

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.

PTAB Case No. IPR2023-01165

Patent No. 11,227,340

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 11,227,340
CHALLENGING CLAIMS 1-20**

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EXHIBIT LIST

Exhibit	Description
1001	U.S. Patent No. 11,227,340 (“’340 patent”)
1002	Declaration of Lee Rawls (“Rawls”)
1003	File History of U.S. Patent No. 11,227,340
1004	U.S. Patent No. 9,785,827 (“Ray”)
1005	Reserved
1006	U.S. Patent App. Pub. No. 2010/0160115A1 (“Morris”)
1007	Reserved
1008	U.S. Patent No. 6,638,198 (“’198 patent”)
1009	File History of U.S. Patent No. 10,796,375
1010	Reserved
1011	Reserved
1012	U.S. Patent App. Pub. No. 2009/0176629 (“Yi”)
1013	U.S. Patent No. 6,575,878 (“Choy”)
1014	U.S. Patent No. 8,690,735 (“Watterson”)

Petitioner Peloton Interactive, Inc. (“Peloton”) respectfully requests *inter partes* review (“IPR”) of claims 1-20 of U.S. Patent No. 11,227,340 (“’340 patent”).

I. INTRODUCTION

Although the ’340 patent specification attempts to justify its existence through its pragmatic goal—helping insurance companies stop fraud—the ’340 claims, as written, contain nothing novel and recite well-known, decades-old combinations of treadmills, user-detection sensors, and the data those treadmills generate.

To promote safety, treadmills since the 1980s have consistently included some form of user detection device and a “safety switch” to cease operation if a user slips, falls, or is no longer present on the device. (Rawls, ¶¶ 35-37, 57-59.) One common type of safety switch is a lanyard the user can attach to their clothing, and if the user drifts so far back on the treadmill deck that the lanyard reaches its limit, its key will detach, stopping the treadmill. (Rawls, ¶¶ 60-63.)

One drawback of the lanyard-type device is that, if the lanyard’s key is inserted in the treadmill, the treadmill can still operate even if the lanyard is not clipped to the user. (Rawls, ¶ 64.) Thus, many treadmills began to include sensors (such as optical, pressure, and current sensors) to determine the user’s presence on the treadmill. (Rawls, ¶¶ 65-83.) As the prior art expressly acknowledges, such sensors also allowed users to collect verified data regarding their treadmill exercise and to provide such information to a third party (e.g., a trainer, doctor, or insurance

company). (Rawls, ¶¶ 84-102.)

Although the '340 patent purports to prevent a person from operating a motorized exercise machine unoccupied to register false metrics without exercising, (Ex. 1001, 2:36-43), the '340 patent itself admits that the prior art contained all the claimed components and concepts (e.g., belt, motor, sensor, controller, communication interface, and reporting user exercise data) that determined user engagement and reported exercise data long before its 2014 priority date. (Ex. 1001, 1:41-2:6.) The long record of prior art summarized by Mr. Rawls is replete with references discussing the claimed treadmill features including data transmission of verified exercise data to third parties, including insurance companies. (Rawls, ¶¶ 48-49, 103-111.)

Given that the '340 patent merely rehashes a conventional apparatus and its standard features being employed in a known and obvious way, IPR should be instituted and claims 1-20 should be canceled. (Rawls, ¶¶ 112-113.)

II. OVERVIEW OF THE '340 PATENT

A. The Alleged Invention

The '340 patent describes a “conventional exercise machine,” such as a treadmill, and a way to verify whether a user is exercising so that his/her exercise habit could be demonstrated to an insurance company to receive incentives, such as savings on insurance payments. (Ex. 1001, 1:24-41, 2:30-43.) However, exercise

data reported from motor-driven exercise machines—like treadmills—is not trustworthy because a user could simply turn on a motor-driven treadmill without actually running or otherwise using the machine. (*Id.*, 1:56-2:22.) The '340 patent purports to solve this problem via a “verification function and verifying method” that can “verify an exercise use thereof.” (*Id.*, 2:30-43.)

Figures 1 and 2 illustrate an admittedly conventional motor-driven treadmill including a base 8, a motor, a motor-driven operating member 20—a belt—sensors, controller 40 that generates exercise use data when powered on, and communication interface 50 to report out the exercise data to a display or over a network. (*Id.*, 1:51-56, 4:19-5:19, 6:46-7:27; Figs. 1-2.)

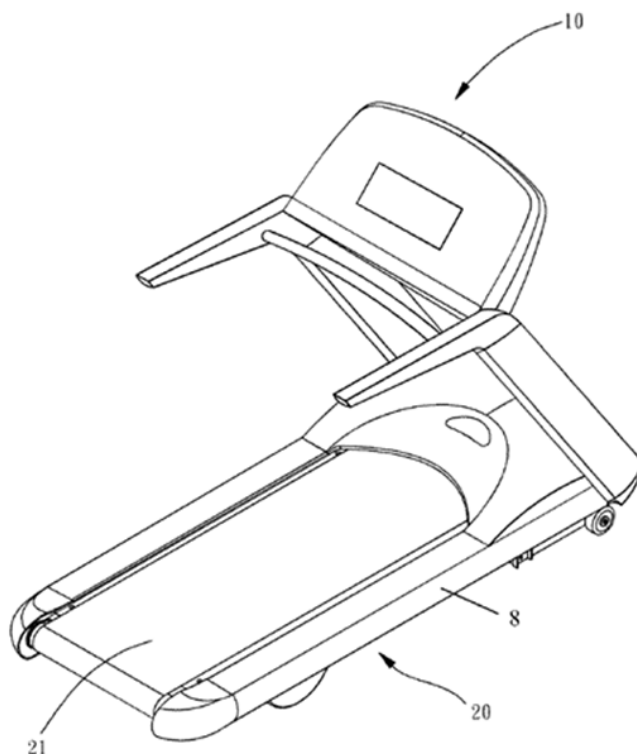


Figure 1

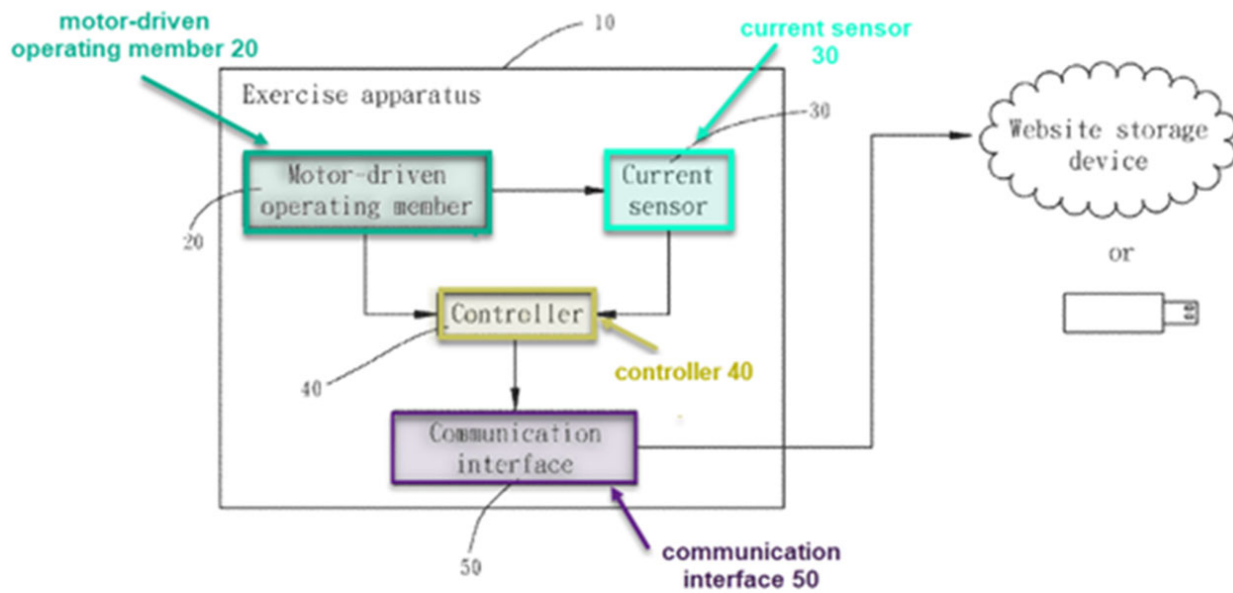


Figure 2 (Annotated)

The alleged invention takes these admittedly known components and uses them for the limited purpose of distinguishing the treadmill-generated exercise use data based on when the user is detected on the moving belt (validated exercise use data) versus when the belt is moving without a detected user (non-validated exercise use data). (*Id.*, 2:44-59.) Figure 6 provides an overview of the validation process.

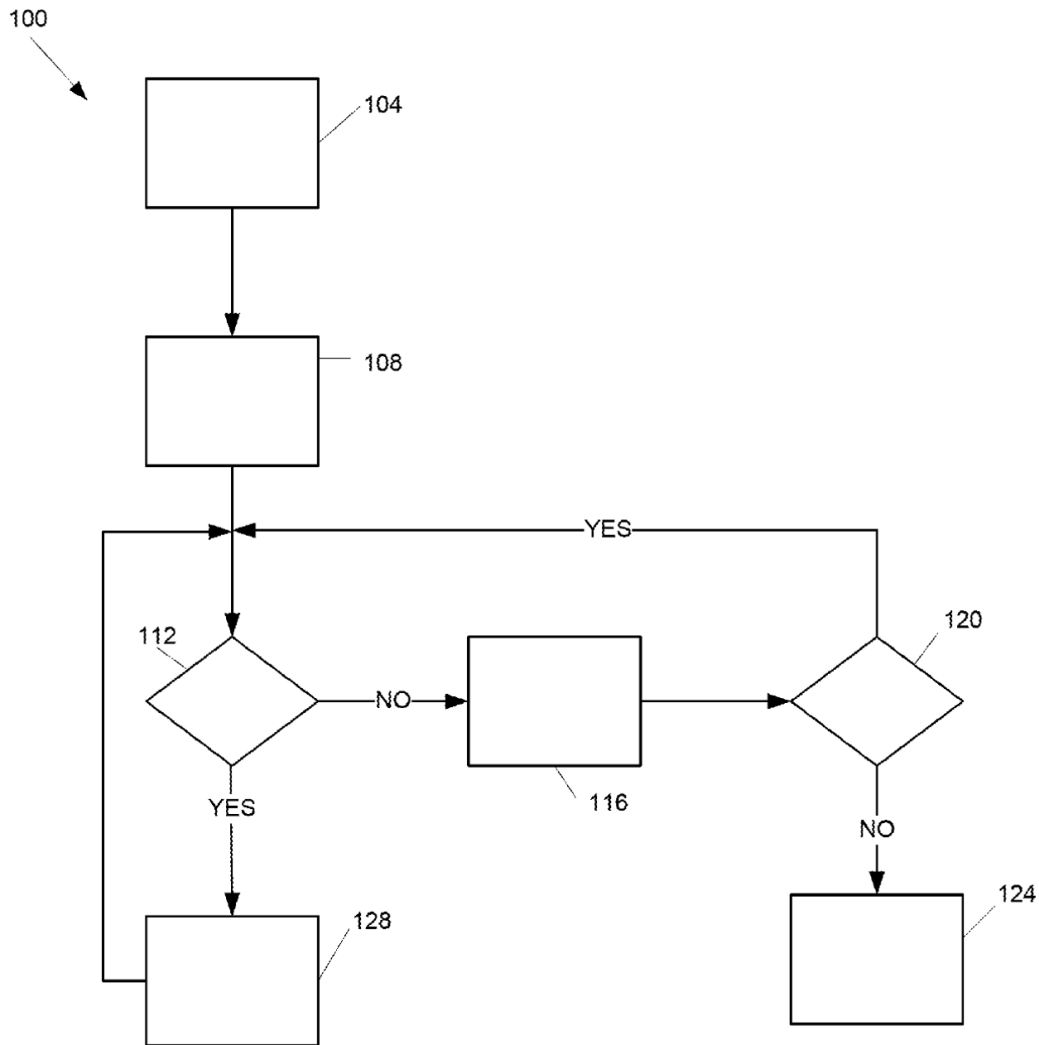


FIG. 6

The treadmill is powered (step 104) and its controller 40 receives data from user detect sensors such as pressure, current, or optical sensors (step 108). (*Id.*, 7:40-

52.) Based on sensor signals, controller 40 determines whether a user is actively engaged with the treadmill (step 112). (*Id.*, 7:53-64.) If controller 40 determines that a user is not on the machine, the process generates “non-validated exercise use data” (116) (*id.*, 7:64-8:7), and the process is repeated at step 120 (if the motor continues moving the belt) to determine if a user engages. (*Id.*, 8:7-14.) Conversely, if controller 40 determines that a user is engaged, the process generates “validated exercise use data” (step 128). (*Id.*, 8:15-18.) Validated exercise use data can be stored locally, communicated to a user on a display, or reported out to third parties over a network. (*Id.*, 8:18-21.)

The ’340 claims merely repeat the known treadmill elements’ generation of exercise use data, and only in some claims, recite “validated” exercise use data. As illustrated below, these claims recite known and obvious limitations and are thus invalid. (*See also* Rawls, ¶¶ 114-120.)

B. The Prosecution History

The ’340 patent is a continuation of application 17/026,847, which is a continuation of application 16/043,925 (U.S. Patent No. 10,796,375), which is a continuation of application 14/983,171 (U.S. Patent No. 10,032,227) claiming priority to a provisional application filed on December 30, 2014. (’340 patent, Face.) The prosecution for the ’340 patent was uneventful, as Applicant filed terminal disclaimers over the ’227 and ’375 patents (Ex. 1003, 44-53), resulting in a Notice

of Allowance. (*Id.*, 9-11.) (Rawls, ¶¶ 121-122.)

C. Priority Date

For the limited purpose of this Petition, Petitioner assumes that the '340 patent is entitled to its December 30, 2014, provisional filing date. All references in this Petition predate this date.

III. PRIOR ART OVERVIEW

A. Morris

Morris described accurately detecting when a user is on a treadmill for both safety and data analysis purposes. (Morris, Title, [0004]-[0005].) Morris disclosed an exemplary “reluctance-type sensor comprising a magnet and induction coil to detect induced current based on the movements of a treadmill deck with respect to the treadmill frame caused by movements of a user.” (*Id.*, [0007].) Figure 9 illustrated Morris’ user detection.

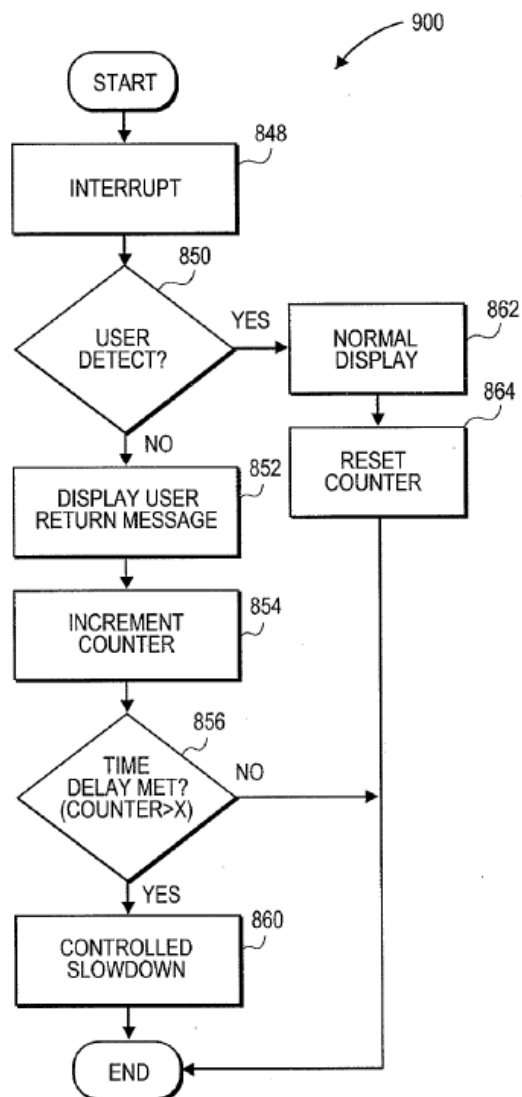


FIG. 9

During a user's workout, Morris' user detection sensor determined whether or not a user was present. (*Id.*, [0045].) When a user was detected, the user's workout program would continue without interruption. (*Id.*) If a user was not detected, Morris' FIT processor would determine how long a user was not present. (*Id.*) If the

user did not return before a timeout threshold was surpassed, a controlled slowdown was initiated to stop the treadmill. (*Id.*) (Rawls, ¶¶ 123-125.)

B. Ray

Ray sought to motivate users to exercise on treadmills, and also solved the same problem discussed in the '334 patent—preventing a person from fraudulently obtaining credit for exercise that the person didn't perform, with the intent of manipulating wellness programs and insurance companies for discounts. (Ray, Abstract, 3:13-42, 4:37-44, 7:30-33, 9:17-36.)

