with Mr. Rawls that it would have been obvious to stop displaying time, distance and a user’s virtual image when a user no longer is detected exercising. Ex. 1002 ¶¶ 181–183. In Morris, the exercise program stops operating in response to detecting that a user no longer is engaged with the treadmill belt so no exercise use data of any sort is reported as discussed above. *See also* Ex. 1006 ¶¶ 8, 45, Fig. 9.

In Ray, the *live feed* of a user’s exercise use data (e.g., time, distance, and a virtual image of the user exercising) would stop being transmitted to a remote location, or at the very least it would have been obvious to stop sending a live feed of such exercise use data to a remote location when the program stops and/or when the user no longer is detected exercising, as also discussed above.

In sum, we have reviewed the parties’ evidence and arguments, and we find that Petitioner has shown that the Morris-Ray combination teaches or suggests element 1[h].

- j. *1[i]: “wherein the communication interface is configured to communicate the reported exercise use data to a third party.”*

Petitioner asserts that Ray transmits a virtual image of a user as a live feed to third parties, and adding this feature to Morris’ communication interface would allow generated exercise use data to be sent as a live feed to a doctor. Pet. 40 (citing Ex. 1004, 3:47–50, 5:49–51, 7:4–10, 7:16–36, 13:7–10). Patent Owner argues that Ray transmits a user’s actual image to third parties to validate a user’s identity so a user’s virtual image would not be helpful to send to a third party in such circumstances. PO Resp. 18–19.

We agree with Petitioner that Ray’s system causes a user’s image to become thinner and healthier the faster and more intensely a user exercises, and this virtual image can be “transferred in real time while exercising via the Internet to someone such as a doctor [or] wellness manager.” Ex. 1004, 5:44–52. Ray’s electronic device 30 transmits a user’s virtual image and their time and distance 150 that are recorded in response to detecting them exercising on treadmill 40 to a wellness manager or a doctor. Ex. 1004, 5:41–58, 13:7–67; *see also id.* at 10:59–67 (report virtual image, distance to display), 14:1–5 (same). We disagree with Mr. van der Weide’s testimony that Ray only transmits actual images (Ex. 2004 ¶ 57) because Ray expressly describes transmission of the virtual image (*e.g.*, Ex. 1004, 5:49–51 (“The thinner image is able to be transferred in real time while exercising via the internet to someone such as a doctor, wellness manager or the like.”)). In addition, Mr. van der Weide’s testimony does not address Petitioner’s contentions that Ray also transmits time and distance to a third party. *See, e.g.*, Pet. 32, 37–38 (discussing Ray, Fig. 1).

We agree with Petitioner that Ray teaches a communication interface that transmits a user's virtual image, generated while the user is exercising, in live feeds to third parties. Pet. 40; Ex. 1004, 5:49–51 (Ray transfers a user's virtual image in real time while a user is exercising via the Internet to a doctor or wellness manager), 7:16–30 (Ray reports a user's virtual image and health data in real time to a wellness program manager, physician, or personal trainer), 13:7–17 (server 110 receives user's motivational image and exercise use data and reports it to a user's doctor or wellness program).

Ray also teaches a communication interface that reports the user's exercise use data such as time and distance over the Internet as a live feed to such parties as Petitioner asserts. Ex. 1004, 13:7–17, 3:47–50 (Ray transfers the user's exercise use data over the Internet to a wellness manager or medical advisor as a live feed), 7:4–10 (user's exercise data and identity data are transferred to a wellness manager or doctor over the Internet as a live feed); Pet. 39 (Ray transmits a user's exercise data as a live feed to a wellness manager or doctor), 36 (same); *see* Ex. 1001, 6:33–36 (communication interface can be an *Internet interface*).

