

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re *Inter Partes* Review of:                   )  
U.S. Patent No. 7,166,062                        )  
Issued: Jan. 23, 2007                            )  
Application No.: 09/641,627                     )  
Filing Date: Aug. 18, 2000                     )

For: **System For Interaction With Exercise Device**

**FILED VIA E2E**

**PETITION FOR *INTER PARTES* REVIEW  
OF U.S. PATENT NO. 7,166,062**

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**Exhibit List**

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Ex. 1002	Prosecution History of U.S. Patent No. 7,166,062
Ex. 1003	Declaration of Dr. Henry H. Houh in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 7,166,062 ("Houh")
Ex. 1004	<i>Curriculum Vitae</i> of Dr. Henry H. Houh
Ex. 1005	U.S. Patent No. 6,152,856 to Studor ("Studor")
Ex. 1006	U.S. Patent No. 5,645,509 to Brewer ("Brewer")
Ex. 1007	PCT Application No. WO 85/003180 to Baran ("Baran")
Ex. 1008	U.S. Patent No. 5,785,630 to Bobick ("Bobick")
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Ex. 1012	U.S. Patent No. 6,053,844 to Clem ("Clem")
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Ex. 1014	ICON Health & Fitness, Inc.'s Preliminary Infringement Contentions, <i>ICON Health &amp; Fitness, Inc. v. Peloton Interactive, Inc.</i> , No. 1:20-cv-01386-RGA (D. Del. Aug. 6, 2021) ("iFit's Infringement Contentions")
Ex. 1015	U.S. Patent No. 6,430,997 to French ("French")
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Ex. 1017	U.S. Patent No. 5,318,487 to Golen ("Golen")
Ex. 1018	U.S. Patent No. 6,587,151 to Cipolla ("Cipolla")

<b>Ex.</b>	<b>Description</b>
Ex. 1019	U.S. Patent No. 6,050,924 to Shea (“Shea”)
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Ex. 1022	U.S. Patent No. 4,998,725 to Watterson (“Watterson”)
Ex. 1023	U.S. Patent No. 5,961,424 to Warner (“Warner”)
Ex. 1024	Information Sciences Institute, <i>Internet Protocol, DARPA Internet Program, Protocol Specification</i> (Sept. 1981)
Ex. 1025	Declaration of Jim Rutberg in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 7,166,062 (“Rutberg”)
Ex. 1026	<i>Curriculum Vitae</i> of Jim Rutberg

## **I. Introduction**

Peloton Interactive, Inc. (“Peloton”) requests *inter partes* review of claims 49-50, 52, 54, 56-57, 59, 61, 78-85, 87, 89-90, 92-95 of U.S. Patent No. 7,166,062 (“’062 Patent,” Ex. 1001). The Office’s assignment database indicates that the patent is owned by ICON Health & Fitness, Inc. (“ICON”). ICON, however, has changed its name to iFIT Inc. Peloton will refer to Patent Owner as “iFIT.”

The ’062 Patent is directed to network-connected exercise devices that enable exercise equipment at home to “simulat[e] a group or class workout environment and synchroniz[e] operation of the exercises devices with exercise programming.” Ex. 1001, 2:29-32. The world was entering the peak of the Internet bubble by July 1999 (the earliest possible effective filing date of the ’062 Patent). Everyone was connecting everything to the Internet, and thus connecting an exercise device to a network was already well-known. In fact, during the prosecution of the ’062 Patent, the Examiner rejected the claims of the ’062 Patent as anticipated. iFIT only overcame the rejection by amending the claims to require that the claimed exercise device receive packetized control signals from a remote source. But remotely controlling an exercise device was also known in the art. Indeed, U.S. Patent No. 6,152,856 (“Studor,” Ex. 1005) disclosed sending “control data” from a remote source to an exercise device over the Internet (packetized network). Studor, 11:10-15. Similarly, U.S. Patent No. 6,053,844 (“Clem,” Ex.

1012) disclosed using a “web site 12 to transmit control information to the user location 34 to control, for example, drive motor 16 and incline motor 36 of exercise device 32.” Clem, 2:45-47.

Accordingly, Peloton respectfully requests the Board institute review and find all challenged claims unpatentable.

## **II. Identification of Challenges (37 C.F.R. § 42.104(b))**

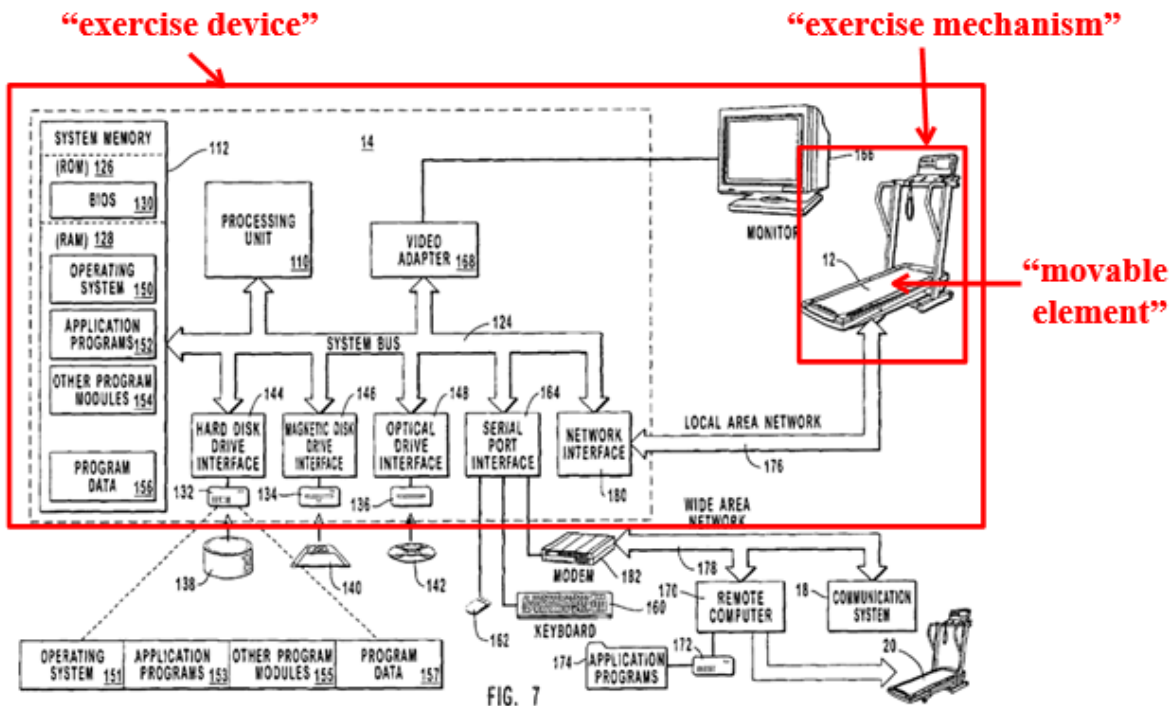
**Ground 1:** Claims 49-50, 52, 54, 56-57, 59, 61, 78-85, 87, 89-90, 92-95 were obvious under 35 U.S.C. § 103 over Studor (Ex. 1005) alone or in view of the knowledge of a person of ordinary skill in the art.