Ray explained that prior exercise devices failed “to accurately validate [the] identity of [a] user . . . thus enabling inactive wellness program participants to obtain false wellness program credit for exercise performed by another.” (*Id.*, 3:16-29, 8:25-28.) For example, dishonest users (or the user's friend) could shake a pedometer to generate false exercise information “while sitting on the couch watching television.” (*Id.*, 3:21-29.)

To solve these problems, Ray disclosed a process for validating exercise data by using a sensor that detected engagement of a user with a treadmill. This process validated the user's identity and the exercise performed, and also provided “motivation” by displaying a real-time virtual image of the user's physical improvements (thinning) as they continued to exercise. (*Id.*, 4:52-54, 5:40-46, 6:36-42, 8:26-28.)

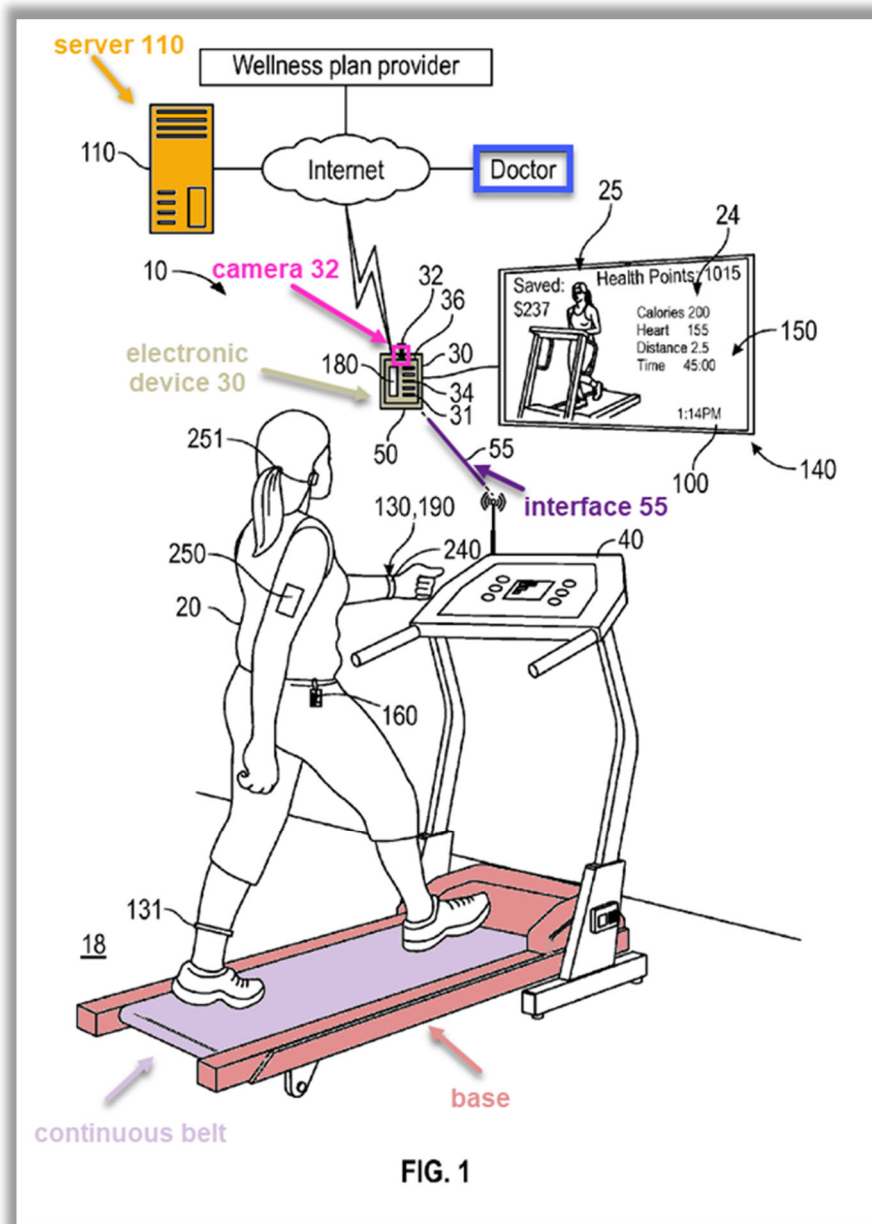


Figure 1 (annotated)

Figure 1 showed a treadmill including a camera 32 (i.e., sensor) that tracked a user's movement in real-time to confirm that a user is engaged with the machine. (*Id.*, 6:43-46, 12:59-67, 14:6-14.) Ray's treadmill also generated exercise data 24 displayed on the treadmill screen as data, and as a virtual image. (*Id.*, 5:41-58, 12:61-64, 13:50-67, 14:3-5, 16:51-55, 17:61-18:19, Figs. 1-3.)

As long as a user was exercising, camera 32 captured a real-time video/images of the user (*id.*, 14:31-46.) and a computer caused a user's virtual image to become thinner and healthier based on the intensity and length of the user's workout (*Id.*, Abstract, 5:41-46, 10:59-67, 13:20-30, 16:17-21.) Thus, Ray's motivational image was generated "in accordance to the speed or duration of the detection of movement of the user 20 by the camera 32." (*Id.*, 13:50-67.)

The user's image and other exercise data could be stored on server 110 (*id.*, 13:30-36), or transmitted over the Internet to third parties, such as a user's doctor or insurance company. (*Id.*, 5:41-58, 13:7-10.) But if the user was not detected or was not exercising, the camera would no longer capture the user's image. (*Id.*, 14:31-55.) (Rawls, ¶¶ 126-130.)

IV. CLAIM CONSTRUCTION

In an IPR proceeding, the challenged claims are construed "in accordance with the ordinary and customary meaning of such claim[s] as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." 37 C.F.R. § 42.100(B). Petitioner does not believe construction of any term is necessary to resolve the invalidity challenges in this Petition. (Rawls, ¶¶ 29-30.)

The '340 claims have not been construed by any courts as of the filing of this Petition.

V. LEVEL OF ORDINARY SKILL

As of the alleged December 2014 priority date, a person of ordinary skill in the art (POSITA) is a person having: (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. A POSITA could substitute additional education for experience, e.g., substituting an advanced degree relating to the design of cardiovascular exercise equipment or biomechanics, for industry experience in a related field and vice versa. (Rawls, ¶¶ 31-34.)

VI. GROUNDS FOR CHALLENGE

A. Ground 1: Claims 1-20 Are Obvious over Morris and Ray.

1. Motivation to Combine

Both Morris and Ray related to exercise equipment (e.g., treadmills), and specifically to detecting a user's presence on a treadmill and presenting exercise data on a display while the user was exercising. (Morris, Abstract, [0006], [0035]; Ray, Abstract, 5:41-48, 13:20-30.) Morris recognized detecting a user's presence could provide a number of benefits, including motivation (Morris, [0025]), which was one of the main themes in Ray's invention. (Ray, 8:22-26, 11:56-61.) Therefore, a POSITA would have been motivated to combine the complementary teachings of Morris and Ray that addressed similar objectives to achieve predictable results. (Rawls, ¶¶ 134-137.)

In the combination, a POSITA would have incorporated Ray's camera and software instructions for validating user exercise data into Morris with a reasonable expectation of success. In fact, Morris had already explained that its exercise equipment could be fitted with optical sensor(s) (Morris, [0033]), which would have provided an express motivation to install and use Ray's camera for user detection. Additionally, Morris' treadmill included an information processing system with several electronic circuits and processors (controller)—FIT processor 520, display processor 522, translator board 518, motor/incline control board 528 (Morris, [0032], [0034]-[0036], Fig. 6), which could be individual components, or combined together. (Morris, [0035].) They processed the sensor signals, determined the presence/absence of the user, communicated with treadmill's motor(s), and presented exercise data such as duration, speed, intensity, incline, cadence, footfall force, a human analog display that mimicked bouncing motion of the user, as well as a *virtual reality content*¹ on the screen. (Morris, [0032], [0034]-[0036], [0050], [0056]-[0058], Claims 29-37, Figs., 11-12C.) Therefore, the signal processing and display system of Morris had the necessary capabilities to accommodate Ray's user detection/validation software and implement, with a reasonable expectation of

¹ All bold and italic emphases are added by Petitioner unless otherwise specified.

success, its functionalities that included producing and presenting the motivational image of the user exercising. A POSITA would recognize that software instructions could easily be incorporated into Morris' controller and interact with Morris' advanced sensor system designed to more accurately detect a user's presence. (Rawls, ¶¶ 138-141.) (*Keynetik, Inc. v. Samsung Elecs. Co.*, No. 2022-1127, 2023 WL 2003932, at *2 (Fed. Cir. Feb. 15, 2023) ("Normally, once the function to be performed by software has been identified, writing code to achieve that function is within the skill of the art."))

A POSITA would have further understood by Ray's express teachings that its user validation/motivation technology could be "easily and affordably merged" into a treadmill (Ray, 9:55-57) and that incorporating these features into Morris' treadmill would have been obvious and produced predictable results with a reasonable expectation of success. (Rawls, ¶¶ 142-143.)

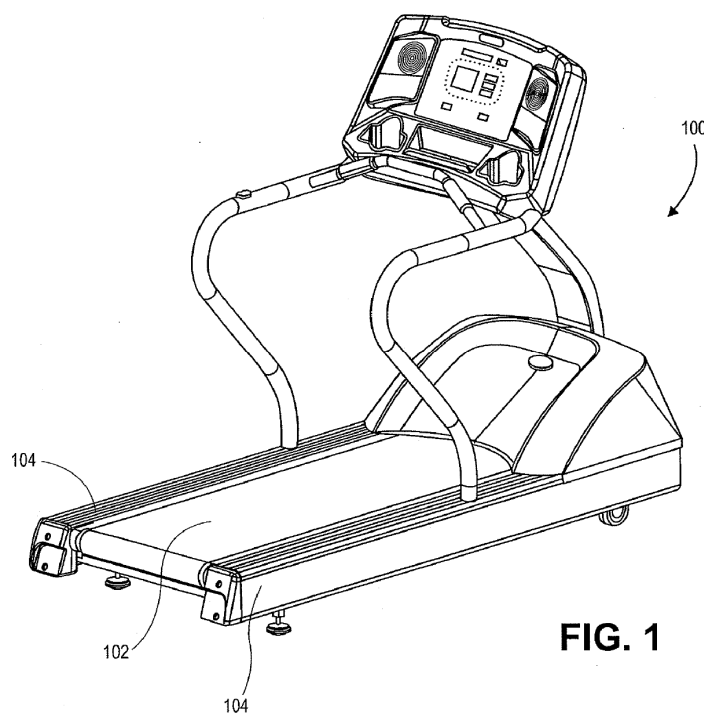
A POSITA would have been further motivated to make this combination because it would have improved the capabilities of Morris' treadmill by adding Ray's motivational image that showed a thinner image of the user as the intensity and duration of exercise increased, thus contributing "to the user's sense of self-worth and self-esteem." (Ray, 11:55-59; 13:50-57.) While Morris recognized that exercise data could be "output to a computer or saved in memory" for later access (Morris, [0050]), inclusion of Ray's functionality to share the exercise data with a

remote location in real time would have allowed “a more efficient flow of that data to ... a physician or personal trainer” (Ray, 7:11-22), thus providing another added benefit motivating a POSITA to make this combination. (Rawls, ¶ 144.)

2. Claim 1

1[pre] “An exercise apparatus comprising:”

Morris disclosed an “exercise machine[] having user detection features” (Morris, [0002], Title, Abstract), where the exercise machine could be a treadmill. (*Id.*, [0007], Claim 29, Abstract, Fig. 1.)



1[a] “a base;”

Morris’ Figure 1 (above) clearly depicted a treadmill that included a base 104 that included a “[d]eck 206 ... generally made of a sturdy material that can withstand

the forceful impacts of runners and other users.” (Morris [0027], Fig. 2). The belt of the treadmill was positioned above the deck 206. (*Id.*) (Rawls, ¶¶ 145-146.)

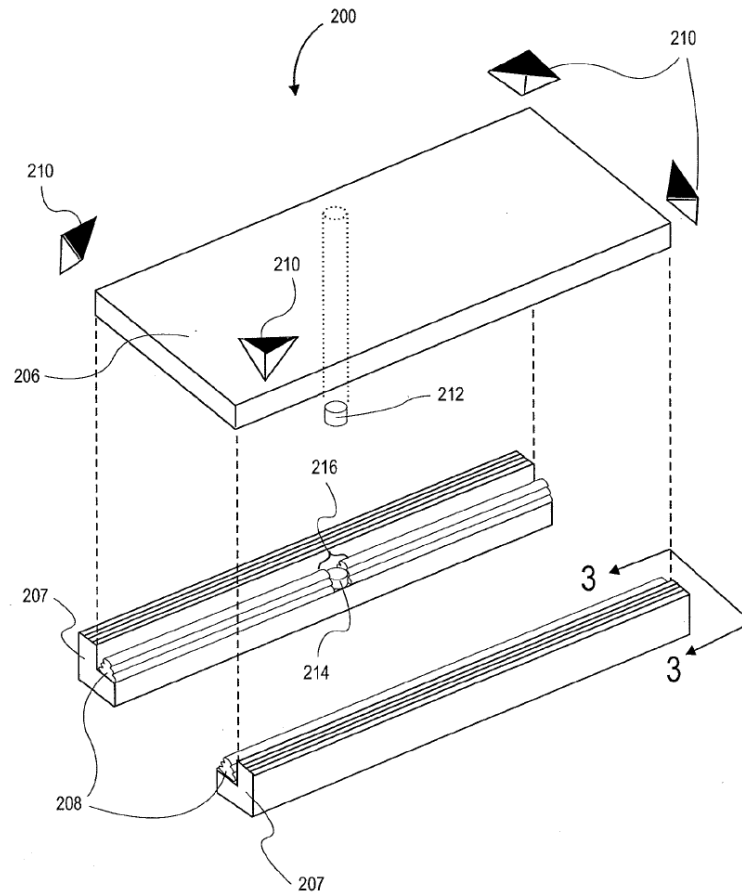
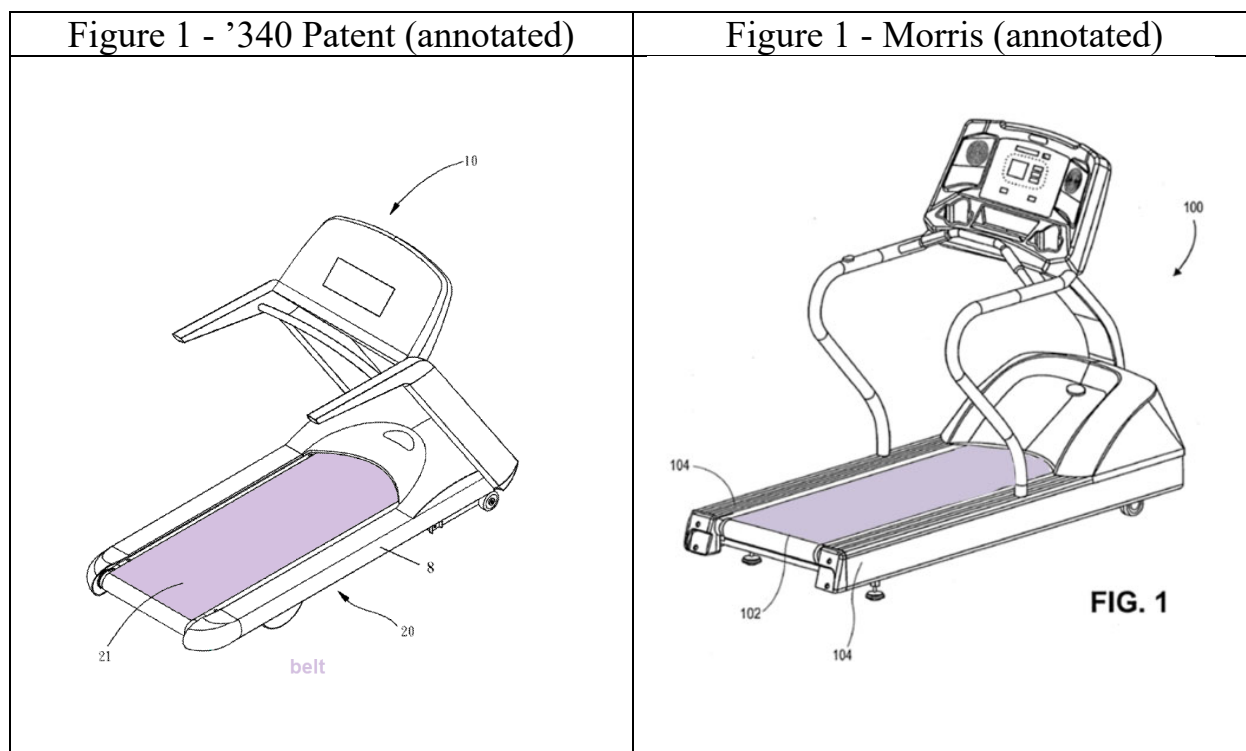


FIG. 2

1[b] “an operating unit movable relative to the base;”

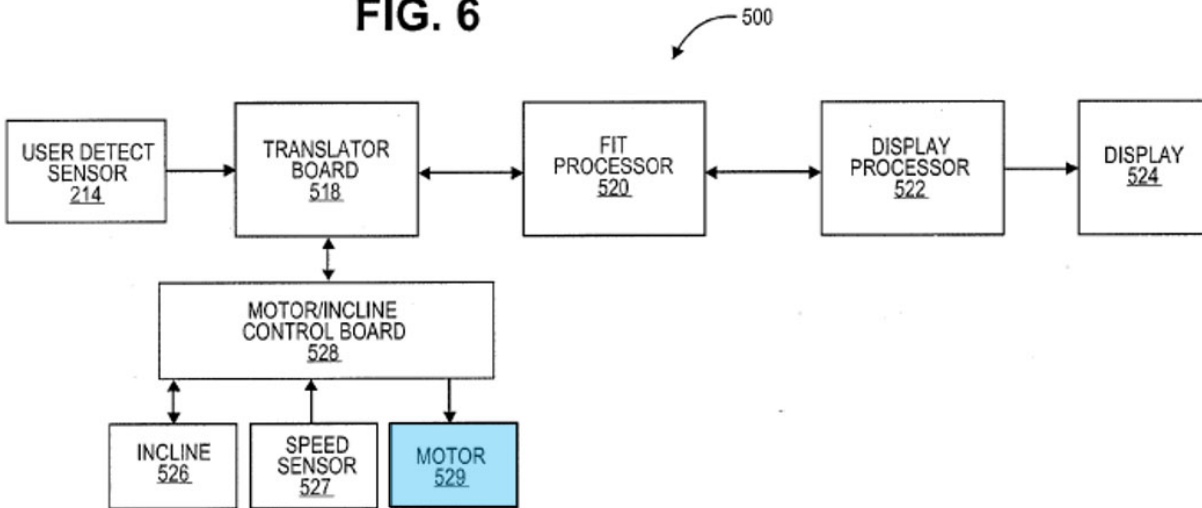
The ’340 patent’s operating member could be an endless belt (Ex. 1001, 3:4-7, 4:28-35), and Morris disclosed a motor-driven endless belt 102. (See annotated Figure 1 (below) and Morris, [0025], explaining movement of the belt via electric motor.) Morris’ “belt [was positioned] above the deck 206” (Morris, [0027]) that moved with respect to the stationary deck. (Rawls, ¶¶ 147-148.)