In sum, we have reviewed the parties' evidence and arguments, and we find that Petitioner has shown that the Morris-Ray combination teaches or suggests element 1[i].

k. Conclusion

We have reviewed the parties' evidence and contentions, and we find that Petitioner has shown by a preponderance of evidence that claim 1 is unpatentable over the combination of Morris and Ray, and a skilled artisan would have been motivated to combine their teachings as Petitioner asserts and would have had a reasonable expectation of success in doing so.

5. *Claims 2–7 and 10–15*

Petitioner provides detailed contentions that claims 2–7 and 10–15 are unpatentable over the combination of Morris and Ray. Pet. 40–51. Patent Owner does not dispute Petitioner’s contentions for claims 2–7 and 10–15 directly but instead argues that Petitioner “failed to establish obviousness of dependent claims 2–7 and 10–15 for the same reasons it failed to establish obviousness of claim 1.” PO Resp. 19. Because Petitioner establishes that claim 1 is unpatentable over the combination of Morris and Ray, we disagree that claims 2–7 and 10–15 are patentable because they depend from claim 1.

Patent Owner also challenges “Petitioner’s misinterpretation of ‘reported exercise use data’ [as] highlighted in [the] discussion of distance and time in claims 2 and 3.” PO Resp. 15. Patent Owner asserts that simply reporting distance advanced or time spent exercising *while* a user is detected exercising does not establish such exercise use data is reported “in response to” the controller detecting the user exercising in claims 2 and 3. *Id.* We addressed this same issue *supra* in Section II.D.4.h. in our discussion of element 1[g], and we disagree with Patent Owner’s argument for the reasons discussed there. As we explained, in response to a camera detecting a user exercising on a treadmill, Ray reports the user’s *time and duration* with a user’s image, which validates the user’s identity and amount of exercise. Ex. 1004, 13:20–30; 6:43–66, 8:26–28, 13:27–30, Abstr. Ray also reports the user’s virtual image to a third party. *Id.* at 5:41–58, 7:4–10, 10:59–67, 13:7–19, 13:50–67. This exercise use data can be *stored*. *Id.* at 3:47–51, 5:65–6:5, 7:4–10, 8:1–8.

We have reviewed the parties' evidence and contentions, and we find that Petitioner has shown by a preponderance of evidence that claims 2–7 and 10–15 are unpatentable over the combination of Morris and Ray and that a skilled artisan would have had a reason to combine their teachings in the manner proposed with a reasonable expectation of success for the reasons explained by Petitioner. Pet. 40–51.

6. *Independent Claim 16*

Petitioner asserts claim 16 is unpatentable over Morris and Ray based on its contentions for claim 1 and 6. Pet. 52–53. Patent Owner argues that Petitioner did not show the obviousness of claim 16 for the reasons argued for claim 1 and because Petitioner fails to address the comparison step of elements 16[e] and 16[f] that are not found in elements 1[g] and 1[h]. PO Resp. 20. We disagree claim 16 is patentable for the reasons asserted by Patent Owner for claim 1 as discussed *supra* in Section II.D.4. Petitioner relies on its contentions for claim 6's same comparison step to show the comparison step in elements 16[d], 16[e], and 16[f]. Pet. 44–46, 53; Pet. Reply 19–20. Thus, we do not agree that Petitioner failed to address the elements of claim 16. Moreover, Patent Owner did not contest Petitioner's contentions for claim 6. PO Resp. 19. We agree with Petitioner that Morris compares received sensor data to a baseline signal (known data parameter) indicative of a user not using the treadmill. Pet. 45 (citing Ex. 1006 ¶ 31).

We have reviewed the parties' evidence and contentions, and we find that Petitioner has shown by a preponderance of evidence that claim 16 is unpatentable over the combination of Morris and Ray and a skilled artisan would have been motivated to combine their teachings in the manner asserted with a reasonable expectation of success.

7. *Claims 17–20*

Petitioner asserts that claims 17–20 are unpatentable over Morris and Ray for the same reasons as claims 4, 6, 7, and 15, and element 1[c]. Pet. 53–54. Patent Owner argues that Petitioner did not establish obviousness of claims 17–20 for the same reasons as claim 16. We disagree for reasons discussed *supra* in Section II.D.6.