**Ground 2:** Claims 49-50, 52, 54, 56-57, 59, 61, 78-85, 87, 89-90, 92-95 were obvious under 35 U.S.C. § 103 over Clem (Ex. 1012) in view of the knowledge of a person of ordinary skill in the art or Hickman (Ex. 1013).

## **III. Background**

### **A. The '062 Patent (Ex. 1001)**

The '062 Patent is directed to “improved exercise devices in combination with other users and/or a live or stored trainer via a communications network.” Ex. 1001, 1:18-23. The exercise device can include a treadmill 12 (“exercise mechanism”) and computer 14, shown below. Houh ¶¶ 45-48.



**Ex. 1001, Fig. 7 (annotated)**

The exercise mechanism has operating parameters “such as speed, inclination, resistance, and the like.” *Id.*, 7:67-8:1. A user may adjust the operating parameters, or controlled remotely by a third party. Ex. 1001, 10:34-39. The third party may be, e.g., a trainer or website. *Id.*, Abstract, 18:1-14. Remote control is performed by receiving a control signal. *Id.*, 3:42-51; Houh ¶ 47.

## **B. Prosecution History**

The '062 Patent was filed on August 18, 2000. It is a continuation-in-part of U.S. Patent Application Nos. 09/349,608 filed July 8, 1999 and 09/496,560 filed February 2, 2000. Ex. 1002, 541.

On September 20, 2004, the Office issued a notice of allowance without any discussion of the reasons. *Id.*, 190. In response, the Applicant filed a Request for Continued Examination (“RCE”) to submit references in an Information Disclosure Statement (“IDS”). *Id.*, 182-86. Subsequently, the Office reopened prosecution and issued a restriction requirement. *Id.*, 177-80.

After receiving the election, the Office issued a non-final Office Action on July 26, 2005, rejecting all claims as anticipated by U.S. Patent No. 6,749,537 (“Hickman ’537”). *Id.*, 166-72. In response, the Applicant amended the claims to require that the second packetized signal is received “from a remote source over a network, the packetized second signal including one or more packetized control signals.” *Id.*, 141. Applicant argued: “the Hickman [’537] patent neither teaches nor suggests that a packetized control signal is received from a remote source, as claimed, or even that any control signal is packetized.” *Id.*, 159.

The Patent Office issued a second notice of allowance on February 3, 2006 with, again, no discussion of the reasons for allowance. The Applicant filed another RCE to submit yet another IDS. *Id.*, 109-11. A third notice of allowance, which also did not discuss reasons for allowance, was then issued on September 1, 2006. *Id.*, 83. The ’062 Patent issued on January 23, 2007.

**C. The Pending *Inter Partes* Review and Disclaimed Claim 29**

The complaint in the related litigation was filed in the District of Delaware on October 15, 2020 asserting only claim 29 and its dependent claim 47 from the '062 Patent. Ex. 1010. On December 18, 2020, Peloton filed IPR2021-00342 challenging claims 29 and 47. On April 23, 2021, iFIT filed a statutory disclaimer of claim 29 in conjunction with its POPR, leaving only claim 47 subject to IPR2021-00342. On July 7, 2021, the Board instituted *inter partes* review, finding that Peloton had established a reasonable likelihood that dependent claim 47 (and thus independent claim 29) was unpatentable as obvious over Studor. *Peloton v. ICON*, IPR2021-0342, Paper 14 at 32 (July 7, 2021).

**D. Person of Ordinary Skill in the Art**

A Person of Ordinary Skill in The Art ("POSITA") in July of 1999 would have had a working knowledge of the remotely controlled exercise devices pertinent to the '062 Patent. That person would have a four-year degree from an accredited institution (Bachelor's degree) in computer science, computer engineering, electrical engineering, or the equivalent and experience with, or exposure to, computer software and computer networks.

Certain challenged claims relate to exercise training. For such, a POSITA would have had at least a Bachelor's degree in the exercise field (e.g., Exercise Physiology or similar) or at least two years' experience in the exercise field (as,

e.g., personal trainer, coach, fitness instructor, etc.). Rutberg Decl. ¶¶ 27-41; Houh ¶¶ 32-35.

Additional graduate education could substitute for professional experience, while significant experience in the field might substitute for formal education. Houh ¶¶ 32-35.

### **E. Claim Construction**

The challenged claims include certain terms that invoke, or may invoke, pre-AIA 35 U.S.C. § 112, ¶ 6. Construing a means-plus-function term requires first identifying the claimed function, then identifying the corresponding structures in the specification. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1351-52 (Fed. Cir. 2015). Each term should be construed as limited to the corresponding structures and their equivalents. *Id.*, 1349.

As to other terms, the prior art relied on in this Petition discloses the subject matter under any reasonable construction, including their plain meaning.<sup>1</sup>

#### **1. “communicating mechanism” (claim 49)**

To the extent that “communicating mechanism” triggers a rebuttable presumption that it is to be interpreted as a means-plus-function limitation, the

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<sup>1</sup> Petitioner reserves the right to argue alternative constructions in other proceedings, and where such a defense is available, that the claims are indefinite.

recited function of the “communicating mechanism” is “communicating with the user interface device, the communicating mechanism receiving a packetized second signal from a remote source over a network.” The corresponding structure for performing the recited function is a network interface or a modem. Ex. 1001, 16:10-17; Houh ¶¶ 54-56.

**2. “means ... for controlling” (claim 49) / “control means” (claim 78)**

The recited function of the “means ... for controlling” in claim 49 is “responsive to the synchronized control signals carried by the second signal, for controlling the operating parameters of the exercise mechanism.” Similarly, the recited function of the “control means” in claim 78 is “for receiving one or more packetized control signals from the remote communication system indicative of the selected exercise program and for changing one or more operating parameters of the exercise mechanism based upon the selected exercise program and the one or more packetized control signals.” Thus, both recite the function of responsive to the control signal or receipt of the selected exercise program and control signals, controlling the operating parameters of the exercise mechanism. Houh ¶ 58. The corresponding structure for performing the recited function of these terms is a

controller. Ex. 1001, 33:22-34 (“**such controller** is a structure capable of performing the function of control means”);<sup>2</sup> Houh ¶¶ 57-59.

**3. “means for reproducing the second signal” (claims 49 and 59)**

The recited function of the “means for reproducing” in claim 49 is “reproducing the second signal.” The corresponding structures for performing the recited function of this term are output devices. Ex. 1001, 12:62-13:1 (“**the output devices** described herein are each structures capable of performing the function of means for reproducing a signal”), 31:27-31, 13:11-44 (describing audio and video output devices to include hardwired and wireless speakers, computer speakers, and audio system speakers, as well as LCDs, CRT displays, LEDs, gas-plasma displays, TFT displays, and virtual VR displays); Houh ¶¶ 60-61.