1[c] “a motor coupled to the operating unit;”

Morris disclosed a motor coupled to its belt (operating unit) by explaining that “slight vibrations in the treadmill caused merely by *electric motor driving the belt* may create small, ‘baseline’ signals.” (Morris, [0031].) Morris further described a “motor feedback system [for] monitoring the incline and speed of a treadmill,” and drivers for its motor, including motor/incline control board 528 and motor driver 529, as shown in Figure 6. (*Id.* [0032]-[0033].) (Rawls, ¶ 149.)

(Annotated)
FIG. 6



1[d] “a sensor operable to detect engagement of a user with the operating unit;”

Morris described a user detect sensor, such as a “*magnet and coil*, ... other magnetic sensors, *optical sensors* or the like.” (Morris, [0033].) For example, Morris described a reluctance sensor including magnet 212 and induction coil 214. (Morris, [0027], Figs. 3A-B.)

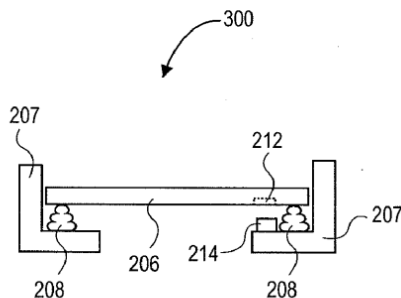


FIG. 3A

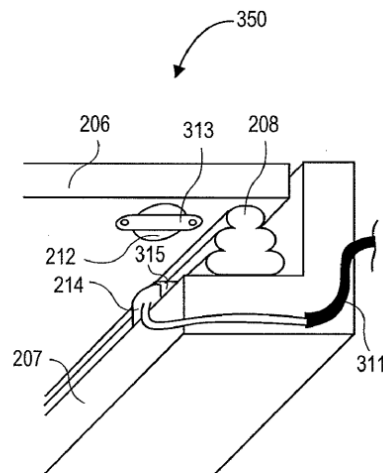


FIG. 3B

As the deck moved from a user's footfalls, the magnet's 212 corresponding movements induced a current in the induction coil 214 that was communicated through wire 311 to a processor, where the signals were used to determine whether a user was present. (Morris, [0027], [0031].) (Rawls, ¶¶ 150-151.)

Ray's Sensor: Ray also disclosed an optical sensor in the form of a camera and associated data processor that was connected to the exercise machine (Ray, 10:36-50), or could be implemented as part of the treadmill. (Ray, 9:55-57.) Ray's camera "record[ed] [] still or video image[s] or produce[d] a live feed of the . . . exercising user 20 *when movement is detected by the camera.*" (Ray, 13:20-24.)

Ray explained that:

For example, as long as the exercise data 24 is being produced by the exercise machine 40, the camera 32 can be instructed to capture the user's image every 10 minutes. Therefore, *as long as the user 20 continues exercising, the camera 32 will continue to capture the user's image.*

(Ray, 14:34-40, 10:59-64; *see also id.*, claim 1.)

Ray's camera also detected when a user was on versus off the moving belt and disclosed that "as long as the treadmill is moving the camera will operate to take their real-time image while exercising ... [i]f the user stops exercising, the camera will no longer record images." (Ray, 6:53-56.) Ray's camera determined a user's presence when "movement ... (such as the user's shoulders moving up and down)" was detected, thus making clear that at least Ray's camera *was operable to detect*

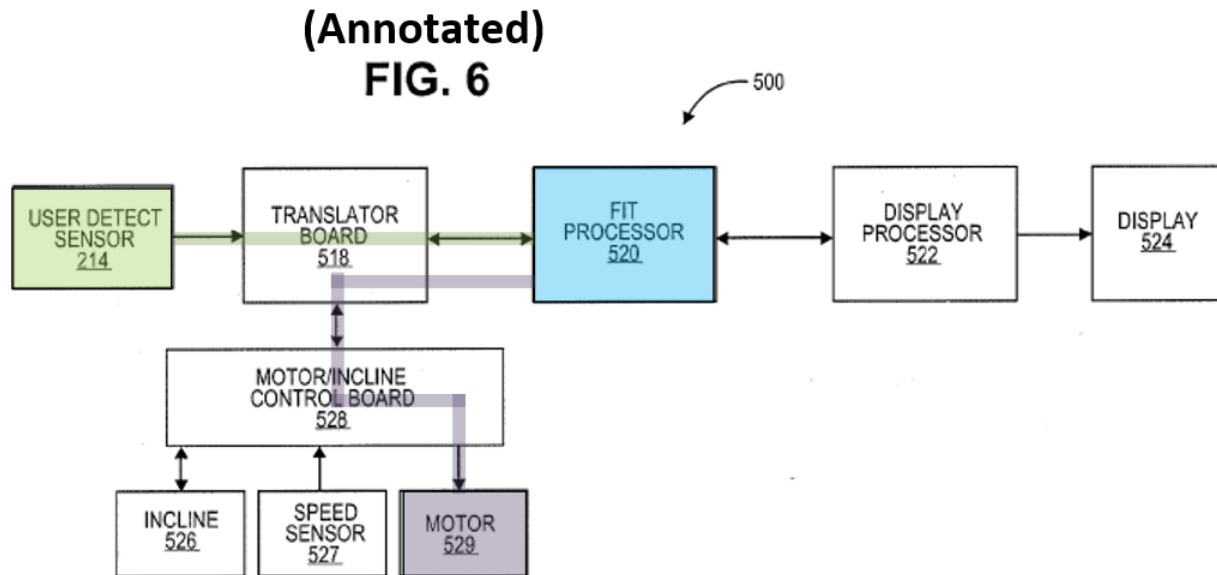
engagement of a user with the operating unit. (Ray, 14:6-14, 15:55-65.) Finally, Ray's camera could sense small changes in the user's facial color based on blood flow to obtain heart and respiratory rates of the user. (Ray, 16:47-50.)

In the combination, Ray's camera and its analysis software would be combined with Morris' treadmill and augment the reluctance sensor, which provided detection signals indicative of the force exerted by the user on the treadmill as the user was walking or running on the treadmill. The reluctance sensor data would be used to accurately and realistically modify the user's virtual image based on the detected footfalls. A POSITA would have a reasonable expectation of success in making this combination because including multiple sensors in treadmills was a routine and well-known task. Additionally, using multiple sensors or sensor types is consistent with the '340 patent's description of a sensor for detecting engagement of the user with the treadmill. (*See, e.g.*, Ex. 1001, 6:8-20, 7:46-51, and Fig. 5 describing the sensor can include multiple pressure sensors, as well as optical sensors, current sensors, etc.) (Rawls, ¶¶ 152-155.)

1[e] “a controller in communication with the operating unit and the sensor, the controller configured to generate validated exercise use data in response to the sensor detecting engagement of the user with the operating unit and movement of the operating unit relative to the base.”

Controller: Morris disclosed the claimed “controller” in the form of an FIT (fitness) processor 520 that was in communication with the motor that drove the belt

(“operating unit”) and with the user detect sensor (“sensor”), as illustrated in annotated Figure 6.



In alternate mappings, the combination of translator board 518, FIT processor 520, and display processor 522, or the combination of translator board 518 and FIT processor 520, could form the claimed “controller” because Morris described that while those components could be implemented as “physically separate processors and/or electronic boards, *one or more [of the translator board 518, FIT processor 520, and display processor 522] [could] be combined within single processor.*” (Morris, [0035].) Combining different processors or implementing them as individual components was obvious and well-known. The mapping of the Morris FIT processor and/or the combination of multiple processors/control boards to the claimed controller is consistent with the ’340 patent’s examples of the controller that included “a microcontroller unit, at least one electronic circuit, and at least one

circuit board ... [or] a computer processing system that includes a hardware assembly, and/or a firmware assembly.” (Ex. 1001, 4:55-67.) (Rawls, ¶¶ 156-158.)

Morris’ processor(s) communicated with the user detect sensor because “the user detection inductance coil 214 communicate[d] with the translator board 518. The translator board 518 interpret[ed] the signals from the inductance coil 214 and forward[ed] them to the FIT processor 520. The FIT processor 520 ... use[d] this indication to help control a workout program.” (Morris, [0036].) Morris’ processor also communicated with the treadmill belt (operating unit) because it “communicate[d] a signal to the translator board 518, which in turn communicate[d] signals that cause[d], for example, a treadmill belt drive to slow the treadmill belt or the incline motor to lower the incline.” (*Id.*; *see also id.*, Claims 24 and 32.) (Rawls, ¶ 159.)

Validated Exercise Use Data:

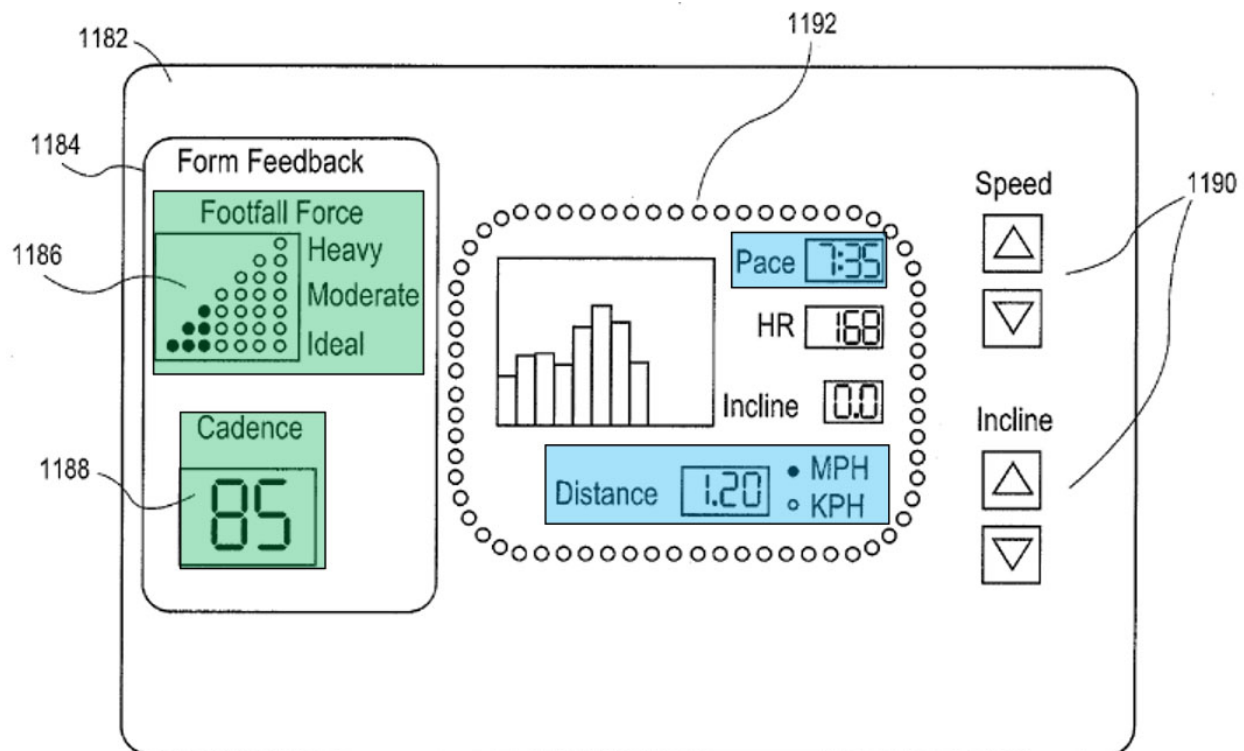
The ’340 patent and its claims describe “validated exercise use data” as exercise data that is generated while the user is actually exercising on the exercise machine—i.e., when the user is engaged with the operating unit that is moving, such as when the user is walking/running on a treadmill while the belt is running, (Ex. 1001, 2:44-59), whereas if the user is not detected, non-validated exercise data is generated. (*Id.*) Neither the claims, nor the detailed description, of the ’340 patent, impose additional requirements on this term.

The context in the Background of the '340 patent explains that motor-driven treadmills could run unattended and produce fake exercise data without the user actually exercising. (Ex. 1001, 1:57-2:26.) For this reason, health insurance companies would not accept data produced by motor-driven exercise equipment as proof of the user's exercise habits for providing discounts. (*Id.*) The '340 patent purports to solve this problem via a "verification function and a verifying method." (*Id.*, 2:36-37.) But the disclosed method to generate "validated" exercise use data, even in the more detailed steps of Figure 6, simply entails generating validated exercise use data when the user is detected while the operating member is moving.

Notably, the '340 patent describes Figure 6 operations as "*an example* of exercise use verification application" (Ex. 1001, 6:55-58), and uses loose and permissive language by stating: "the controller *can* record (or *otherwise identify*) the non-validated exercise use data as validated exercise use data" (*id.*, 7:42-44). The claims of the '340 patent are even broader and simply recite that a validated exercise use data is the data generated "in response to the sensor detecting engagement of the user with the operating unit and movement of the operating unit relative to the base." (*Id.*, 8:37-41.) Claim 19 (dependent of claim 13) also recites "...wherein the reported exercise use data is defined as validated exercise use data." (*Id.*, 10:37-38.) Claim 13's reported "exercise use data" is simply the exercise use data produced in response to detecting the user's engagement with the operating

member. (*Id.*, 10:1-12). While the “reporting” statement is not part of the independent claims, the prior art in this Petition illustrate that the exercise use data obtained when user was detected to be exercising is also reported. (Rawls, ¶¶ 160-163.)

Generating Validated Exercise Use Data: Morris and Ray taught this limitation. Specifically, Morris explained that “exercise equipment may present information to a user through a display” (Morris, [0050]), showing exercise use data including “information such as *pace*, heart rate (when available), incline, *distance*, program profile, and/or the like.” (Morris, [0051]; see [blue annotations](#) in Fig. 11.)



Morris additionally described generating and displaying exercise use data such as a *footfall force* represented on a “force graph 1186 [that] include[d] one or more indications of force, such as increased bar length of the graph, color changes, and the like for heavier footfall forces ...[and] *a user’s cadence—generally expressed as steps per minute* ... measured based on the detection of each impact over a period of time.” (Morris, [0053]; see **green annotations** in Fig. 11.)

Morris additionally explained that “user detection sensor readings [were] evaluated more often *while the treadmill belt [wa]s moving.*” (Morris, [0040].) Therefore, a POSITA would have understood that the exercise use data obtained from the sensor readings were generated while the belt (operating unit) was moving, and reported out to the treadmill screen. A POSITA would have also found this obvious because information such as pace and the user’s cadence were tied to the time spent, or the distance traveled, while the user was exercising on a moving treadmill, and were therefore validated exercise use data generated and reported while user was engaged with the treadmill. (Rawls, ¶¶ 164-166.)