We have reviewed the parties’ evidence and contentions, and we find that Petitioner has shown by a preponderance of evidence that claims 17–20 are unpatentable over the combination of Morris and Ray and that a skilled artisan would have had a reason to combine their teachings in the manner proposed with a reasonable expectation of success.

E. Ground 2: Asserted Obviousness Based on Morris, Ray, and Cox

Petitioner asserts that claims 8, 9, and 18 are unpatentable under 35 U.S.C. § 103 over the combination of Morris, Ray, and Cox. Pet. 54–63.

1. *Cox*

Cox’ electrical signature analysis (ESA) system senses current signals to fitness devices to perform gait analysis. Ex. 1005, 1:35–53. Fundamental characteristics of a person’s gait pattern can be measured using the ESA system without any restrictive or sophisticated instruments by providing the simple, direct ability to measure fundamental characteristics of gait patterns with no risk to subjects other than walking on a treadmill at comfortable speeds. *Id.* at 1:53–58. Cox’s ESA system uses a treadmill’s electric motor as a transducer to sense load variations caused by a person walking on the treadmill because “variations in walking styles produced many noticeable changes in the treadmill’s electrical signatures, thus demonstrating the sensitivity needed to perform human . . . gait analysis.” *Id.* at 2:51–64.

Gait analysis is a fundamental tool used in physical medicine to assess and correct inefficient or dysfunctional gait patterns. Ex. 1005, 3:9–18. A treadmill can plug into Cox’s interface box 39, which includes a current transducer for obtaining current signals and reporting the signals to be displayed on the treadmill. *Id.* at 4:32–37, Fig. 4. Cox also notes that, alternatively, its components can be built into a treadmill itself. *Id.* at 4:37–39. Even walking on a treadmill with low impact can produce dramatic variations in the magnitude of electric current. *Id.* at 5:31–60. Software can convert the raw electric current data into stride profiles. *Id.* at 5:57–60.

2. *Motivation to Combine and Expectation of Success*

Petitioner asserts that Morris, Ray, and Cox use sensors in treadmills to gather data and provide feedback for a user’s exercise regimen, fitness, and therapy, and these references also report the user’s exercise use data to users and insurance companies. Pet. 54–55. Petitioner asserts that a skilled artisan would have been motivated to augment the treadmill’s capabilities with current analysis to detect users and provide feedback to improve the user’s exercise regimen. *Id.* at 55 (citing Ex. 1002 ¶¶ 221, 222). Petitioner asserts that Ray and Morris disclose the benefits of using multiple sensors to gather data to analyze to provide feedback to a user, and Cox’s current sensor would have improved the user’s exercise form and motivational image in the Morris-Ray exercise apparatus. *Id.* at 55–56. Petitioner asserts that a skilled artisan also would have combined the user detection sensor techniques of Morris and Cox to evaluate a user’s gait and improve the analysis by sensing current variations with Cox’s ESA tool to provide more accurate gait analysis under all conditions. *Id.* at 56–58.

Petitioner asserts that a skilled artisan could augment the Morris-Ray treadmill with the current sensor of Cox with a reasonable expectation of success because Ray and Morris disclose the benefits of using other sensors with their treadmills to provide additional feedback to a user, and Cox's current sensor could be integrated into the Morris-Ray treadmill because it did not require restrictive or sophisticated instrumentation, posed no risks to treadmill users, and offered an inexpensive option that provided accurate detections without using multiple pressure sensors. Pet. 55–57.

Patent Owner argues that a skilled artisan would not have been motivated to combine Cox with Ray and Morris because Petitioner did not identify anything in Ray that needs improvement to its motivational image. PO Resp. 22–23. Patent Owner also argues that Morris teaches a detection technique that analyzes gait, and Petitioner has not identified any reason to add another sensor of Cox to improve Morris' gait analysis. *Id.* at 23. Patent Owner also asserts that Petitioner provides no plausible reason to use three techniques to detect a user's presence by adding a third costly sensor for a third level of redundancy. *Id.* at 23–24.