**IV. Overview of the Prior Art**

**A. Studor (Ex. 1005)**

U.S. Patent No. 6,152,856 to Studor is pre-AIA § 102(e) prior art because it is based on a PCT application filed in the U.S. on May 8, 1997 with a § 271 date of May 22, 1998.

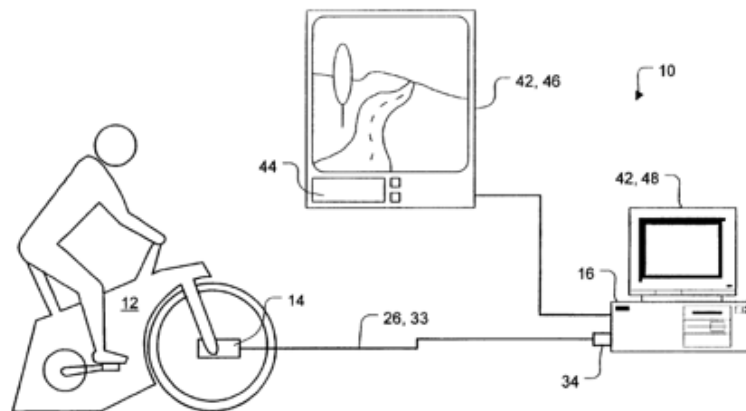
Studor relates to “an interactive exercise system.” Studor, Abstract; Houh ¶¶ 63-68. People face challenges with exercising such as “boredom, self

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<sup>2</sup> All emphasis added unless otherwise noted.

consciousness, the difficulty or inability to go somewhere to exercise, and even complex social pressures.” Studor, 1:33-35. “[T]hose who do exercise at home typically do not find that they enjoy or can stick with exercise there for very long.” Studor, 2:35-37. Studor states that “it is an object of the present invention to provide an exercise system which dynamically simulates exercise in a natural environment.” Studor, 2:65-67.

Studor describes exercise system 10 including exercise equipment such as a “bicycle” and notes that “treadmills, stairsteppers, rowing machines, ski machines, and other equipment are equally suitable.” Studor, 4:43-45. The exercise bicycle may include an “adjustable resistance system 22” to provide variable resistance to the pedals (i.e., movable element) of the bicycle. Studor, 4:48.



**Studor, Fig. 1**

“The user may set a nominal difficulty level for exercise by adjusting the resistance system 22.” Studor, 4:47-50. Additionally, “terrain characteristic data

[from media 20] representing the actual terrain of [a] real-world course being viewed is used to automatically further vary settings of the resistance system 22.” Studor, 13:26-35. A server computer in computer system 16 “transmits control data through the communication link 26 to the M-S converter 14 for dynamic control of the resistance system 22, to correlate a user’s performance on the exercise equipment 12 with the rate and manner in which contents of the media 20 are being played.” Studor, 11:11-12.

“[N]ot all components of the computer system 16 need to be physically present in one ‘box,’ or even at one location.” Studor, 8:26-28. “[U]sers located on different continents may employ the exercise system 10 with Internet connected network computers (NC) and media 20 on a server computer, perhaps actually located on yet another continent, to hold ‘communal’ exercise sessions in concert, for competitive sporting events, or for coached exercise regimes.” Studor, 8:31-37.

**B. Clem (Ex. 1012)**

U.S. Patent No. 6,053,844 to Clem is pre-AIA § 102(e) prior art because it was filed on September 18, 1998.

Clem describes an exercise device with a “controller at the user location for controlling the exercise device” and provides “a control location remote from the user location and communication system for transmitting information between the exercise device and the control location.” Clem, 1:67-2:3. For example, Clem

describes a “treadmill” with a belt. Clem, 4:5-33. The treadmill can vary the grade or incline as well as the speed of the belt through a controller. Clem, 4:25-33 (describing control of the drive motor via controller), 4:34-59 (describing control of incline motor via controller), 5:24-26 (controller determines speed and grade of fitness device).

Clem’s exercise device has the ability to receive control signals remotely: “The control information transmitted from the web site 12 can include control signals for directly controlling the fitness device 32.” Clem, 2:66-3:7.

Further, Clem’s exercise device includes a console which permits user input, including “[d]evice information such as speed, incline, and suspension.” Clem, 3:47-63, Fig. 3.

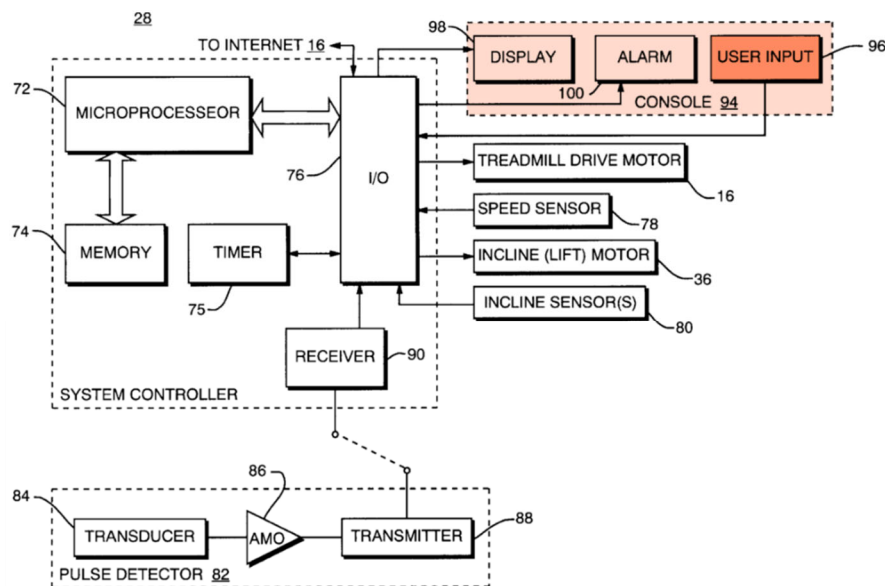


FIG. 3

**Clem, Fig. 3 (annotated)**

The user “can interact on-line with a live fitness expert located at the web site 12 to engage in a real time two way communication regarding matters related to fitness” and “interactively obtain control information from a computer located at the web site 12.” Clem, 2:53-64. The real-time communication can include “the uploading and downloading of video and audio information.” Clem, 2:64-65.

The real-time and interactive communications between the fitness expert at the website and the display at the console occurs “by way of an internet system.” Clem, 2:36-42. The user location “interactively applies and receives the interactive information to the internet system 19 by way of network connection device 18.” Clem, 3:33-38. The fitness equipment interface couples the network connection device to the fitness device and sends information to and from the controller. Clem, Fig. 1, 3:22-23.

**C. Hickman (Ex. 1013)**

U.S. Patent No. 6,059,692 to Hickman is pre-AIA § 102(e) prior art because it was filed on December 13, 1996.