Ray’s Validated Exercise Use Data: While, as explained above, Morris’ exercise use data was produced while the user engaged with the treadmill, Ray made it explicit that validated exercise use data would only be produced while the user was being detected exercising. Notably, Ray disclosed generating, transmitting and displaying exercise data 24, such as calories, heart rate, distance and time. (Ray,

5:46-48, 10:64-67, 13:31-36; *see also* **blue highlights** in annotated Fig. 1.) Ray, for example, explained “[i]n addition to seeing her image, she [could] also view on the display her exercise data such as heartrate, calories burned and distance advanced.” (Ray, 5:46-48.)

Ray’s exercise use data further included a virtual image² of the user which was generated and displayed in real time on a screen when the user used the treadmill (Ray., 4:66-5:11), and became “thinner, healthier, and more aesthetically pleasing.” (Ray, 5:41-46; *see also* **green highlights** in annotated Fig. 1.) The image was thinned based on the intensity, speed and/or duration of the user’s workout. (Ray, Abstract, 5:44-46, 5:23-29, 10:59-67.) (Rawls, ¶¶ 167-168.)

² Ray’s user image is consistent with the ‘340 patent’s explanation that exercise use data can be “a multimedia content, such as a media image and/or a sound.” (Ex. 1001, 6:57-59.)

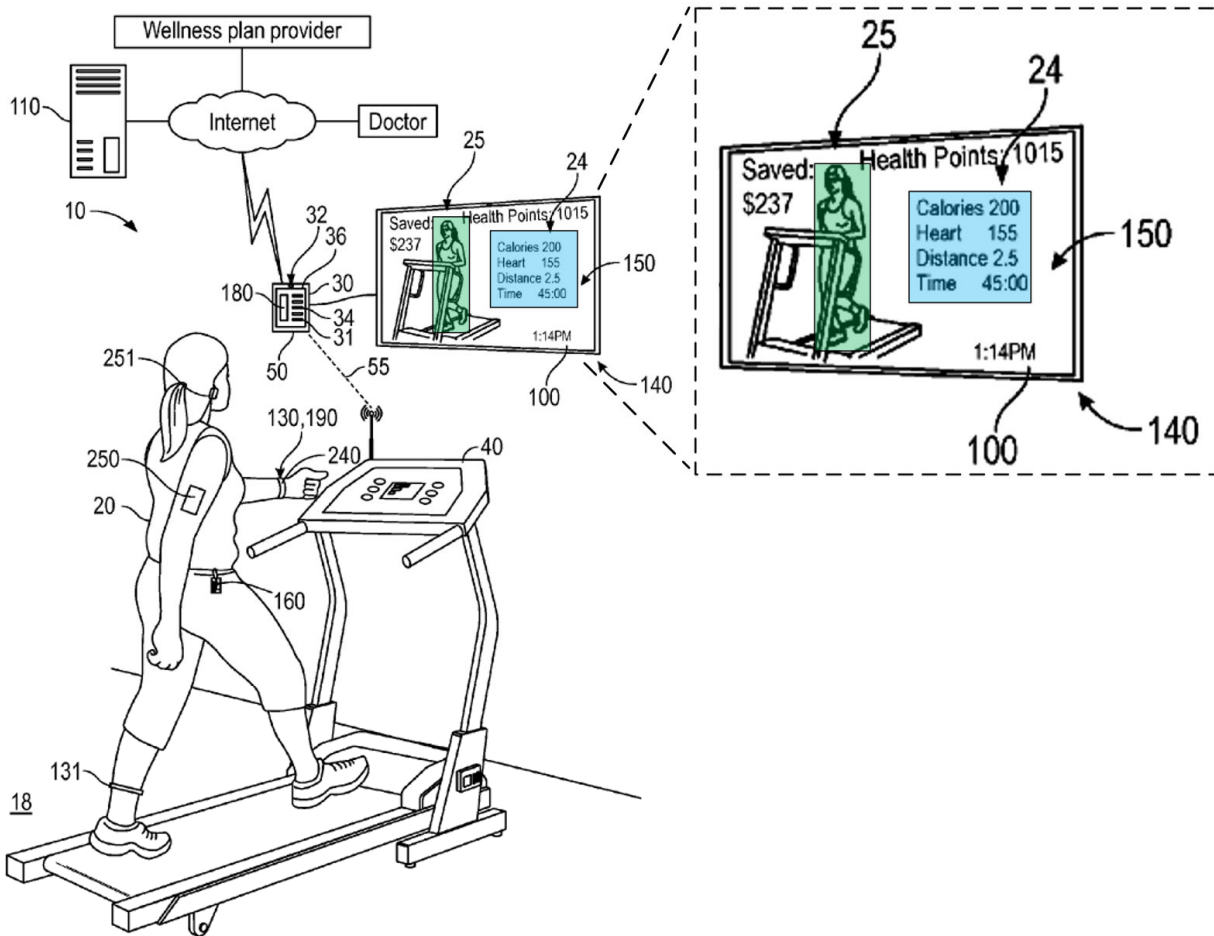


FIG. 1 (Annotated and Display Area Enlarged)

Ray described that the user's thinner/healthier-looking image was generated in *real time* by a computer system, was produced *via the treadmill interfacing with the computer system*, and was displayed on the screen *as the user was exercising*. (Ray, 4:67-5:14, 5:23-29, 10:59-67.) For example, Ray explained that the movement of the treadmill could trigger the camera's operation: "the exercise machine 40 indicates movement thereof at the interface 55 with the electronic device 30, resulting in the set of instructions causing the camera 32 to periodically take a

photo.” (Ray, 14:7-11; *see also id.*, 6:54-56: “***as long as the treadmill is moving*** the camera will operate to take their real-time image while exercising.”)

Therefore, it would have been obvious to a POSITA that the user’s image on a treadmill, which changed in real time based on the intensity/speed of user’s exercise, would be generated when the treadmill’s belt (operating unit) was moving. Additionally, a POSITA would have understood or found it obvious that Ray’s other types of exercise information, such as time and distance, would be generated while the treadmill belt (operating unit) was moving and the exercising user was being detected. (*See, e.g.*, Ray, 13:24-30: “transmit to the server ...***the time 140 and duration of the exercise performed by the user 20***”; *see also id.*, 5:45-48: “In addition to seeing her image, she can also view on the display ***her exercise data such as heart rate, calories burned and distance advanced***.”) (Rawls, ¶¶ 167-170.)

In the Morris-Ray combination, the controller would have been configured to detect the user’s presence using a camera (sensor) as described in Ray. The camera, according to Ray, detected a user on the moving belt (operating unit) when, for example, it sensed a user’s shoulders moving up and down (Ray, 14:6-14), and/or by taking real-time images of the user “***as long as the treadmill [wa]s moving***.” (*Id.*, 6:53-55.) Ray further explained “***[i]f the user stop[ped] exercising, the camera w[ould] no longer record images***.” (Ray, 6:55-57.)

Accordingly, a POSITA would have understood that Ray’s exercise use data

(motivational image and other exercise data) was validated exercise use data because it was produced in response to detecting an exercising user on the treadmill and the movement of the belt. The validated exercise use data was also reported (e.g., to the doctor or wellness trainer in real time (Ray, 5:49-51, 7:4-10, Figs. 1-3) or for storage to a remote server (Ray, 3:47-51, 7:4-10, 8:1-8, Figs. 1-3). (Rawls, ¶ 166.) Once the user was no longer exercising on the treadmill, the generation and reporting of the user's image would have stopped. (Ray, 6:55-57.)

Ray also explained “[u]sing the *validation process* of the invention, the patient's identity *and exercise routine [were] confirmed* simultaneously.” (Ray, 8:26-28; *see also id.*, 13:24:30.) Therefore, Ray provided an additional level of validation of the exercise use data based on validation of the identity of the user. (Rawls, ¶ 167, 171.)

As explained above, Morris and Ray both described generating data related to the exercise session while the user was on the treadmill; the data included distance, pace, footfall force, cadence, time, and the user's virtual image that morphed based on exercise intensity/duration. Any one or any combination of them can be construed as exercise use data. Accordingly, generation and reporting of the user's thinning image, and stopping the reporting once the user could not be detected, satisfied limitation 1[e]. (Rawls, ¶ 172.)

Additionally, a POSITA would have found it obvious that other exercise use

data, such as pace, footfall force, cadence, distance and/or time would also be reported while the user was exercising on the treadmill, and at least some of those additional exercise use data would not be reported when the user was no longer exercising. Specifically, pace, footfall force and cadence could only be generated when the user was walking or running on the treadmill; it would have been obvious that when the user was no longer walking/running on the treadmill, reporting of such data would cease. It would have also been obvious that other information such as time and distance could also cease to be reported because the user had finished exercising or had left the premises. (Rawls, ¶ 173.)

3. Claim 2

“...wherein the controller is further configured to generate non-validated exercise use data in response to the sensor detecting the user not engaged with the operating unit and movement of the operating unit relative to the base.”

In the Morris-Ray combination, Morris taught or suggested this limitation because it explained that “*when a user [could] not be detected*” (Morris, [0045]) and failed to return within a certain period of time (e.g., approximately 6-8 seconds), a *controlled slowdown* of the treadmill was triggered. (Morris, [0045]; Fig. 8, operations 850-856; see also *id.*, [0008]: “In an embodiment, these signals can be used to pause or stop a treadmill, for example, *when a user departs without stopping the belt of the treadmill*. These signals can also be used to *power down a machine after a user has been gone for a certain period of time.*”)

It would have been obvious to a POSITA that, in the Morris-Ray combination, for at least the duration before slowdown was initiated, certain exercise information such as time—that did not depend on the user’s presence—would continue to be generated in the absence of the user until the slowdown occurred. This information would be non-validated exercise use data because it was generated while the user was not being detected and, therefore, would not be reported (e.g., as part of the live feed to the user or the doctor), and it also would not have been subject to Ray’s identity verification. Continuing to generate and display the non-validated information (e.g., for 6-8 seconds) prior to slowdown of the treadmill would have been obvious to a POSITA because (1) it would have allowed reporting of the exercise information to be readily resumed without further delay upon the user’s return, and (2) it would have informed the user intending to jump back on the treadmill that the treadmill is still running so the user could use caution in getting back onto the treadmill, or to slow down the treadmill before resuming his/her exercise.

Additionally, to continue generating treadmill data when the user was not detected and the treadmill was running, was already known (*see infra* claim 3, regarding AAPA), and was one of only two known alternatives (the other being not to generate the data), and would have therefore been obvious. (Rawls, ¶¶ 174-175.)

4. Claim 3

“...wherein on startup of the motor and movement of the operating unit relative to the base, the controller is configured to generate the non-validated exercise use data, and”

The '340 patent admits that it was already known that treadmills would generate (non-validated) exercise data when they were started without the user actually using the treadmill. (Ex. 1001, 2:2-6.) Therefore, it would have been obvious to a POSITA, based on Applicant Admitted Prior Art³ (AAPA), that in the Morris-Ray combination, the treadmill would generate non-validated data that merely related to the treadmill functions, such as elapsed time, when the treadmill was turned on and running without a user exercising. *See also* claim 2, *supra*.

Ray explained that one way to activate its camera was based on “the exercise machine 40 indicat[ing] movement thereof at the interface 55.” (Ray, 14:7-11.) And, based on detecting up-and-down movements of the user’s shoulders, Ray determined if the user was exercising. (Ray, 14:11-14.) It would have been obvious to a POSITA that, in the Morris-Ray combination, upon startup of the treadmill, Ray’s camera would be activated and capture one or more images (non-validated exercise use data)

³ Per Director’s August 18, 2020 Guidance, AAPA can be used to establish the knowledge of a POSITA, to furnish a motivation to combine, and/or to supply a missing limitation.

to ascertain whether the user was moving or was present. If the user was not exercising (e.g., up/down shoulder movement not detected) or was not present, Ray would not record any further images and the initially captured image(s), and any associated exercise data (e.g., elapsed time) would remain non-validated exercise use data. In the above example, Ray's camera captured the image(s) to ascertain the user's presence. A POSITA would have understood based on the teachings of Ray that the captured images showing that the user had not started exercising, and other accompanying exercise use data (e.g., elapsed time), would not be reported (e.g., to the doctor as part of the live feed, as explained in limitation 1[e]). A POSITA would have found it obvious that such non-validated exercise use data would be generated at the startup of the treadmill because, at that time, the user would be just starting the exercise routine, and would be stationary or would be off the treadmill for at least some small amount of time. (Rawls, ¶¶ 176-177.)

“wherein the controller is further configured to record the non-validated exercise use data as validated exercise use data in response to the sensor detecting engagement of the user with the operating unit.”

In the Morris-Ray combination, Ray taught or suggested this limitation because it explained that its camera would be triggered based on the movement of the exercise machine (Ray, 14:6-11), and would continue recording and generating the motivational image as long as the user was exercising. (Ray, 14:35-40.) Therefore, as explained above, while any images and exercise information obtained

while the user was not exercising would not be reported or validated, upon a determination that captured image(s) indicated the user was exercising on the treadmill, those images and associated data (e.g., time and/or duration of exercise (Ray 13:29-30) would become validated exercise use data and recorded (e.g., at the cloud-based server). (Ray, 7:4-10, 8:1-8.) It would have been obvious that other exercise data, such as distance, would also be validated and reported out because it also corresponded to the exercising user and were being viewed by the user when exercising. (Ray, 5:46-48, 13:24-30.) (Rawls, ¶ 178.) (*See also* limitation 1[e], *supra*.)

5. Claim 4

“...wherein the validated exercise use data includes an amount of user exercise time defined by a duration that the sensor detects engagement of the user with the operating unit during movement of the operating unit relative to the base.”

Ray’s Figure 1 (annotated below) showed time spent exercising was part of the exercise data displayed on the screen while the user was exercising (Ray, 5:46-48) and explicitly stated that, along with identity of the user, “*the time 140 and duration of the exercise performed by the user 20*” were transmitted to the server and/or reported to the doctor. (Ray, 13:24-30; *see also id.*, 13:21-24: “electronic device 30 is adapted to cause the camera 32 to record a still or video image ... *when movement is detected by the camera*”; *see also id.*, 10:64-67, 13:20-36, and limitation 1[e], *supra*.)

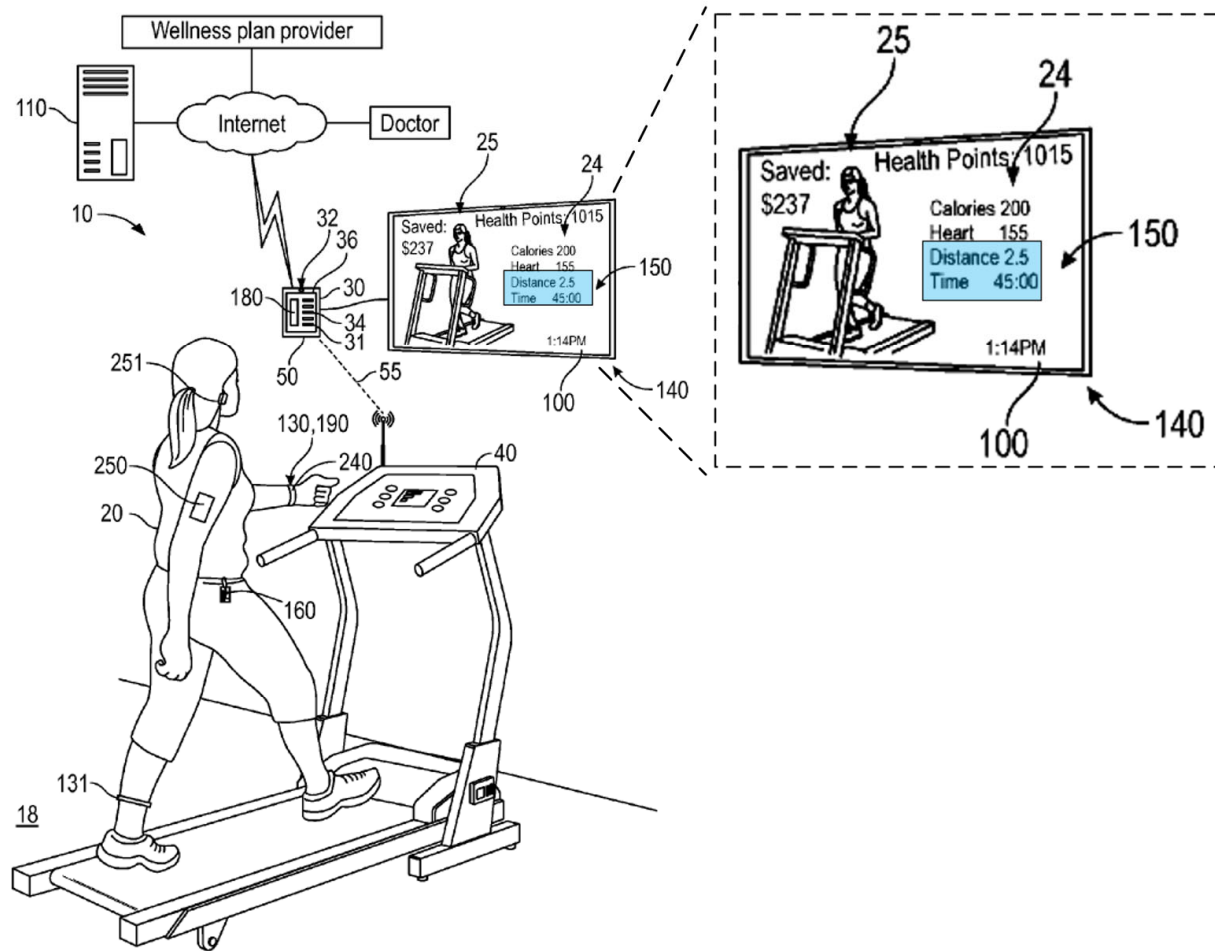


FIG. 1 (Annotated and Display Area Enlarged)

It would have been obvious to a POSITA that “the duration of the exercise performed by the user” was part of the validated exercise use data because it was detected while the user was engaged with the treadmill as detected and confirmed via images of the exercising user, and reported along with the identity of the user. (Rawls, ¶¶ 179-180.)