We agree with Petitioner that a skilled artisan would have been motivated to combine Cox's current sensor with Morris and Ray to improve the user's motivational image so the image could be used to correct and improve a user's exercise form independently or with other gait analysis techniques, as Cox teaches, where Ray teaches that other sensors can be used to gather data that can be analyzed by electronic device 30 to provide feedback to the user and insurance companies. Pet. 55–56 (citing Ex. 1004, 9:27–47, 10:24–35, 11:21–55, 16:1–43; Ex. 1005, 2:56–3:9, 3:19–21, 3:29–37, 5:33–38; Ex. 1002 ¶¶ 221, 222).

As combined with Morris and Ray, Cox's current sensor would be an inexpensive option that could be integrated fully into a standard treadmill to provide more accurate, reliable gait analysis. Cox's current sensor also would provide more sophisticated, accurate gait analysis under different conditions, such as a user exercising on an inclined treadmill, and thereby would overcome a problem of some prior art treadmills described in Morris that could not detect a "load change" as the treadmill's incline increases. Ex. 1005, 4:51–67, Table 1 (testing current signals at inclination angles of 5 and 10 degrees); Ex. 1006 ¶ 5 (as the treadmill incline increases, there is less or no load change to detect, which can affect the accuracy of the user detection). Indeed, Cox further recognizes that walking on the treadmill produces dramatic variations in the magnitude of the electric current, and Cox's ESA tool can perform time and frequency analysis to match even small changes to their source even at angles of inclination. Ex. 1005, 3:51–56, 5:33–37, Table 1; *see* Pet. 57; Ex. 1002 ¶¶ 223–226.

An ordinarily skilled artisan would have expected Cox's sensor to provide accurate data to improve Ray's virtual image so wellness managers and doctors could identify and correct injuries revealed by gait analysis and enhance gait efficiency and balance as Cox teaches and as Petitioner asserts. Ex. 1005, 3:9–37; Pet. 56–58; Ex. 1002 ¶¶ 225–228; *see KSR*, 550 U.S. at 417 (using a technique that was used to improve one device to improve similar devices in the same way is obvious unless its application is beyond the level of ordinary skill in the art). Mr. Rawls provides testimony to the same effect relying on the teachings of Cox and Morris. Ex. 1002 ¶¶ 221–226. He testifies that Cox's current sensor would make Ray's image more accurate and improve Morris' gait analysis. Ex. 1002 ¶¶ 225, 226.

Having reviewed the record and the parties' arguments, we are persuaded that an ordinarily skilled artisan would have been motivated to improve the Morris-Ray combination by adding Cox's current sensor and gait analysis software to improve the user's motivational image so that the image could be used to correct and improve a user's exercise form. *See* Pet. 56–59. Morris seeks to provide gait analysis to a user, and Cox states that its techniques are “inexpensive” and “increase accuracy” of gait analysis. Ex. 1006 ¶ 9; Ex. 1005, 2:56–3:9, 3:19–21; *see also* Ex. 1005, 1:54–61 (describing other benefits of Cox's techniques), 3:30–37 (noting particular benefits for runners). In addition, Morris and Ray contemplate the use of multiple sensors to capture data of an exercising user (Ex. 1006 ¶¶ 9, 33; Ex. 1004, 10:24–35, 16:1–43), and all three references seek to increase the amount of exercise-related information that is provided to a user of a treadmill (*e.g.*, Ex. 1006 ¶ 9; Ex. 1004, Abstr.; Ex. 1005, 2:56–3:9, 4:32–39). As a result, we are persuaded that an ordinarily skilled artisan would have understood that Cox's current sensor and gait analysis software would improve the treadmill of the Morris-Ray combination. *See also* Ex. 1002 ¶¶ 223–230. We also find that an ordinarily skilled artisan would have had a reasonable expectation of success in making the proposed combination. *See* Ex. 1002 ¶¶ 223, 224; Ex. 1005, 1:54–61, 3:9–13, 4:32–39.