Hickman describes an exercise system with a “local system having an exercise apparatus and an associated local computer, where the local computer controls and monitors the operation and use, respectively of the exercise apparatus” and a “remote system” having a “remote computer.” Hickman, Abstract. The system includes coupling the “local system to the remote system for

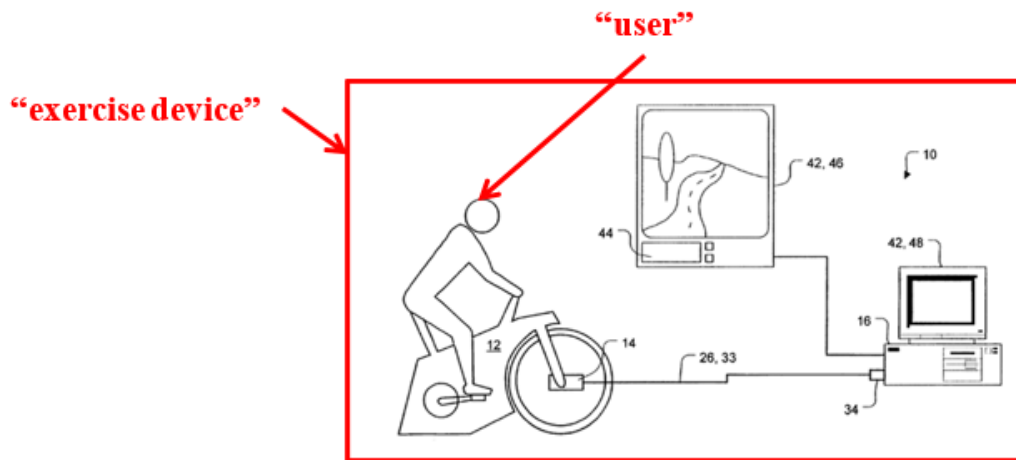
data communication.” *Id.* The local computer controls the operation of the exercise apparatus based on a modifiable script, which can be updated by the remote system. *Id.*

**V. Ground 1: The Challenged Claims Are Rendered Obvious by Studor Alone or in View of the Knowledge of a POSITA**

**A. Independent Claim 49**

**1. Preamble<sup>3</sup>**

To the extent limiting, Studor discloses the preamble. Houh ¶¶ 69-72, 229-230. First, Studor teaches an exercise system 10 including exercise equipment 12 (“*exercise device*”). Studor, 4:28-30, 4:43-45, Fig. 1 (below).



**Studor, Fig. 1 (annotated)**

Second, Studor teaches that the user can receive media 20 that will simulate a real-world course or allow the user to participate in “communal exercise

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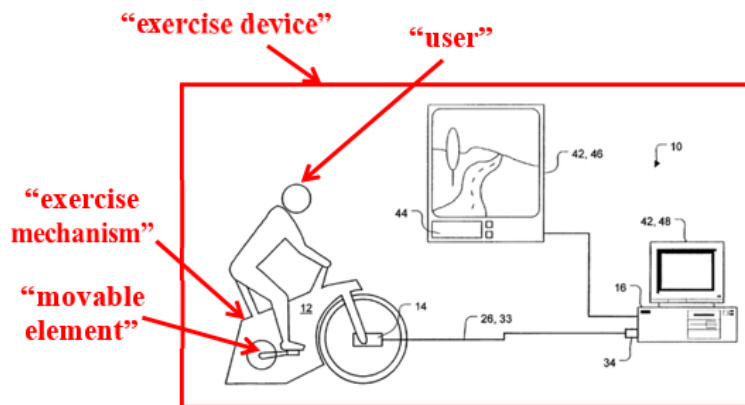
<sup>3</sup> See Claim Listing appendix for claim language.

sessions in concert, [] competitive sporting events, or [] coached exercise regimes” (*“enable the user to receive workout-related information”*). Studor, 4:38-40, 4:41-51; Houh ¶ 230.

**2. 49[a]: exercise mechanism comprising movable element**

Studor discloses this limitation. Houh ¶¶ 73-76, 231. First, Studor teaches that its exercise system 10 includes exercise equipment 12 (*“exercise mechanism”*) such as a bicycle with pedals (*“movable element”*) for the user to move in performance of an exercise routine. Studor, 4:38-40; Houh ¶ 73.

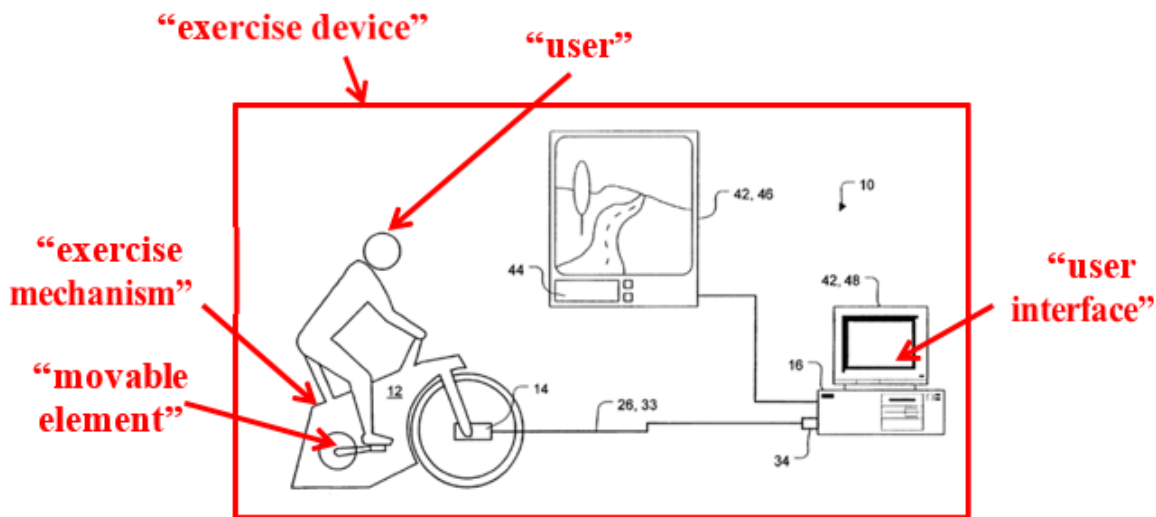
A POSITA would have recognized that exercise equipment like a bicycle, treadmill, stairstepper, or rowing machine would have included various types of movable elements like pedals for the bicycle, tread for the treadmill, stairs for the stairstepper, and oars for the rowing machine. Studor, 4:28-51; Houh ¶ 74.