6. Claim 5

“...wherein the validated exercise use data includes a distance traveled by the user, wherein the distance traveled is defined while the sensor detects engagement of the user with the operating member.”

Ray disclosed that an exercising user could “view on the display her exercise data such as heart rate, calories burned, and **distance advanced.**” (Ray, 5:46-48, 10:64-67, 13:31-36, Fig. 1 (annotated above); *see* limitation 1[e], *supra.*) Morris also disclosed exercise data, including distance traveled, would be presented to the user. (Morris, [0051], Fig. 11; *see* limitation 1[e], *supra.*)

Further, Ray described that distance was one of several exercise data displayed on the screen when the user was exercising, along with time, heart rate and calories, and further described that “time” was generated and reported as a “validated exercise use data” to a third party. (*See* claim 4, *supra.*) Therefore, it would have been obvious to a POSITA that “distance” that was listed alongside “time” (see annotated Figure 1 above) would also be validated exercise data that was collected during the user’s exercise and reported to a third party, such as a doctor. (Rawls, ¶¶ 181-182.)

7. Claim 6

“...wherein the controller is further configured to record the validated exercise use data in response to the sensor detecting engagement of the user with the operating unit.”

Both Morris and Ray disclosed this claim. Notably, Morris recognized that

“user presence or footfall data can also be *output to a computer or saved* in memory for later access.” (Morris, [0050]). Ray also explained that validated exercise use data was sent to server 110 and/or “*stored on a computer or cloud-based server* to be viewed at any time.” (Ray, 6:1-6, 6:63-7:7, 8:1-9, 13:7-30, 18:5-15.) It would have been obvious to a POSITA that such validated exercise use data obtained in response to detection of the exercising user would be stored in memory (recorded) via the controller. (Rawls, ¶ 183.)

8. Claim 7

“...wherein the controller is configured to establish communication with a remote location, and wherein the controller is configured to maintain communication between the exercise apparatus and the remote location while the user is determined by the controller not to be engaged with the operating member.”

Figures 1 and 2 of Ray illustrated the electronic device communicated via Internet and had “at least periodic access to the Internet or other large area network.” (Ray, 12:61-64.)

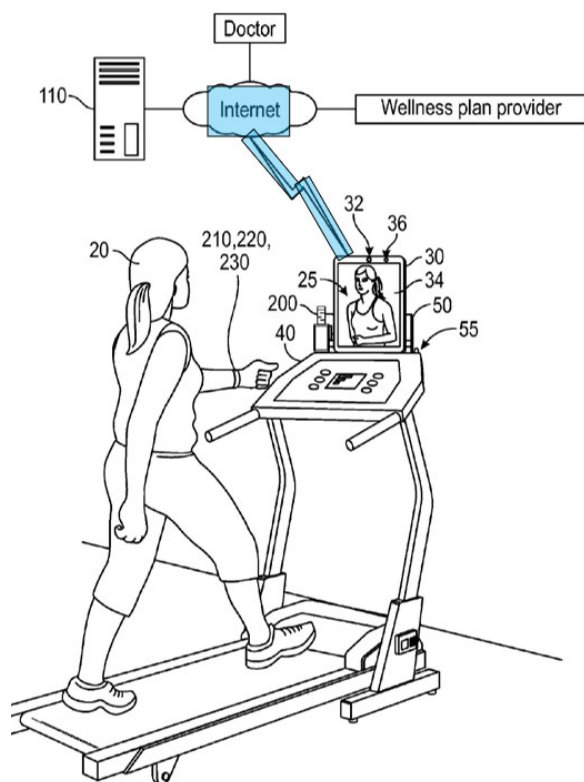


FIG. 2 (Annotated)

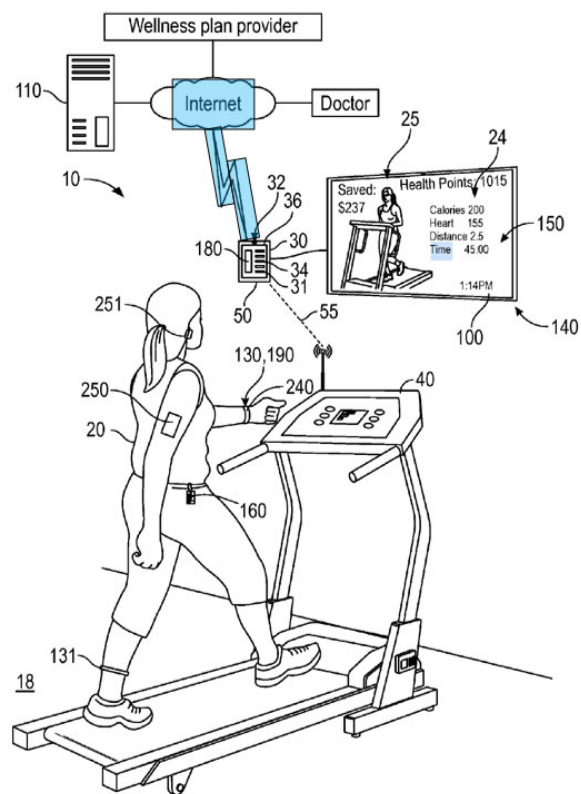


FIG. 1 (Annotated)

Ray's camera could "record a still or video image or produce a *live feed* of the patient or exercising user 20 when movement is detected by the camera 32," (Ray, 13:20-24), provided "the real-time image ... [via] a live feed image broadcast *to a remote location*," (Ray, 13:65-67) such as "**through the use of technology similar to Skype**" (Ray, 6:67-7:3) or Face Time (Ray, 5:5-7), which used Internet. (Ray, 8:1-4.) Ray also explained that the validated exercise data was sent to be stored in a remote server (Ray, 7:4-10, 8:1-8.)

It would have been obvious to a POSITA that the Morris-Ray treadmill would be in communication with the remote storage device even when the user's

engagement with the treadmill could not be detected, and the treadmill was running. Doing so would have allowed the treadmill to quickly resume transmitting the exercise data to the remote storage device once the user was detected to be present and exercising. Further, it would have been obvious to maintain the communication (e.g., Skype connection) with the remote location for at least some period of time when the user was not being detected to avoid delays in trying to re-establish the connection once the user had come back. (Rawls, ¶¶ 184-186.)

A POSITA would have also found it obvious to maintain communications with the remote location for additional reasons. Notably, Morris explained, when the treadmill was running unattended, the treadmill's screen displayed a 'user return' message asking the user to return; if the user did not return within, e.g., 6-8 seconds, a controlled slowdown of the treadmill would be initiated. (Morris, [0045]; *see infra* claim 10.) A POSITA would have also understood that the treadmill could be in communication with a remote wall-mounted television, as shown in Ray's Figure 1. (*See, e.g.,* Ray, 12:65-67, Figs. 1 & 3.) To display the 'user return' message when the treadmill was running unattended, it would have been obvious to a POSITA that the controller would be in communication with the wall-mounted television (remote device) to present the user return message. (Rawls, ¶ 187.)

9. Claim 8

8[pre] "An exercise apparatus comprising:"

See limitation 1[*pre*], *supra*.

8[a] “a motor;”

See limitation 1[*b*]-[*c*], *supra*.

8[b] “an operating member driven by the motor;”

See limitation 1[*b*]-[*c*], *supra*.

8[c] “a sensor operable to detect engagement of a user with the operating member;”

See limitation 1[*d*], *supra*.

8[d] “a controller in communication with the operating member and the sensor; and”

See limitation 1[*e*], *supra*.

8[e] “a communication interface in communication with the controller,”

The '340 patent broadly describes the communication interface as a way to provide exercise data to another device such as to “an outside storage device such as a flash drive, a disk rewriter or a website storage.” (Ex. 1001, 6:60-63). The communication interface can also be “an Internet interface, such as a Wi-Fi internet module or an internet port” (*id.*, 7:14:17), or can be “programmed or incorporated into the controller 40 such that controller 40 performs the functions associated with the communication interface.” (*Id.*, 7:23-28.) The communication interface can also be a display device. (*Id.*, 6:50-53.)

Consistent with the '340 patent, the Morris-Ray combination described a communication interface that provided the exercise use data to a display, to a memory device, to a remote cloud-based server, and/or to a remote location via a live feed.

Specifically, Morris disclosed a communication interface as (1) a display device 524 and/or (2) a display processor 522 which communicated with the display device 524. (Morris, Figs. 6, 11, 12A-12C.) Morris' display processor could be a separate component from its FIT processor or could be combined with it. (Morris, [0035].) The display processor could "command the display 524 to display indications of the presence or absence of a user" (Morris, [0036]), and could include "a television interface, a display interface, an iPod®" and the like. (Morris, [0035].) The display could be an LCD, a plasma or a touch screen, and the like. (*Id.*; see also *id.*, [0023]-[0024], Figs. 11 & 12A-C.) (Rawls, ¶¶ 188-189.)

Ray's Communication Interface: Similarly, Ray disclosed (1) a display (Ray, Figs. 1-3, 12:59-67, 13:50-54), which could be integrated into the treadmill (Ray, 9:55-57), (2) a communication interface allowing the user's motivational image and other exercise data to be transmitted over the internet, e.g., via a live feed to a remote location (*id.*, 3:46-51, 6:67-7:10, 8:1-10, 13:65-67), and/or (3) a communication interface allowing exercise data to be sent to a storage device such as cloud-based server. (Ray, 3:46-51, 5:65-6:5, 7:4-10.) Ray's Figure 3 further illustrated a specific

embodiment, in which the treadmill had an “interface 55” for transmitting exercise data to another device. (Ray, 13:31-36.) (Rawls, ¶¶ 189-190.)

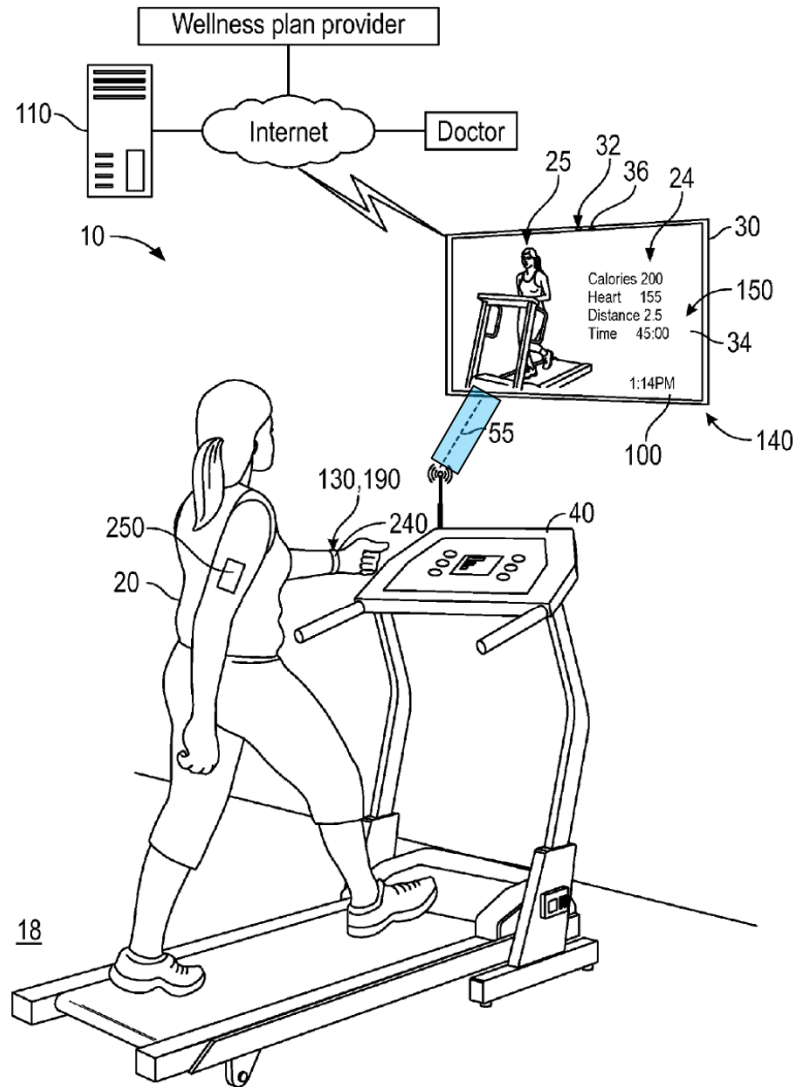


FIG. 3
(Annotated)

Ray’s various communication interfaces, to the extent they did not overlap with Morris’, could be readily implemented in Morris’ treadmill, well within the capabilities of a POSITA. (Rawls, ¶ 143.)

Accordingly, any one or combinations of the above constituted the communication interface recited in this limitation. The communication interface was in communication with the controller because it received the generated exercise data from, and under the control of, the controller to transmit the data to a storage device and/or to a third party via a live feed. (Rawls, ¶¶ 191-192.)

8[f] “wherein the controller is configured to determine whether the user is engaged with the operating member in response to a signal from the sensor and movement of the operating member,”

See limitation 1[e], *supra*.

8[g] “wherein the controller is configured to report exercise use data to the communication interface in response to the controller determining that the user is engaged with the operating member.”

See limitations 1[e], and 8[e], *supra*, explaining that when user engagement is detected, exercise use data is reported to the display and/or to a remote storage.

10. Claim 9

“...wherein the controller is configured to stop reporting the exercise use data to the communication interface in response to the controller determining that the user is not engaged with the operating member and the operating member is driven by the motor.”

See claim limitation 1[e], *supra*.

This limitation was explicitly described in Ray, which made clear that the virtual image (exercise use data) was only reported out to the user while the person was exercising. (Ray, 6:55-57: “*If the user stops exercising, the camera will no longer record images.*”) This would have also been obvious to a POSITA because

the motivational image was morphed based on “the speed or duration of the detection of movement of the user 20 by the camera 32” (Ray, 13:50-56) and was meant “to improve the user[’s] internal dialog and self-esteem by seeing themselves thinner and more fit *in real-time while exercising*.” (Ray, 6:17-20.) Thus when no one was present, there would be no displayed image of the user exercising.

As explained in connection with limitation 1[e], in the Morris-Ray combination, exercise use data could be construed as any one, or a combination, of distance, pace, footfall force, cadence, time, and a user’s virtual image. Accordingly, stopping the reporting of the user’s virtual image, as explained above, suffices to render claim 9 obvious.

Furthermore, it would have been obvious to a POSITA that the treadmill could be running without the user being present, such as in scenarios where the user had just stepped off the treadmill, had finished exercising or was otherwise absent. Morris also recognized this scenario, as explained in connection with claim 2, *supra*, and claim 10, *infra*, wherein after not detecting the user while the belt was still running, the display was altered to produce a “please return message,” and after about 6-8 seconds, a controlled slowdown was initiated. (Morris, [0045].) It would have been obvious to a POSITA that in the Morris-Ray combination, failure to detect an exercising user would cause the reporting of exercise use data (the user’s virtual image and associated exercise data) to the doctor or wellness trainer to cease, as

explained above in connection with Ray, while providing a “please return message” on the display screen when the motor was still running. (*See* Rawls, ¶¶ 195-199.)

11. Claim 10

“...wherein the controller is in communication with the communication interface while the operating member is driven by the motor and the user is determined by the controller not to be engaged with the operating member.”

See claim 7, *supra*.

12. Claim 11

“...wherein the communication interface is in communication with a remote storage device while the operating member is driven by the motor and the user is determined by the controller not to be engaged with the operating member.”

See claim 10, *supra*.

Ray described that user exercise data could be provided in real time and stored in a cloud-based server (remote storage location.) (Ray, 6:1-5; 7:4-8, 8:1-9.) Being in communication with the remote storage device—even when the user could not be detected, and the belt was running—would have been obvious to a POSITA because it would have allowed the treadmill to quickly resume transmitting the exercise data to the remote storage device once the user was detected to be present and exercising, thus avoiding repeated logins to the remote server that would have been time-consuming and annoying if the controller had severed communications with the cloud-based server. (Rawls, ¶¶ 201-202.)

13. Claim 12

“...wherein the controller is configured to report the exercise use data to the communication interface only in response to the controller determining that the user is engaged with the operating member and the operating member is being driven by the motor.”