We credit Mr. Rawls' testimony on these issues (*see* Ex. 1002 ¶¶ 221–230) because he provides a reasonable explanation supported by citations to the record evidence. Mr. van der Weide disagrees with Mr. Rawls, but only provides conclusory statements that fail to address the substance of Mr. Rawls' explanation. *See* Ex. 2004 ¶¶ 63–66. As a result, we assign little weight to Mr. van der Weide's testimony on these points.

Patent Owner's contrary arguments are unavailing. *See* PO Resp. 22–24. First, Patent Owner argues that “Petitioner identifies nothing in Ray[,]
[Morris,] or any other reference suggesting” the motivation articulated by
Petitioner (*id.* at 31–32); however, we disagree because, as noted above,
Morris seeks to provide gait analysis to a user, and Cox describes the
benefits of its gait analysis techniques (*e.g.*, Ex. 1006 ¶ 9; Ex. 1005, 2:56–
3:9, 3:19–21). Furthermore, contrary to Patent Owner's assumption, there is
no requirement that the motivation to combine appear in the references
themselves. *See KSR*, 550 U.S. at 418–19 (holding the teaching-suggestion-
motivation test is not a prerequisite for concluding that a claim is obvious).

Second, Patent Owner argues that Petitioner's explanation fails to
explain sufficiently *why* an ordinarily skilled artisan would have been
motivated in this way (*see* PO Resp. 23–24; PO Sur-reply 16), but we
disagree for the reasons explained in our analysis above. Finally, Patent
Owner argues that adding Cox's sensor would be “costly” and unnecessary.
See PO Resp. 31–32. But Patent Owner fails to provide any supporting
evidence or discussion of the alleged increased cost, and Cox indicates that
its technique is “inexpensive.” Ex. 1005, 2:65–3:4. Moreover, even if the
addition of Cox's technique would add cost, Patent Owner does not explain
why such a tradeoff would undercut Petitioner's articulated motivation to
combine. *See Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 795 (Fed. Cir.
2021) (stating that “simultaneous advantages and disadvantages do not
necessarily obviate motivation to combine” (cleaned up)); *In re Fulton*, 391
F.3d 1195, 1200 (Fed. Cir. 2004) (explaining that a particular combination
does not have to be the most preferred or the most desirable combination
described in the prior art to provide motivation for the current invention).

3. *Claims 8, 9, and 18*

Petitioner contends that Cox discloses a current sensor connected to a treadmill's electric motor to detect and analyze an input current used by the motor to detect engagement of the user with the operating unit as recited in claim 8, and the current sensor can be integrated fully into the treadmill. Pet. 58–61 (citing Ex. 1005, 1:42–52, 2:1–8, 2:16–17, 2:26, 3:49–56, 4:14–26, 4:32–39, 4:40–54, Figs. 1, 3, 5). Petitioner asserts that it would have been obvious to include this feature in the Morris-Ray treadmill to detect the user more accurately. *Id.* at 61 (citing Ex. 1002 ¶¶ 231–235).

Petitioner asserts that Cox's ESA system analyzes fluctuations in the input current as recited in claim 9 by detecting small perturbations in current and voltage to detect user engagement and using software to extract useful details (signatures) from the electric current data to build a stride profile and calculate exercise metrics, and it would have been obvious to use this feature in the Morris-Ray treadmill to determine whether a user is engaged with the treadmill by walking or running with impairments based on variations in the sensed electrical current. Pet. 61–63 (citing Ex. 1005, 2:1–8, 3:51–53, 5:33–44, 5:56–67, Table 1, Fig. 8; Ex. 1001, 5:53–54; Ex. 1002 ¶¶ 236–238).