**Studor, Fig. 1 (annotated)**

**3. 49[b]: user interface communicating with exercise mechanism and gathering user control signal**

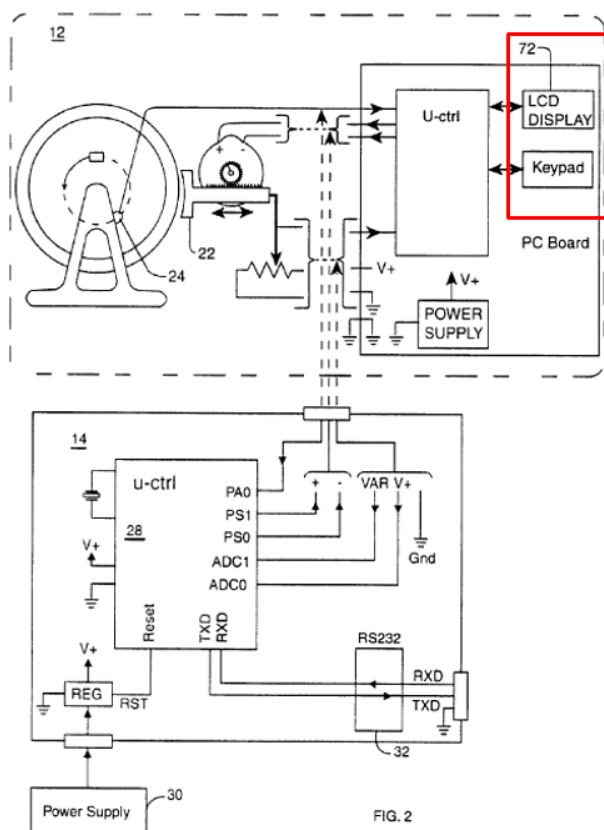
Studor discloses this limitation. Houh ¶¶ 77-87, 232-234. First, Studor teaches that its exercise system includes a computer system 16 that has a user interface, and optionally, user input devices integrated in exercise equipment 12 such as a keypad and display unit 72 (“*user interface device*”). Studor explains that computer system 16 includes a user interface for user interactivity. Studor, 6:3-4 (“[T]he computer system 16 provides a **user interface**.”), Fig. 2. The user interface “**affords users interactivity** to control audio-video environments assembled and played from the data contained on the media 20, and it may provide difficulty feedback and other status information to the user (if such is not provided by **a display system at the exercise equipment 12**, or the computer system 16 may even provide redundant difficulty feedback).” Studor, 6:5-15; Houh ¶ 77.



**Studor, Fig. 1 (annotated)**

In some implementations, “users located on different continents may employ exercise system 10 with Internet connected network computers (NC) and media 20 on a server computer.” Studor, 8:31-35. In such implementations, a POSITA would understand a local network computer would include the user interface to enable it to gather user input for exercise equipment 12. Houh ¶ 79.

Studor further explains that the exercise equipment 12 can optionally include integrated user interface devices, such as a keypad and display unit 72. Studor, 12:30-40, Fig. 2:



Studor, Fig. 2 (annotated)

Second, the user interface devices also facilitates “*communicating with*” the exercise equipment 12. This allows the user to control operating parameters like resistance levels. Studor, 5:15-32 (exercise mechanism includes M-S converter 14 “to receive information from commonly used speed sensors 24 ... to perform signal-conditioning and to **communicate with the computer system 16.**”); Houh ¶¶ 82-84.

Third, the user interface devices receive input from the user to set up exercise sessions (“*gather[] one or more user control signals from the user*”). Studor, 6:25-30 (user interface “for setting-up exercise sessions, for interactively controlling them”), 6:42-44 (user interface “allow[s] users the flexibility to select what they want to display if anything”); *see also* 9:54-10:32 (describing data on media 20 to control exercise equipment 12), 11:5-15 (“transmits control data through the communications link 26 to the M-S converter 14 for the dynamic control of the resistance system 22.”), 12:23-44 (discussing exercise session setup procedures); Houh ¶ 85.

Because Studor uses the data in media 20 to simulate terrain changes in a given course, and that terrain data is simulated to the user of the exercise equipment, a POSITA would have understood that such a feature would include user interface devices “*communicating with the exercise mechanism*” to “*gather[] one or more user control signals from the user*” so that the user could select a

desired course or control the exercise device during the exercise routine. Houh

¶ 86.

**4. 49[c]: mechanism communicating with user interface and enabling transmission of remote control signals to remote communication system and adapted to receive packetized second signal including synchronized control signals**

Studor renders obvious this limitation. Houh ¶¶ 88-98, 235-237. First, Studor teaches a “*communicating mechanism*” because the exercise system can receive media 20 over a network like the Internet. Studor, 8:23-37 (exercise system 10 may use “[c]omputer networking, and particularly the Internet”), 16:53-62 (describing “course profiles” on media 20 “obtained via the Internet”). This allows multiple users to participate in the same exercise course. Studor, 8:31-38; Houh ¶ 88.

A POSITA would have recognized that because computer system 16 can communicate over a network such as the Internet, it has a network interface (“*communicating mechanism*”). Houh ¶ 89. Furthermore, a POSITA would have understood that the network interface of computer system 16 would be “*in communication with*” the user interface of the local network computer in computer system 16 to allow a user to interact with the server-based media over the network the same as if the media was stored on the device. *Id.* A POSITA would have recognized that a network interface of computer system 16 would communicate with the user interface through at least software communication or data

communication. *Id.*; *see also* Studor, 5:21-24 (describing “internal data communication capability”).

Second, Studor teaches receiving control signals in the form of terrain characteristic data. Studor, 11:38-42 (“[T]he M-S converter 14 is able to **controllably adjust** the resistance system 22 on the exercise equipment 12 as a function of the speed data received and the parameters contained in course information (i.e., **terrain characteristics**; *see e.g.*, FIGS. 7 and 8) which are stored on the media 20.”), 13:18-25 (“In response to the terrain characteristic information, a resistance is calculated and transmitted to the M-S converter 14, which provides **appropriate control** for the resistance system 22 of the exercise equipment 12.”), 13:26-35 (“[T]he terrain characteristic data representing the actual terrain of the real-world course being viewed is used to **automatically further vary settings** of the resistance system 22, thereby applying a dynamic difficulty level.”); *see also id.*, 12:48-50 (describing how terrain characteristics data is captured and used to control exercise equipment 12), 4:6-10 (“FIG. 5 is a graph illustrating relationships between the resistance range of the exercise system and typical course sequences, one where slope is a varying terrain characteristic.”), 11:11-12 (“transmits **control data** through the communication link 26 to the M-S converter 14 **for dynamic control** of the resistance system 22, to correlate a user’s performance on the

exercise equipment 12 with the rate and manner in which contents of the media 20 are being played”); Houh ¶¶ 90-92.