See limitation 1[e], *supra*, explaining how Ray taught or suggested this limitation because its camera detected the presence of the user as long as the user was moving and the exercise data was being generated by the treadmill, and stopped recording images, and thus not reporting the data, when the user stopped exercising. (Ray, 6:53-57.)

14. Claim 13

13[pre] “a method of verifying the use of an exercise apparatus ...”

Both Morris and Ray described an exercise machine such as a treadmill (*see* claim limitation 1[pre], *supra*). Ray’s treadmill included a camera that recorded still/video images or produced a live feed as long as the user was detected exercising (Ray, 13:20-24, 14:34-40; *see also* claim limitation 1[c], *supra*.) The live feed could be provided to a doctor (5:49-51), accompanied the user’s verified identity data (7:4-8), and tracked and/or confirmed (verify) the user’s exercise routine on the treadmill. (Ray, 8:22-26; *see also id.*, 8:26-28: “Using the validation process of the invention, the patient’s identity and ***exercise routine are confirmed*** simultaneously.”) It would have been obvious to a POSITA that, in the Morris-Ray combination, Ray described verifying the use of the exercise equipment because Ray described confirming the

user's exercise routine based on a video feed that was produced while the user was using the exercise equipment. (Rawls, ¶ 204.)

13[a] “operating an operating member driven by a motor;”

See claim limitations 1[a] to 1[c], *supra*.

13[b] “generating exercise use data in response to operating the operating member;”

See claim limitation 1[d] and Generating Validated Exercise Use Data in limitation 1[e], *supra*, explaining generating exercise use data when the treadmill was running.

13[c] “receiving, at a controller, sensor data from a sensor;”

See claim limitations 1[d], *supra*.

13[d] “comparing, at the controller, the sensor data with a known data parameter that is indicative of a user not engaging the operating member; and”

Morris described that the user's presence can be detected by comparing the sensor signals to a baseline signal (known data parameter) caused due to slight vibrations when only the motor was driving the belt (indicative of a user not using the treadmill):

A processor uses the digital signal strength, duration, *or comparison to a previous signal to determine whether a user is present (block 588)*. For example, slight vibrations in the treadmill caused merely by the electric motor driving the belt may create small, “baseline” signals. *A change from a small baseline signal to a large signal can indicate the presence of the user.*

(Morris, [0031].)

As explained in claim 1, *supra*, in the Morris-Ray combination, the user detection mechanism based on Morris' reluctance sensor would be augmented by Ray's user detection system via a camera. The two techniques were complementary, and each provided unique capabilities. For example, Morris' reluctance sensor produced useful information about the footfall differences and user's gait (Morris, [0009]), while Ray's video-based detection allowed presentation of the user's thinning image as the user exercised. (Ray, 5:40-46.) Ray, for example, explained that the more intensely the user exercised, the thinner the motivational image would appear. (*Id.*) It would have been obvious to a POSITA that the two user detection techniques would be used collectively to improve the detection confidence and provide additional advantages. For instance, Morris' reluctance sensor would have provided detection information about the force of impact of the user's footfall (Morris, [0051]), which would have allowed an accurate determination of how intensely the user was exercising; this in turn would have allowed the motivational image to be thinned more realistically based on the actual intensity of the footfalls measured by the reluctance sensor. (Ray, 5:41-45; Rawls, ¶¶ 208-211.)

13[e] “reporting, by the controller, the exercise use data to a communication interface in response to the comparison step indicating that the user is engaged with operating member.”

See claim limitation 8[e], *supra*. In the Morris-Ray combination, the exercise

use data would be reported to the communication interface (*see* limitation 8[e]), which transmitted to a remote location and/or be provided on the display. (Rawls, ¶ 212.)

15. Claim 14

“...further comprising ceasing reporting of the exercise use data to the communication interface in response to the controller determining that the user is not engaged with the operating member while the operating member is driven by the motor.”

See claim 9, *supra*.

16. Claim 15

“...further comprising generate the exercise use data in response to the determination that the user is engaged with the operating member and in response to the determination that the user is not engaged with the operating member is being driven by the motor.”

See claim 9 and limitations 1[e] and 13[e], *supra*. Ray and Morris rendered this claim obvious. As explained in limitations 1[e]/13[e], the validated exercise use data would be generated and reported to the communication interface (to be displayed or sent to a remote location) when the user’s engagement with the treadmill was detected. As also explained regarding claim 2, it would have been obvious to a POSITA that (non-validated) exercise use data would be generated for at least some interval when the sensor detected the treadmill was running without the user. Therefore, Morris and Ray render claim 15 limitations obvious.

Furthermore, this claim is obvious based on AAPA because treadmills were known to generate exercise use data, regardless of whether or not a user was being

detected. (Ex. 1001, 1:64-2:14.) (Rawls, ¶¶ 214-215.)

17. Claim 16

“...further comprising reporting, by the controller, the exercise use data to the communication interface only in response to the controller determining that the user is engaged with the operating member.”

See claim 12 and limitations 1[e] and 13[e], *supra*. Ray explained the exercise use data would only be reported when the user was exercising on the treadmill.

18. Claim 17

“...further comprising determining, by the controller, an amount of user exercise time defined by a duration that the sensor detects engagement of the user with the operating member during movement of the operating member.”

See claim 4, *supra*.

19. Claim 18

“...wherein the known data parameter is recognized by the controller during operational use of the operating member.”

As explained in limitation 13[e], Morris compared the detected signals to a baseline signal (known data parameter) caused by slight vibrations when the motor was driving the belt without a user. (Morris, [0031].) It would have been obvious to a POSITA that Morris’ baseline signal, which was “caused *merely* by the electric motor driving the belt,” was detected when the motor was running and the user was not on the treadmill, which meant it was obtained during operational use of the operating member (i.e., when the belt was running.) (Rawls, ¶¶ 218-219.)

20. Claim 19

“...wherein the reported exercise use data is defined as validated exercise use data.”

Ray rendered this claim obvious because Ray explained that it reported the exercise use data (e.g., to the doctor, wellness manager, etc.) only when the user was exercising. *See* limitation 1[e] and claim 16, *supra*. It would have been obvious to a POSITA that such data was validated exercise use data because it represented valid exercise data that confirmed the user had exercised or was exercising.

Additionally, Ray explained the reported exercise use data was validated because “[u]sing the validation process of the invention, the patient’s identity and exercise routine *[wer]e confirmed simultaneously*,” (Ray, 8:26-28; *see also id.*, 13:24-30), which provides an additional level of validation for the reported data. (Rawls, ¶¶ 220-221.)

21. Claim 20

“...further comprising connecting the exercise apparatus with a remote location, communicating the exercise use data to the remote location, and maintaining communication between the exercise apparatus and an [sic] remote location while the operating member is driven by the motor and the user is determined by the controller not to be engaged with the operating member.”

See claim 7, *supra*. As explained earlier, the Morris-Ray treadmill established communications with a remote location, such as to a doctor, wellness manager, or a remote storage device, to provide real-time exercise use data as the user was exercising. (Ray, 3:47-51, 5:49-52, 6:67-7:3, 7:4-10, 8:1-4, 13:20-24, 13:65-67.) As

explained in connection with claim 7, *supra*, it would have been obvious to maintain communication with the remote location even when the user could not be detected, but the treadmill was still running. (Rawls, ¶ 222.)

B. Ground 2: Claims 1-17, and 19-20 Are Obvious over Ray and AAPA.

Ray disclosed a treadmill that validated exercise data when a user was exercising on a treadmill and reported that exercise data to a third party. Ray's Figures 1 to 3 clearly depicted a treadmill, but the specification assumed certain treadmill components—like a base, motor, belt, and controller—were so essential and well-known that they didn't warrant an explicit explanation. (Ray, 12:36-43.)

The '340 patent itself cites U.S. Patent No. 6,638,198 (Ex. 1008) as prior art disclosing "*a conventional exercise apparatus* that can provide exercise use data." (Ex. 1001, 1:41-44; Ex. 1008, 7:7-14). The '340 patent further acknowledges that conventional exercise equipment included an operating member and a controller that collected exercise use data and reported it to the user:

The conventional exercise apparatus comprises *an operating member and a controller* associated with the operating member. When the user drives the operating member to operate the exercise apparatus, the *controller associated with the operating member creates exercise use data*. Thereafter, the controller *records the exercise use data and reports the exercise use data* to the user.

(Ex. 1001, 1:46-53; Ex. 1008, 4:57-64, 6:31-62.)

The '340 patent further admits that a treadmill with a motor-driven belt is

conventional: “[c]urrently, if the controller is set to record exercise use data on an exercise apparatus *with motor-driven operating member, such as a treadmill operating member (a motor-driven running belt)* ... it would be easy to falsify exercise use data.” (Ex. 1001, 1:64-2:2; *see also id.*, 2:6-14.)

Additionally, during the prosecution of the related ’375 patent, in response to an Office Action (dated January 10, 2020), Applicant admitted that prior art teaches “that distance, time and speed may be displayed on a display unit ... while a user is on the belt ... and exercising.” (Ex. 1009, 39.)

Petitioner therefore relies on AAPA, the general knowledge of a POSITA, and common sense to supply the missing treadmill components in Ray. Additionally, Ray described embodiments where its validation/motivation software and camera were implemented on a portable device (e.g., a tablet) that directly communicated with the treadmill’s controller to receive exercise data and other information. (Ray, 12:59-67, 13:20-36, 14:31-40, Figs. 1-3.) Ray also explained its invention could be “easily and affordably” merged into the treadmill itself. (Ray, 9:55-57.) The below invalidity grounds rely on the “integrated” embodiment of Ray, where the electronic device’s relevant functionalities are merged into the treadmill. (Rawls, ¶¶ 223-228.)

1. Claim 1

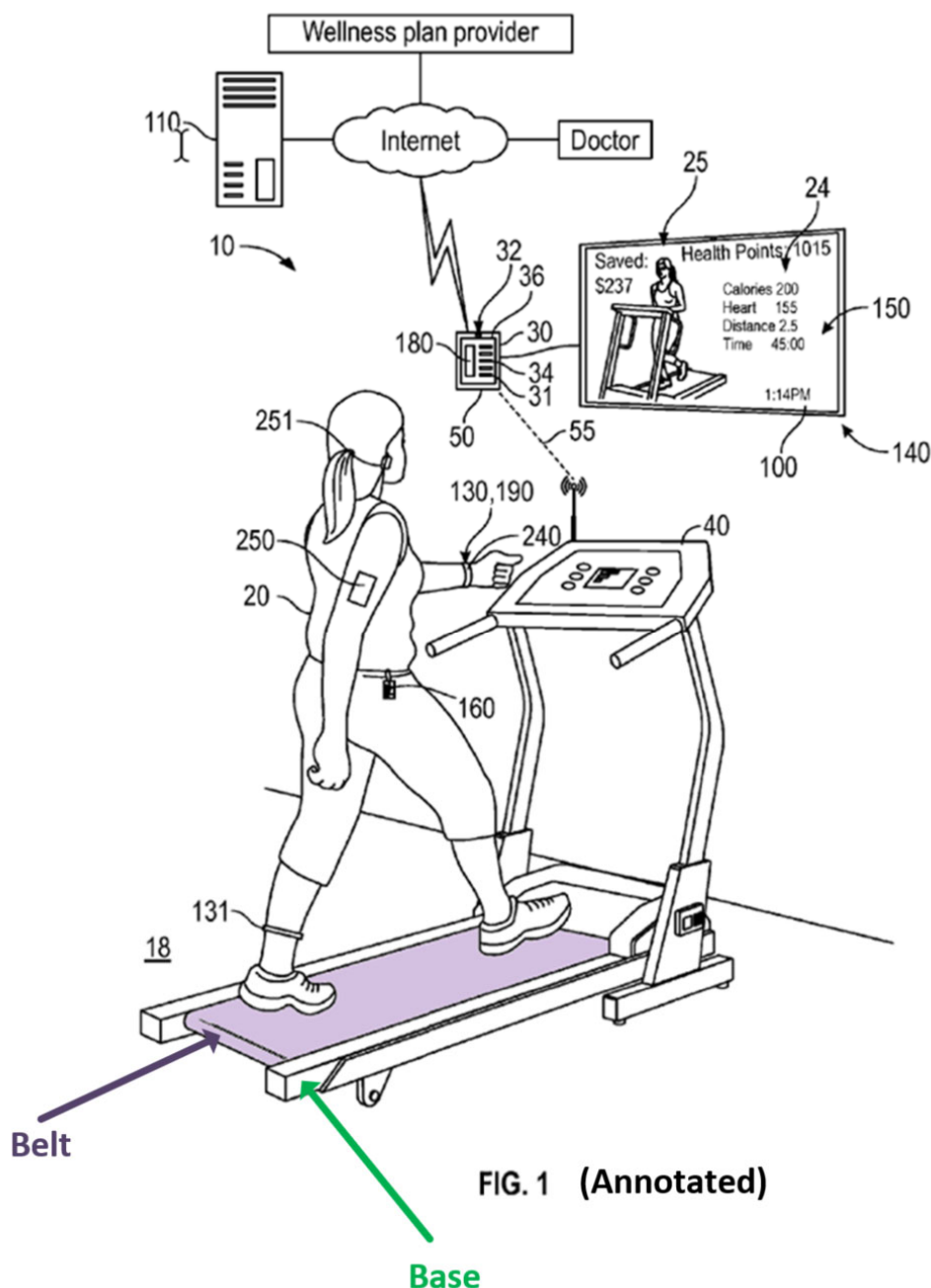
1[pre] “An exercise apparatus comprising:”

1[a] “a base;”

1[b] “an operating unit ...;”

1[c] “a motor ...;”

As explained above, limitations 1[pre]-1[c] were known to a POSITA per AAPA. Additionally, Ray disclosed these limitations because it described implementing its user and exercise validation process “with a treadmill” (exercise apparatus.) (Ray, 5:23-26.) Ray’s Figures clearly depicted user 20 exercising on exercise machine 40—a treadmill. (Ray, 5:23-29; Figs. 1-3.) Treadmills had a belt (operating member) so the user could walk or run on it—see Ray’s annotated Figure 1 (below). The treadmill’s belt moved with respect to a stationary base as also illustrated below.



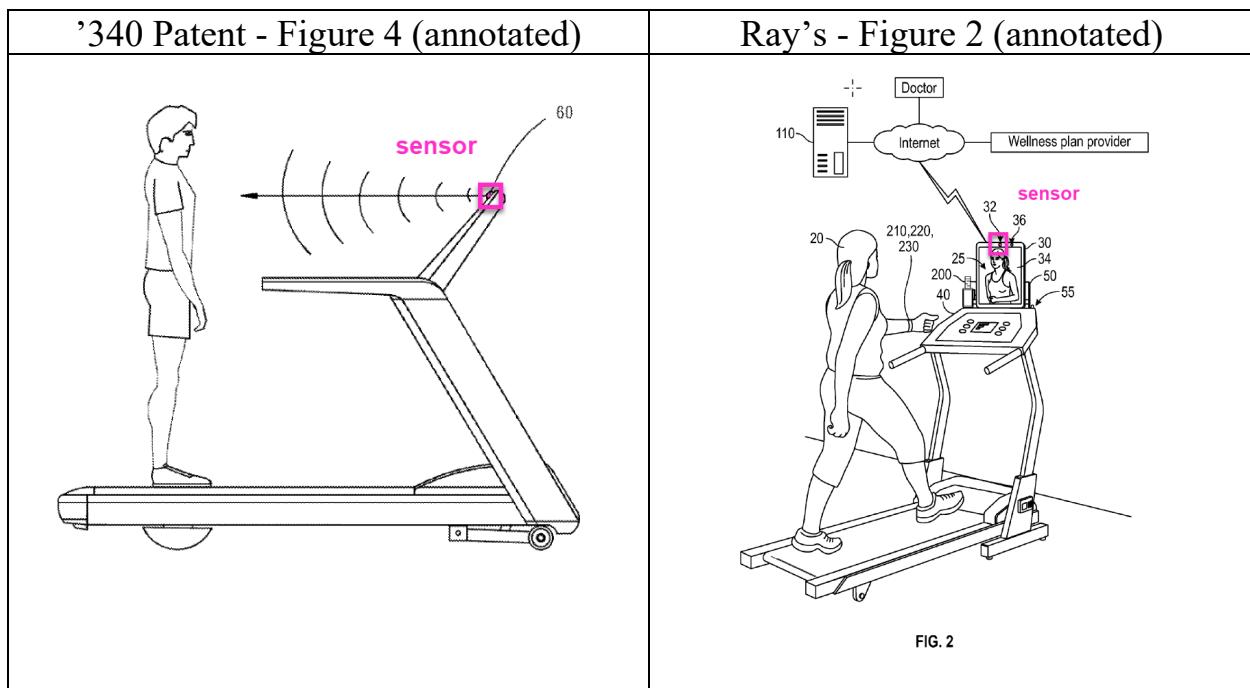
It was well-known, the '340 patent admits, and it would have been obvious to a POSITA, that the treadmill's belt would be motor-driven. (Ex. 1001, 1:41-56.) Indeed, the "faked" exercise data problem of prior systems that the '340 patent allegedly solves is admittedly unique to "motor-driven . . . exercise apparatus"—

including treadmills. (*Id.*, 1:57-2:26.) The '340 patent admits the “motor-driven operating member” is the “treadmill operating member (a motor-driven running belt)” and conventional in the art. (*Id.*, 1:64-67; *see also* Section VI.B’s discussion of AAPA.) (Rawls, ¶¶ 229-230.)