Petitioner asserts that Ray receives data from a current sensor as recited in claim 18 for the reasons set forth for claim 8. Pet. 63.

Patent Owner argues that claims 8, 9, and 18 are nonobvious for the reasons asserted in Ground 1 for claims 1 and 16 from which these claims depend respectively. PO Resp. 24. Patent Owner argues that Petitioner only shows where claim elements added in claims 8, 9, and 18 are found but does not specify where other claim elements are found. *Id.* at 21–22.

We find that Petitioner has explained persuasively how Cox’s teachings would have been combined with the teachings of Morris and Ray, and that the combination teaches or suggests each limitation of claims 8, 9, and 18. Pet. 54–63. We do not agree with Patent Owner’s argument that Petitioner fails to address sufficiently the “other” limitations of claims 8, 9, and 18. *See* PO Resp. 21–22. Claim 8 depends from independent claim 1; claim 9 depends from claim 8; and claim 18 depends from independent claim 16. Consequently, each of claims 8, 9, and 18 includes the limitations of the corresponding independent claim. It appears that Patent Owner’s argument is that Petitioner fails to address the independent claims’ limitations when addressing these dependent claims (*see id.*), but this argument is misplaced. The Petition clearly addresses each limitation of each independent claim, and it explains why those limitations are taught or suggested by the Morris-Ray combination. *See* Pet. 19–40, 52–53. In context, it is clear that the Petition relies upon that analysis to show that dependent claims 8, 9, and 18 would have been obvious over the Morris-Ray-Cox combination.

Accordingly, we determine that Petitioner has shown, by a preponderance of evidence, that claims 8, 9, and 18 are unpatentable over the combination of Morris, Ray, and Cox and that a skilled artisan would have had a reason to combine their teachings in the manner proposed with a reasonable expectation of success.

F. Ground 3: Asserted Obviousness Based on Ray and AAPA
Ground 4: Asserted Obviousness Based on Ray, AAPA, and Cox

In Ground 3, Petitioner asserts that claims 1–3, 6, 7, 10–16, 19, and 20 are unpatentable under 35 U.S.C. § 103 over the combination of Ray and AAPA. Pet. 63–80. In Ground 4, Petitioner asserts that claims 8, 9, and 18 are unpatentable under 35 U.S.C. § 103 over the combination of Ray, AAPA, and Cox. Pet. 80–83.

We already have found all challenged claims to be unpatentable (*see* discussion *supra* in Sections II.D–E), so we need not (and do not) address whether Petitioner has shown the claims to be unpatentable based on these alternative grounds. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App’x 984, 990 (Fed. Cir. 2020) (non-precedential) (recognizing that the “Board need not address issues that are not necessary to the resolution of the proceeding” and, thus, agreeing that the Board has “discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims”).

III. CONCLUSION¹⁰

Based on the evidence presented with the Petition, the evidence introduced during the trial, and the parties' respective arguments, Petitioner has shown by a preponderance of the evidence that claims 1–20 are unpatentable.

In summary:

Claim(s)	35 U.S.C. §	References	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–7, 10–20	103	Morris, Ray	1–7, 10–20	
8, 9, 18	103	Morris, Ray, Cox	8, 9, 18	
1–3, 6, 7, 10– 16, 19, 20	103	Ray, AAPA ¹¹		
8, 9, 18	103	Ray, AAPA, Cox ¹²		
Overall Outcome			1–20	

¹⁰ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*, 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

¹¹ We do not address the contentions that the challenged claims would have been obvious over Ray and AAPA. *See supra* Section II.F.

¹² We do not address the contentions that the challenged claims would have been obvious over Ray, AAPA, and Cox. *See supra* Section II.F.

IV. ORDER

Accordingly, it is:

ORDERED that claims 1–20 of U.S. Patent No. 10,796,375 B2 are determined to be unpatentable; and

FURTHER ORDERED that because this is a Final Written Decision, parties to this proceeding seeking judicial review of this Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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Patent 10,796,375 B2

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