Third, because the media 20, which includes terrain data (“*control signals*”), is delivered via the Internet (packet-based networking system), the local network computer in computer system 16 would be receiving “*packetized*” control signals from the media 20 located on the server. *See* Studor, 8:29-37; Houh ¶ 93. The media 20 that controls the exercise equipment, and is received over the Internet in a packetized form, is a “*packetized second signal[]*” as claimed. *Id.*

A POSITA would have recognized that terrain data stored in media 20 located on a server would be received by the computer system via the network interface and then used to control various aspects of the exercise equipment—like the resistance—so that the user would experience the simulated terrain. A POSITA thus would have understood that the packetized signals from the server delivering the media 20 would include packetized control signals as the terrain data is delivered from the server and interpreted and applied to the system. Houh ¶ 94. The ’062 Patent provides a definition of “*packetized*” that is consistent. Ex. 1001, 16:42-47; Houh ¶ 95.

Fourth, Studor teaches that the data from media 20 (including the terrain data) includes synchronizing information (“*synchronized control signals*”) from the server computer hosting media 20 (“remote communication system”). Studor,

8:65-9:3 (describing data included in media 20), 9:34-10:2 (“synchronizing information in the media 20”); 10:15-57 (describing how terrain characteristics data is simulated); 11:22-26 (“The terrain data corresponding to the current ‘position in the exercise course is then fetched and processed and the process adjusts the video playback rate to synchronize the video position with the virtual position of the user within the exercise course”); Houh ¶ 236.

Studor also teaches that “users located on different continents may ... hold ‘communal’ exercise sessions in concert, for competitive sporting events, or for coached exercise regimes.” Studor, 8:32-38. To hold these live exercise sessions, a POSITA would have found it obvious to use a control signal to synchronize the exercise devices in different continents. *See e.g.*, Bobick, Fig. 23; 25:60-26:32 (describing using signals “synchronizing each of the exercise apparatus in a network”); Houh ¶¶ 96-97.

**5. 49[d]: means for reproducing second signal**

Studor discloses this limitation. Houh ¶¶ 158-161, 238-239. Studor teaches that the “audio sub-system 38” and “video sub-system 40” each “reproduces” the corresponding audio and video signals contained within media 20. Studor, 7:1-20 (“The audio sub-system 38 ... reproduces the audio data stored in the media 20.... The video sub-system 40 reproduces video data stored in the media 20”); Houh ¶ 160. Further, a POSITA would have understood that the data stored in media 20

and transmitted to M-S converter 14, would be used for simulating (“*for reproducing*”) the terrain data (“*second signal*”) of a real-world course. Studor, 13:18-25; Houh ¶ 159.

**6. 49[e]: means for controlling operating parameters of exercise mechanism responsive to synchronized control signals carried by second signal**

Studor discloses this limitation. Houh ¶¶ 99-105, 240-242. Studor’s micro controller 28 in M-S converter 14 (“*means for controlling*”) responds to the synchronization information for the terrain data and synchronization information (“*synchronized control signals*”) by controlling resistance of exercise equipment (“*operating parameters of the exercise mechanism*”). Studor, 13:18-21 (“In response to the terrain characteristic information, a resistance is calculated and transmitted to the M-S converter 14, which provides appropriate control for resistance system 22, of the exercise equipment 12.”), 11:22-26, 5:18-25 (“the M-S converter 14 includes a micro controller 28”).

**B. Dependent Claims 50, 52, 54, 56-57, 59, 61**

The following claims are unpatentable for the same reasons as claim 49 and as further explained below.

**1. Claim 50: user interface device includes manually activated controls**

Studor discloses this limitation. Houh ¶¶ 244-247. Studor teaches that the user interface device includes a computer with input devices connected to monitor

42, and optionally, a keypad (“*one or more manually activated controls*”) configured to gather the user input selection to set up exercise sessions (“*generate the user control signals*”). Studor, 3:23-30, 6:25-48, 9:34-43, 9:54-10:32, 11:5-15, 12:23-44, Fig. 2.

**2. Claim 52: second signal includes audio and video signals and synchronized control signal**

Studor discloses this limitation. Houh ¶¶ 117-188, 248. Studor explains that the terrain characteristics data (“*control signal*”) is synchronized with the video files 52 (“*video signal*”). Studor, 11:22-26 (“The **terrain data corresponding to the current ‘position’** in the exercise course is then fetched and processed and the process adjusts the video playback rate **to synchronize the video position with the virtual position of the user within the exercise course.**”), 10:15-57 (“[S]peed of travel and slope data can be synchronized (in real-time) with digital video.”), 9:34-10:2 (“synchronizing information in the media 20”).

**3. Claim 54: communication system receives audio and video signals and synchronized control signals from trainer exercise device**

Studor renders obvious this limitation. Houh ¶¶ 249-252. Though not explicit, a POSITA would have understood that these signals would have been received from a trainer exercise device to workout with a spinmaster, exercise in concert, and interact with a coach as taught in Studor. Studor, 9:14-20 (exercising “with a spinmaster giving workout commands”), 8:32-38 (exercise system 10 used

for “‘communal’ exercise sessions in concert, for competitive sporting events, *or* for coached exercise regimes”); Houh ¶ 251; Rutberg ¶¶ 84-92, 106-109.

**4. Claim 56: exercise device communicates with communication system via network**

Studor discloses this limitation. Houh ¶¶ 253-255. Studor teaches that exercise device communicates with the server computer (“*communication system*”) via the Internet (“*network*”). Studor, 8:23-37, 6:50-55, 15:43-45.

**5. Claim 57: network selected from WAN, LAN, home network, packetized network, and Internet**

Studor renders obvious this limitation. Houh ¶¶ 256-259. Studor teaches that the network can be the Internet. Studor, 8:23-37, 6:50-55, 15:43-45.

**6. Claim 59: means for reproducing comprises audio and video output device**

Studor discloses this limitation. Houh ¶¶ 235-237, 260; *see* Limitation 49[d].

**7. Claim 61: communication system generates packetized second signal based on analysis of user control signals**

Studor renders obvious discloses this limitation. Houh ¶¶ 261-265; *see* Limitations 49[b]-[c].

**C. Independent Claim 78**

**1. Preamble**

To the extent limiting, Studor discloses the preamble. Houh ¶¶ 266-269. Studor teaches an exercise system 10 (“*exercise device*”). *See* Limitation 49[Preamble].

Studor further teaches that exercise system 10 enables users to select and simulate a real-world course (“*select and perform an exercise program*”) stored on media 20 hosted by a server computer in computer system 16 (“*communication system*”). Studor, 13:7-25 (“starting a course in the media 20”), 8:53-56 (“[M]ultiple unrelated courses may be stored on one physical storage unit.”), 8:24-38.

**2. 78[a]: exercise mechanism comprising movable element and configured to enable user to exercise in response to exercise program selected from one or more exercise programs stored on remote communication system in network communication with exercise mechanism**

Studor discloses this limitation. Houh ¶¶ 270-275. First, Studor teaches “*an exercise mechanism comprising a movable element for movement in performance of exercise by a user.*” See Limitation 49[a].

Second, Studor’s terrain characteristics data corresponds with a real life course (“*exercise program*”) selected by a user. Studor, 13:7-25, 8:53-56. After selecting the desired course, the user exercises accordingly in “*exercise sessions.*” Studor, 6:25-42.