1[d] “a sensor ...;”

See Section VI.A.2, limitation 1[d], *supra*, explanations for Ray’s Sensor.

Ray’s Figure 2 illustrated the camera as part of a tablet, effectively integrated into the treadmill. (Ray, 10:39-50.) Ray’s invention could be “easily and affordably merged” into the exercise machine, making it obvious that the camera and relevant functionalities of the electronic device could be incorporated into the treadmill. (Rawls, ¶¶ 231-232.)



1[e] “a controller in communication with the operating unit and ... configured to generate validated exercise use data...”

See Section VI.B, *supra*, explaining the ’340 patent’s admissions, and a POSITA’s understanding, that a motorized treadmill, like the one in Ray, included a controller that communicated with the motor that ran the belt, and a conventional treadmill generated and reported exercise data. (Rawls, ¶¶ 43-47, 50-56, 233.)

A POSITA would have found it obvious that Ray’s electronic device also included a controller/processor because it performed “robust image capturing, processing and analysis” (Ray, 4:66-67), and could be a tablet, cell phone or laptop (Ray, 12:65-67)—well-known electronic devices with microprocessors/controllers. In Ray’s integrated embodiment, treadmill operations and those associated with the electronic device would be performed by a single controller (treadmill’s processor). It would have also been obvious to a POSITA that the treadmill could also include multiple processors for performing its operations (treadmill’s processor and a secondary processor dedicated to the image capture, processing and analysis, which collectively constitute the claimed controller).

The controller was in communication with the belt (operating unit) per AAPA (*see* Section VI.B, *supra*), and with the camera (sensor) to capture images (Ray, 4:66-5:3, 11:1-7; 14:6-14) and “computer-implemented instructions resident on the non-volatile storage medium ... cause[d] the camera 32 to record a still or video image or to produce a live feed of the patient or exercising user.” (Ray, 13:20-24.)

(Rawls, ¶¶ 234-235.)

Generating validated exercise use data: See Section VI.A.2, *supra*, limitation 1[e] explanations for Ray's Validated Exercise Use Data.

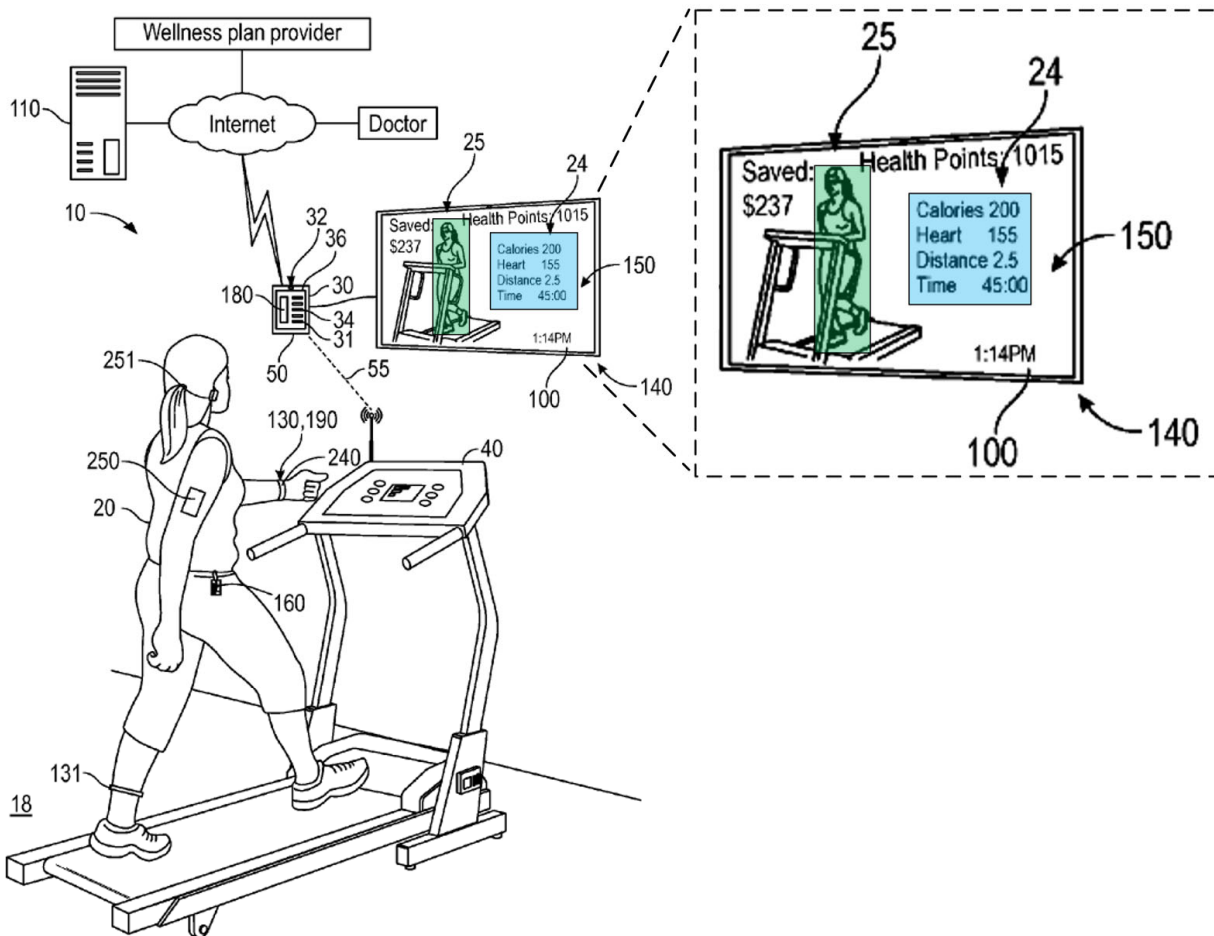


FIG. 1 (Annotated and Display Area Enlarged)

Ray described taking real-time images of the user “*as long as the treadmill [wa]s moving.*” (*Id.*, 6:53-55.) And “*[i]f the user stop[ped] exercising, the camera w[ould] no longer record images.*” (Ray, 6:55-57.) Accordingly, a POSITA would have understood Ray’s exercise use data (motivational image and other exercise data, such as calories, distance, etc.) was validated exercise use data because it was

produced in response to detecting an exercising user on the treadmill and the movement of the belt. The validated exercise use data was also reported (e.g., to the doctor in real-time (Ray, 5:49-51, 7:4-10, Figs. 1-3) or for storage to a remote server. (Ray, 3:47-51, 7:4-10, 8:1-8, Figs. 1-3).) Once the user was no longer exercising on the treadmill, the generation and reporting of the user's image would have stopped.

Ray also explained “[u]sing the *validation process* of the invention, the patient's identity *and exercise routine are confirmed* simultaneously.” (Ray, 8:26-28; *see also id.*, 13:24:30.) Therefore, Ray provided an additional level of validation of the reported exercise use data based on validating the identity of the user. (Rawls, ¶¶ 236-239.)

2. Claim 2

The '340 patent admits that treadmills could generate (non-validated) exercise data automatically and could continue generating such data when left unattended. (Ex. 1001, 2:2-6.) Therefore, a POSITA, based on Ray and AAPA, would have found it obvious that Ray's controller would generate data that did not require the user's presence, such as elapsed time, when the treadmill was turned on initially, or left unattended after the user finished exercising, but such data (non-validated exercise use data) would not be reported out because Ray's camera could not detect a user.

Additionally, or alternatively, continuing to generate or not continuing to

generate treadmill-related information, such as elapsed time, were the only two known alternatives in this situation, and thus selecting one or the other would have been obvious. In tipping the scale, a POSITA would have found it advantageous to continue generating and displaying information, such as the elapsed time, on the treadmill (or wall-mounted) display for at least some period of time because it would have alerted the user that the treadmill was still running so the user could use caution in getting back onto the treadmill, or to slow the belt down before resuming his/her exercise. (Rawls, ¶¶ 240-242.)

Furthermore, claim 2 is rendered obvious by Ray based on obviousness of claim 3 (below), which depends on claim 2.

3. Claim 3

See Section VI.A.4, claim 3, *supra*, explaining how Ray rendered this claim obvious when it produced images and associated data at startup, and recorded the data as validated data once the user was detected exercising.

4. Claims 4-7

Ray disclosed these claims. *See* claims 4-7 in *Sections* VI.A.5 to VI.A.8, *supra*, respectively.

5. Claim 8

8[pre]-8[d]:

Ray in view of AAPA taught or suggested these limitations. *See* limitations 1[pre]-1[e], *supra*.

8[e] “a communication interface ...,”

See Section VI.A.9, limitation 8[e], *supra*, explaining Ray’s Communication Interface. (Rawls, ¶¶ 249-250.)

8[f] “wherein the controller is configured to determine whether the user is engaged with the operating member ...,”

See limitation 1[e], *supra*, explaining that Ray’s controller determined whether the user was exercising based on the captured images as long as the belt was moving.

8[g] “wherein the controller is configured to report exercise use data...”

As explained above (limitation 1[e] in Section VI.B.1), Ray’s controller, upon determination that the user was exercising and the belt was moving, would provide its motivational image, which thinned based on the intensity/duration/speed of exercise, along with other exercise data (e.g., heart rate, distance, etc.) to screen/display and/or reported it to a remote location (e.g., to a doctor, or to a remote storage device) via the communication interface. (See Ray, 3:46-51, 5:41-45, 5:49-52, 5:65-6:5, 6:67-7:10, 8:1-10, 13:65-67.) (Rawls, ¶ 252.)

6. Claim 9

See limitation 1[e], *supra*.

A POSITA would have understood that Ray only reported the virtual image (to the user or the doctor) while the person was exercising because “[i]f the user stops exercising, the camera will no longer record images.” (Ray, 6:55-57.) Thus

when no one was present, there would be no displayed image. This was obvious because the motivational image was morphed based on “the speed or duration of the detection of movement of the user 20 by the camera 32” (Ray, 13:50-56) and was meant “to improve the user[’s] internal dialog and self-esteem by seeing themselves thinner and more fit *in real-time while exercising.*” (Ray, 6:17-20.) (Rawls, ¶¶ 253-254.)

Furthermore, it would have been obvious to a POSITA that the treadmill could be running without the user being present, such as in scenarios where the user had just stepped off the treadmill, had finished exercising, or was otherwise absent. In fact, the ’340 patent admits conventional motor-driven treadmills could continue running without a user being present. (Ex. 1001, 1:64-2:12; *see also* Section VI.B.) Therefore, it would have been obvious that in the absence of the user, Ray’s treadmill would stop reporting the exercise use data even when the controller determines that the treadmill was still running. (Rawls, ¶ 255.)

7. Claim 10

See claims 7 and 10 in Sections VI.A.8 and VI.A.11, *supra*, explaining how Ray rendered this claim obvious because it would have allowed the treadmill to quickly resume transmitting the exercise data to the remote storage device, or resume the live video feed, once the user was detected to be present and exercising. (Rawls, ¶¶ 256-257.)

8. Claim 11

Ray rendered this claim obvious, as explained in connection with claim 11, in Section VI.A.12, *supra*.

9. Claim 12

See limitation 1[e] and claim 9, *supra*. *See also* claim 12 in Section VI.A.13, *supra*.

10. Claim 13

13[pre] “A method of verifying the use of an exercise apparatus comprising:”

See limitation 13[pre] in Section VI.A.14, *supra*, explaining how Ray disclosed this limitation.

13[a] “operating an operating member ...”

See limitations 1[a]-1[c], *supra*.

13[b] “generating exercise use data ...”

See limitation 1[e], *supra*.

13[c] “receiving ... sensor data from a sensor;”

See limitations 1[d] and 1[e], *supra*, explaining, *inter alia*, Ray’s camera sensor taking images/videos that are processed by Ray’s controller.

13[d] “comparing... sensor data with a known data parameter ...”

Ray detected a user’s presence on the treadmill by taking images of the user while the treadmill was running. (Ray, 14:7-14, 14:35-40.) It would have been obvious to a POSITA that determining the user’s presence via images would be done

by first comparing a captured image to an image wherein the user was not present. Ray taught or suggested that its camera took pictures of the background because it explained that it could obscure the background, if necessary. (Ray, 14:35-40.) Therefore, it would have been obvious that determining whether the user was present on the treadmill while the belt was running could be done at least by comparing a captured image to a background-only image (known data parameter) to ascertain if a user is present at all. (Rawls, ¶ 263.)

This limitation is also rendered obvious in view of Ray's other teachings related to sensing an increased heartrate that prompted its system to display a thinner image of the user in accordance with the exercise intensity. (Ray, 5:44-48, 11:47-51.) Ray explained that heartrate could be sensed using body band devices (Ray, 15:55-57), or alternatively, *via the images taken by the camera* and detecting small changes in facial color. (Ray, 15:47-51.) It would have been obvious to a POSITA that one way to detect whether a user was present and exercising on the treadmill was to compare the captured heartrate (e.g., obtained via sensing facial color changes) to a baseline heartrate at rest (known data parameter). Ray explained that its system asked the user to enter his/her average heartrate into Ray's electronic device (Ray, 13:36-41), which provided such a baseline value for performing the comparison; a POSITA would have also understood that the resting heartrate could be obtained via lookup tables. Notably, Ray already explained using the "increased

heart rate” to thin the user’s image accordingly (Ray, 11:47-51), and explained that it obtained a baseline heartrate when the user entered it. (Ray, 13:36-41.) Therefore, it would have been obvious to a POSITA that determining the elevated heartrate would be based on its comparison to the baseline heartrate. (Rawls, ¶ 264.)

13[e] “reporting, by the controller, the exercise use data ...”

See limitation 8[g], *supra*.

11. Claim 14

See claim 9, *supra*.

12. Claim 15

See limitation 1[e], *supra*, and claims 2, and 9. As explained in limitation 1[e], Ray described generating and reporting exercise use data (e.g., to a doctor) when the user was being detected. As explained in claim 2, it would have been obvious to generate exercise use data even when the user was not being detected exercising. (Rawls, ¶ 267.)

13. Claim 16

See limitations 1[e] and 13[e], *supra*, and claim 12. Ray’s exercise use data would only be reported when the user was exercising on the treadmill. Notably, Ray explained: “[i]f the user stops exercising, the camera will no longer record *images*.” (Ray, 6:55-57.) This would have also been obvious to a POSITA because the motivational image was morphed based on “the speed or duration of the detection of movement of the user 20 by the camera 32” (Ray, 13:50-56) and was meant “to

improve the user[’s] internal dialog and self-esteem by seeing themselves thinner and more fit *in real-time while exercising*.” (Ray, 6:17-20.) Thus when no one was present, there would be no displayed image or reported data. (Rawls, ¶ 268.)

14. Claim 17

See claim 4, *supra*.

15. Claim 19

See claim 19 in Section VI.A.20, *supra*.

16. Claim 20

See claim 7 in Section VI.A.8, *supra*. (Rawls, ¶ 271.)

C. Ground 3: Claims 1, 4-6, 8-9, and 12 Are Obvious over Yi

The ’340 patent claims priority to application 16/043,925 (“’925 application”)—issued as U.S. Patent 10,796,375. (See Section II.B, *supra*.) Some of the ’925 application’s original claims (Ex. 1009, 99-101) were strikingly similar to those issued in the ’340 patent, as exemplified below:

Rejected Claim of ’925 Application	Claim of ’340 Patent
1. An exercise apparatus comprising: a motor; an operating member driven by the motor	1. An exercise apparatus comprising: a base; an operating unit movable relative to the base; a motor coupled to the operating unit;
a sensor operable to detect engagement of a user with the operating member;	a sensor operable to detect engagement of a user with the operating unit;

a controller in communication with the operating member and the sensor; and	a controller in communication with the operating unit and the sensor,
a communication interface in communication with the controller, wherein the controller is configured to generate exercise use data in response to movement of the operating member and the sensor detecting engagement of the user with the operating unit, and wherein the controller transmits the exercise use data to the communication interface.	the controller configured to generate <i>validated</i> exercise use data in response to the sensor detecting engagement of the user with the operating unit and movement of the operating unit relative to the base.

The '925 claims were rejected in an Office Action as anticipated or obvious over Yi (U.S. Patent Publication No. 2009/0176629A1) alone, or in combination with Choy (Ex. 1013) and Watterson (Ex. 1014). (Ex. 1009, 43-51.) Notably, claim 1 was rejected as anticipated by Yi. (*Id.*) In response, Applicant significantly amended the '925 claims, resulting in issued claims with considerably narrower scope. (Ex. 1009, 11-13, 33-40.)

As the above Table illustrates, claim 1 of the '340 patent is broader than the rejected claim except for reciting a “base” and the additional term “validated.” However, as shown below, this and other limitations of claim 1 were obvious over Yi. Yi was not substantively discussed during the prosecution of the '340 patent,

which advanced to allowance based only on filing terminal disclaimers.⁴ (Ex. 1003, 44-53.) Ground 3 is a remedial measure to invalidate obvious claims that should not have issued in the first place. (Rawls, ¶¶ 272-274.)

1. Claim 1

1[pre]-1[c]:

Yi disclosed these limitations by explaining that an object of its invention was to control the speed of a walking belt (operating unit) on an exercise machine, e.g., a treadmill, that was driven by a motor. (Yi, Title, [0001]-[0002], [0007]-[0008], [0040]-[0041], Fig. 2; *see, e.g., id.*, [0042]: “The motor 45 is a rotating driving element ...responsible for the rotation of the rollers. The RPM of the motor 45 varies in response to the driving power signal of the control unit 40.”) It would have been obvious that belt 31 in Yi’s treadmill would be moving relative to a stationary base, such as bottom surface 33 shown in Figure 3(b). (Yi, [0036], Fig. 3(b).) (Rawls, ¶ 275.)

⁴ Applicant filed an information disclosure statement on October 22, 2021, citing 17 references, including Yi. (Ex. 1003, 38-40.)

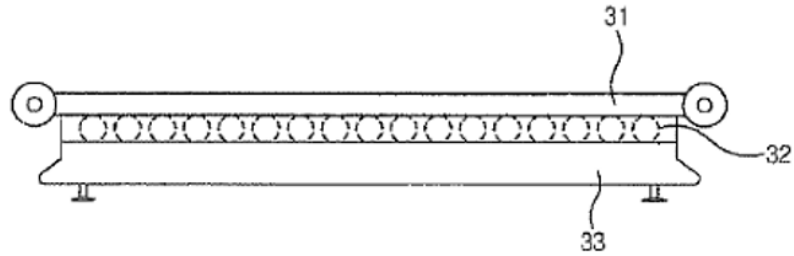


FIG. 3(b)

1[d] “a sensor ...;”

Yi described a pressure sensor array (sensor)—similar to the ’340 patent (Ex. 1001, 6:15-17, Fig. 5)—disposed below the walking belt (Yi, [0009], Figs. 3(a)-(b)), for detecting the user’s presence, and calculated the exerciser’s pace speed based on the sensor data. (Yi, [0001], [0009], [0047], Fig. 5.) (Rawls, ¶ 276.)

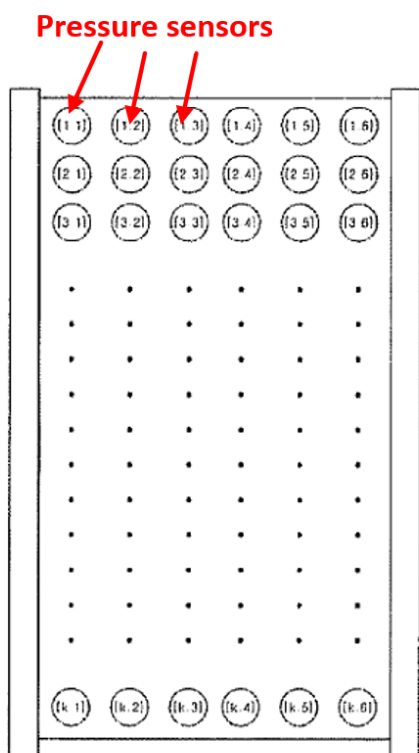


FIG. 3(a) - Annotated

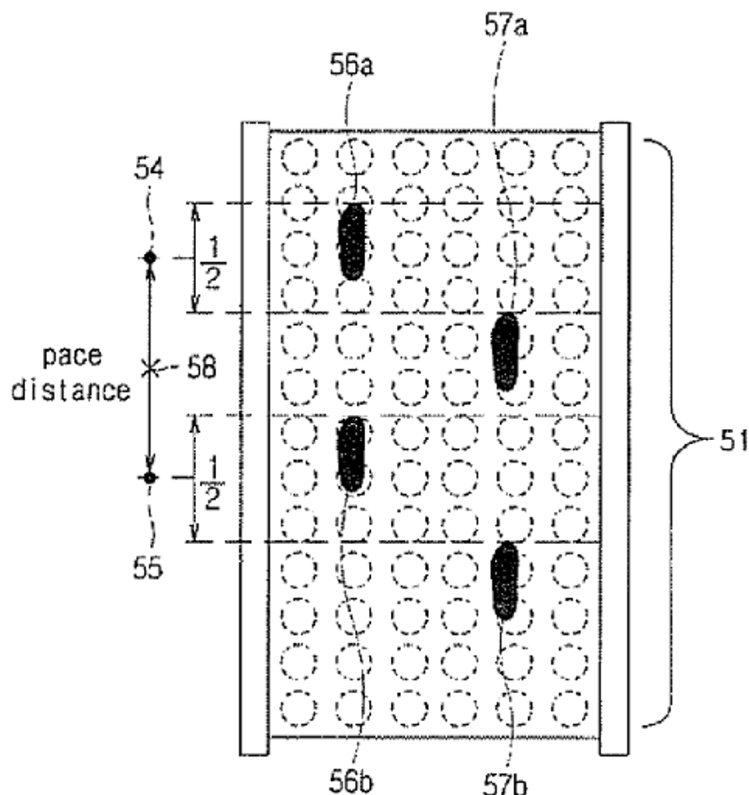


FIG. 5

1[e] a controller... configured to generate validated exercise use data...

Yi's control unit 40 (controller) drove the belt and automatically controlled its speed based on the user's pace obtained via pressure sensor signals. (Yi, [0040], [0046], Fig. 4.) Yi described:

[E]ach of the pressure sensors of the right and left pressure sensor arrays 23 and 22 detects a load and sends it to the control unit as a load detection signal, the control unit 40 calculates a pace distance and a pace time period based on load detection signals, and controls the speed of the walking belt based on the pace distance and the pace time period.

(Yi, [0046].)

Yi taught or suggested generating validated exercise use data because it detected the user's presence while the user was moving on the treadmill, and its control unit calculated a pace distance and a pace time (validated exercise use data) based on the detected footsteps on the moving belt. (Yi, [0045]-[0047], Figs. 5 and 9; *see also* limitations 1[d] and 1[e], *supra*.) Additionally, pace information was *reported* to at least a memory device by recording it in a "recording buffer medium, such as Random Access Memory. (RAM)" (Yi, [0045]; *see also infra* claim 6.), fulfilling even claim 19 limitations.

Yi additionally explained that "various types of exercise information, such as *heart rate during exercise*, *exercise distance*, *an exercise time*, calories consumed, and speed" were generated and displayed to inform the user of his/her "*current exercise status*." (Yi, [0039]; *see also id.*, [0040].) Accordingly, Yi taught and/or suggested generating additional validated exercise use data including heart rate, exercise time, calories generated contemporaneously with the detected footsteps. Notably, Yi expressly stated that heart rate information was the heart rate *during* user's exercise, and it would have been obvious to a POSITA that other information (e.g., exercise time, calories, etc.) consumed would also be generated and displayed while detecting the exercising user (1) to simply inform the user regarding the status of the exercise (as Yi itself explains) and/or (2) to allow the user to reduce or increase the intensity of his/her exercise in order to achieve certain exercise goals. (Rawls, ¶¶

277-280.)

2. Claims 4 and 5

See limitation 1[e], *supra*, and “an exercise time” and “exercise distance” in ¶[0039] of Yi. (Rawls, ¶¶ 281-282.)

3. Claim 6

Yi disclosed that pace speed and variation in pace speed—which constituted validated exercise use data (*see* limitation 1[e], *supra*)—were “calculated by the control unit 40” and stored in a “recording buffer medium, such as Random Access Memory (RAM)” (Yi, [0045]), which was an example of storage unit 48. (Yi, [0045], [0060], Table 1, Fig. 5, element 48.) (Rawls, ¶ 283.)

4. Claim 8

8[pre]-8[d]

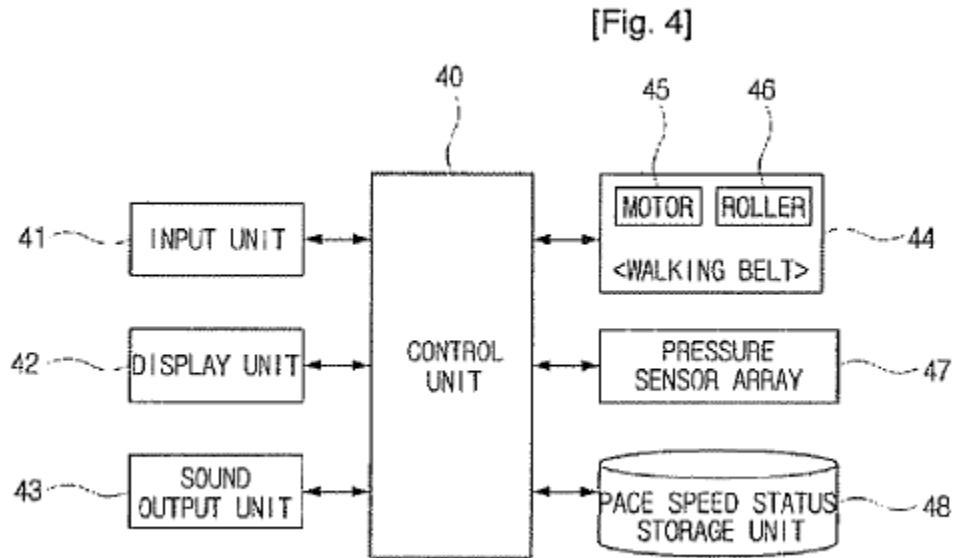
Yi taught or suggested limitations 8[pre]-8[d], as explained in connection with limitations 1[pre] to 1[e], *supra*.

8[e] “a communication interface ...,”

Yi disclosed a display (communication interface) in communication with the controller unit because it received and presented exercise data to the user. (Yi, [0039], Fig. 4, element 42.)

Alternatively, Yi described that its control unit 40 (controller) calculated the pace speed and variations thereof, and stored them in a storage device (Yi, [0044], [0060], Table 1, Fig. 4.) Therefore, Yi also described the claimed communication

interface as part of the control unit software/firmware that enabled transfer of the pace speed and its variations to storage unit 48. (Rawls, ¶¶ 285-286.)



8[f] “... determine whether the user is engaged with the operating member...”

See limitations *1[d]* and *1[e]*, *supra*. Yi detected a user’s engagement using the pressure sensor signals while the user was walking on the moving belt: “[E]ach of the pressure sensors of the right and left *pressure sensor arrays 23 and 22 detect[ed] a load and sen[t] it to the control unit as a load detection signal, the control unit 40* calculate[d] a pace distance and a pace time period based on load detection signals, and *control[led] the speed of the walking belt based on the pace distance and the pace time period.*” (Yi, [0046].)

It would have been obvious to a POSITA that to determine the user’s pace

(and adjusting the belt speed accordingly) the user would be present and walking on the moving belt. Therefore, a determination of the user's pace also amounted to detecting whether the user was engaged with the treadmill. (Rawls, ¶¶ 287-288.)

8[g] “... report exercise use data...”

As explained in limitation 8[e], *supra*, Yi's controller provided (reported) the computed pace information to the communication interface so that it could be stored in storage unit 48. (*See also* claim 6, *supra*.) The pace speed and its variations were computed in response to detecting the user's footsteps on the treadmill via pressure sensors (Yi, [0046]-[0047], Fig. 5), and were, therefore, generated in response to detecting the user's engagement with the treadmill.

Additionally, or alternatively, Yi's display was the claimed communication interface (*see* limitation 8[e], *supra*); it displayed at least the user's heart rate during exercise. (Yi, [0039]; *see also* limitation 1[e], *supra*.) It would have been obvious to a POSITA that the heartrate (and other exercise data such as speed, distance, calories, and time) would be generated in response to a determination that the user was exercising, such as when footsteps were being detected, and would be presented (reported) to the display to provide updates regarding changes in heartrate, calories consumed and the like. (Rawls, ¶¶ 289-290.)

5. Claim 9

Yi described computing pace speed based on detection of the user's footsteps

on the treadmill. (Yi, [0046]; *see also id.*, [0047]-[0058], including equations 1 to 8 that compute pace speed based on detection of the user's footsteps.) It would have been obvious to a POSITA that, in the absence of detecting the user's footsteps (while the treadmill was running), the pressure sensors would not detect or report any load, and thus the pace speed would not be computed. Therefore, it would have been obvious to a POSITA that when footsteps were not detected and pace speed (and/or variations thereof) could not be computed, the controller would stop reporting the footstep or pace data to memory or the display when the belt was running. (Rawls, ¶ 291.)

6. Claim 12

This claim was obvious, as explained in claims 8 and 9, *supra*. (*See also id.*, [0067], suggesting that pressure sensors only continue to output load detection signals in the presence of the user and not in his/her absence: “When respective pressure sensors of the pressure sensor array detect the load of the exerciser's foot ***and continue to output load detection signals***, the control unit receives load detection signals.”) It would be obvious to a POSITA that a load could not be detected, Yi's load detection signals, and thus the pace information that depended on load detection signals, would also not be reported. (Rawls, ¶ 292.)

**VII. THE BOARD SHOULD NOT DECLINE REVIEW UNDER §314(A)
OR §325(D)**

A. §314(A)

Per Director's June 21, 2022 Guidance, Petitioner agrees, and will file a stipulation, not to pursue in a parallel proceeding the same grounds or any grounds that could have reasonably been raised before the PTAB in the parallel district court litigation if this Petition is instituted.

B. §325(D)

The Board should not exercise its discretion under 35 U.S.C. §325(d) under the two-step framework established in *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential). All references used in this Petition, other than Yi, are entirely new references that were not cited or considered during the original examination. Additionally, this Petition is neither cumulative, nor provides overlapping arguments with those in the original examination because no prior art references were discussed during the original examination.

Yi was submitted to the Patent Office in an IDS but was not discussed or substantively used during the prosecution. Additionally, the Office used Yi during prosecution of the related '925 application to conclude that claims similar to the '340 claims are anticipated or obvious. (*See* Section VI.C, *supra.*). Therefore, institution of the IPR serves as a remedial measure to cancel claims that should not have been

issued to begin with.

VIII. REQUIREMENTS FOR *INTER PARTES* REVIEW

A. Grounds for Standing

The '340 patent is available for IPR and Petitioner is not barred or estopped from challenging it.

B. Overview of Challenge and Requested Relief

Petitioner requests cancellation of claims 1-20 under AIA 35 U.S.C. § 103.

1. Identification of Prior Art

Petitioner relies on the following references:

Prior Art	Exhibit No.
U.S. Patent No. 9,785,827 (“Ray”)	1004
U.S. Pub. No. 2010/0160115A1 (“Morris”)	1006
U.S. Patent App. Pub. No. 2009/0176629 (“Yi”)	1012

Morris and Yi are prior art under 35 U.S.C. §102(a)(1). Ray is at least prior art under 35 U.S.C. §102(a)(2). This Petition also relies on Mr. Rawls’ Declaration (“Rawls”), and exhibits listed in Exhibit Table.

2. Grounds for Challenge

Ground	Claims Challenged	35 U.S.C. §	References
1	1-20	103	Morris, Ray
2	1-17, 19-20	103	Ray, AAPA
3	1, 4-6, 8-9, 12	103	Yi

IX. MANDATORY NOTICES

A. Real Party-in-Interest

Peloton Interactive, Inc. is the real party-in-interest for this Petition.

B. Related Matters

Patent Owner asserted that Petitioner infringes the '340 patent along with U.S. Patent Nos. 10,032,227 ("the '227 patent") and 10,796,375 ("the '375 patent") in a district court lawsuit captioned *Johnson Health Tech Co., LTD., and Johnson Health Tech North America, Inc., v. Peloton Interactive, Inc.*, No. 3:22-cv-606 (W.D. WI.) on October 20, 2022. Petitioner will file petitions for *inter partes* review challenging the '227 patent (IPR2023-01163) and the '375 patent (IPR2023-01164).

C. Notice of Counsel and Service Information

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Petitioner consents to electronic service. All services and communications to the attorneys listed above may be sent to **PerkinsPelotonIPRs@perkinscoie.com**.

A Power of Attorney is concurrently filed with this Petition.

X. CONCLUSION

Petitioner requests institution of an IPR and cancellation of challenged claims.

Dated: August 2, 2023

Respectfully submitted,

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CERTIFICATE OF WORD COUNT UNDER 37 CFR §42.24(d)

Under 37 C.F.R. §42.24(d), the undersigned certifies that the word count for this *Petition for Inter Partes Review* totals 13,988, excluding the parts exempted by 37 C.F.R. §42.24(a).

The word count was made using the built-in word count function in the Microsoft® Word software used to prepare this document.

Dated: August 2, 2023

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that true copies of this **PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 11,227,340** and supporting materials (**Exhibits 1001-1004, 1006, 1008-1009, 1012-1014 and Power of Attorney**) have been served by FedEx® delivery service on Patent Owner at the correspondence address for the attorney of record for the '340 Patent shown in USPTO records:

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