Third, Studor teaches that the real life course program (“*exercise program*”) is stored on media 20 hosted by a server computer in computer system 16 (“*remote communication system*”). See Limitation 78[Preamble].

Fourth, Studor discloses a remote server computer in computer system 16 (*“remote communication system”*) which hosts the media 20 connected to the exercise equipment 12 over the Internet (*“in network communication with the exercise mechanism”*). Studor, 8:23-37.

**3. 78[b]: control means communicating with exercise mechanism for receiving packetized control signals from remote communication system indicative of selected exercise program and for changing operating parameters of exercise mechanism based upon selected exercise program**

Studor renders obvious discloses this limitation. Houh ¶¶ 276-279. First, Studor teaches *“control means, communicating with the exercise mechanism, for receiving one or more packetized control signals from the remote communication system ... and for changing one or more operating parameters of the exercise mechanism.”* See Limitation 49[e].

Second, Studor further teaches that the terrain characteristics data from media 20 (*“packetized control signals”*) corresponds with a real-world course (*“indicative of the selected exercise program”*). Studor, 8:53-58 (*“longer courses, and even multiple unrelated courses may be stored on one physical storage unit”*), 9:9-10 (*“the exercise system 10 uses actual captured video of real-world courses.”*), 10:4-8 (*“many real world courses had variations in slope”*).

Third, Studor also teaches that changing the resistance of exercise equipment 12 (*“operating parameters of exercise mechanism”*) is based on the selected terrain

data (“*based upon the selected exercise program and the one or more packetized control signals*”). Studor, 11:38-42, 13:18-25.

**D. Dependent Claims 79-84**

The following claims are unpatentable for the same reasons as claim 78 and as further explained below.

**1. Claim 79: selected exercise signals comprise audio and video signals**

Studor discloses this limitation. Houh ¶¶ 107-118, 281. Studor’s media 20 (“*selected exercise signals*”) includes “natural sound content ... or ... verbal feedback and encouragement, or for music to set a mood or to entertain” (“*audio signal*”), “true nature video content” (“*visual signal*”), and “terrain characteristics data” (“*control signal*”). Studor, 3:32-38.

**2. Claim 80: communication system comprises storage devices to store exercise programs**

Studor discloses this limitation. Houh ¶¶ 155-157, 282. Studor’s server (“*communication system*”) may include “a very high capacity hard drive” or other “suitable mass storage system” (“*memory*”) to store media 20 (“*exercise programs*”). Studor, 8:61-64.

**3. Claim 81: network selected from group consisting of LAN, WAN, and Internet**

Studor renders obvious this limitation. Houh ¶¶ 256-259, 283; *see* Claim 57.

**4. Claim 82: exercise mechanism includes actuators to vary operating parameters**

Studor teaches this limitation. Houh ¶¶ 284-285; Studor, 4:52-64 (resistance systems “are typically controlled by motor-driven actuators”).

**5. Claim 83: control means comprises decoder to decode packetized control signal and processor to activate actuators**

Studor renders obvious this limitation. Houh ¶¶ 286-289. First, Studor teaches a micro controller 28 in M-S converter that can condition the terrain data (“*packetized control signal*”). Studor, 5:21-25 (“M-S converter 14 includes a micro controller 28 (e.g., a Motorola® MC68HC11) with integrated analog-to-digital capability, internal data communication capability, and sufficient memory for its role.”), 5:18-19 (“The M-S converter 14 also includes circuitry to perform signal-conditioning.”). Though not explicit, a POSITA would have understood the controller in Studor is or includes a decoder for decoding the terrain data, which is a digital signal sent from the server. Houh ¶ 286. Without a decoder, Studor would not be able to control the resistance systems using the terrain data. *Id.*

Second, computer system 16 “transmits control data through the communications link 26 to the M-S converter 14 for the dynamic control of the resistance system 22.” Studor, 11:5-16. The resistance system 22 is “typically controller by motor-driven actuators,” and as such, the micro controller 28 in the

M-S converter 14 (“*processor*”) activates the actuators of resistance system 22 in response to the decoded terrain data. Studor, 4:62-63.

**6. Claim 84: communication system comprises storage devices, control signal generator, control processor**

Studor discloses this limitation. Houh ¶¶ 290-296. First, Studor’s server (“*communication system*”) may include “a very high capacity hard drive” or other “suitable mass storage system” (“*storage device*”) to store media 20 (“*second signal*”). Studor, 8:61-64; *see* claim 80.

Second, Studor teaches that software program 18 on the server computer in computer system 16 (“*control signal generator*”) “transmits control data through the communications link 26 to the M-S converter 14 for the dynamic control of the resistance system 22.” Studor, 11:5-16. Specifically, it generates the terrain data (“*control signals*”) to send to M-S converter 14. Studor, 11:38-42, 13:18-25; Limitation 49[c] (describing generation of control signals).

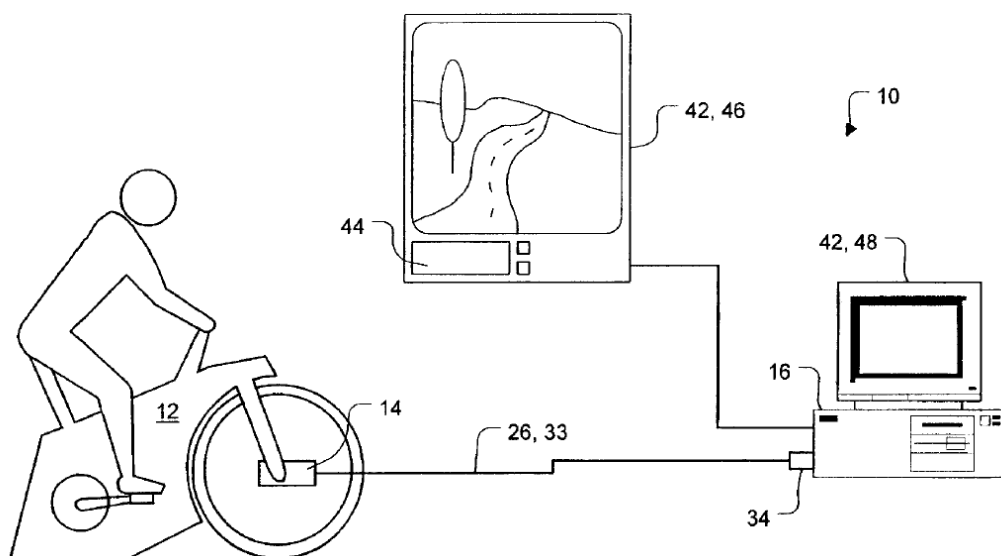
Third, Studor teaches that the computer system 16 contains a processor, such as a “Pentium 100 Mhz central processing unit” or “the PowerPC processor.” Studor, 6:11-24. A POSITA would have understood that Studor’s processor is used to process and deliver the “terrain characteristics for a course” together with the “table files 56” to “create a lookup table 76” that “correlate normalized terrain characteristic values with the relative time that the characteristic value was collected.” Studor, 12:45-54; Houh ¶ 294.

Studor further teaches that the control processor is configured to synchronize the control signals with the audio and video signals. Houh ¶¶ 117-118 295; Studor, 11:22-26 (synchronize video position with virtual position), 9:34-10:2 (“synchronizing information in the media 20”), 8:65-9:3 (associate terrain characteristics to times video files).

## E. Independent Claim 85

### 1. Preamble

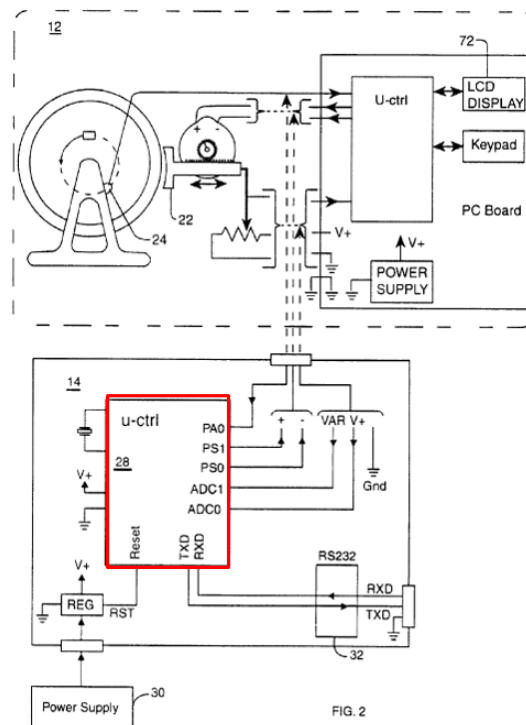
To the extent limiting, Studor discloses the preamble. Houh ¶¶ 297-300. Studor teaches an exercise system 10 (“*exercise system*”). Studor, 4:28-30, 4:43-45, Fig. 1 (below).



Studor, Fig. 1

**2. 85[a]: local system including at least one exercise apparatus to an associated local computer**

Studor discloses this limitation. Houh ¶¶ 301-308. Studor teaches a “*local system*” that includes exercise equipment 12 (“*at least one exercise apparatus*”) with M-S converter 14 including a micro controller 28 (“*local computer*”) and local network computer in computer system 16. Studor, 5:18-25 (“M-S converter 14 includes a **micro controller 28** (e.g., a Motorola® MC68HC11) with integrated analog-to-digital capability, internal data communication capability, and sufficient memory for its role.”).



**Studor, Fig. 2 (annotated)**

Micro controller 28 is “*local*” because it is integrated into exercise equipment 12, and therefore must be located at exercise equipment 12. Studor, 5:9-14.

**3. 85[b]: remote system including remote computer; and**

Studor discloses this limitation. Houh ¶¶ 309-312. Studor teaches that the part of computer system 16 (“*remote system*”) including the server computer hosting media 20 (“*at least one remote computer*”) may be at a different location than the exercise equipment 12. Studor, 8:23-37 (“It should particularly be noted that **not all components of the computer system 16 need to be physically present in one ‘box,’ or even at one location.**”), 15:43-45 (“The exercise equipment 12 used for these examples **need not even be in the same country.**”).

Studor teaches that “users located on different continents may employ the exercise system 10 with Internet connected network computers (NC) and media 20 on a server computer, perhaps actually located on yet another continent.” Studor, 8:23-37. In this configuration, the system allows users “to hold ‘communal’ exercise sessions in concert, ... competitive sporting events, or ... coached exercise regimes.” *Id.*

**4. 85[c]: communication link for communicating packetized data between the local computer and the remote system, such that the local system may receive remote system data from the remote**

**system, including packetized control signals for controlling operation of the at least one exercise apparatus**

Studor renders obvious this limitation. Houh ¶¶ 313-317. First, Studor teaches that communication link 26 implemented as an Internet connection (“*communication link*”) is for communicating data, such as terrain data (“*packetized data*”), between the micro controller 28 of M-S converter 14 (“*local computer*”) and the server computer hosting media 20 in computer system 16 (“*remote system*”).

Studor explains that “[t]he communication link 26 is bi-directional for communications between the computer system 16 and the M-S converter 14.” Studor, 5:33-35. The communication link 26 can “transfer data via other means.” (Studor, 5:59-61), “particularly the Internet.” Studor, 8:29-35, 15:43-45 (“a global implementation of the computer system 16 [] is connected over a network like the Internet”).

Second, Studor teaches “*the local system may receive remote system data from the remote system, including packetized control signals for controlling operation of the at least one exercise apparatus.*” See Limitation 49(c).

**F. Dependent Claims 87, 89-90, 92-95**

The following claims are unpatentable for the same reasons as claim 85 and as further explained below.

**1. Claim 87: control signals correspond to exercise program**

Studor discloses this limitation. Houh ¶¶ 266, 280, 319-321; *see* Claim 78.

**2. Claim 89: remote system remotely controls operation of local computer based on packetized control signals.**

Studor discloses this limitation. Houh ¶¶ 322-330. Studor discloses that the media 20 on a server (“*remote system*”) remotely controls the micro controller 28 in M-S converter 14 (“*local computer*”) to adjust the resistance system 22 based upon the terrain data (“*packetized control signals*”). Studor, 5:15-32, 11:38-42, 12:48-50, 13:18-25. A POSITA would understand that the micro controller 28 is the part of M-S converter 14 that processes data and sends control signals to the resistance system 22. Houh ¶ 324.

**3. Claim 90: input device gathering user signal selected from group consisting of audio and video input devices**

Studor renders obvious this limitation. Houh ¶¶ 331-337. Studor expressly states that computer system 16 may include “video conferencing” capabilities. Studor, 15:47-53. A POSITA would have understood that implementing video conferencing would require an audio input, such as a microphone, and a video input, such as a camera. Houh ¶ 334.

Audio/video input to implement video conferencing taught by Studor was known. Rutberg ¶¶ 52-59, 102-105; French, 10:46-53 (“cameras or other image capturing devices”); Bobick, 15:3-11 (“a microphone can be electrically coupled to the computer and located in/on the computer, in/on the display(s), or elsewhere

in/on the exercise machine” to “allow for both voice and data communication between the users.”).

**4. Claim 92: packetized control signals are synchronized with audio or video signal**

Studor discloses this limitation. Houh ¶¶ 338-342. Studor explains that the terrain data (“*control signals*”) is synchronized with the video files 52 (“*video signal*”). Studor, 11:22-26 9 (“to synchronize the video position with the virtual position of the user within the exercise course”), 10:15-57 (“[S]peed of travel and slope data can be synchronized (in real-time) with digital video.”), 9:34-10:2 (“synchronizing information in the media 20”).

**5. Claim 93: communication link comprises network connection**

Studor discloses this limitation. Houh ¶¶ 343-348. Studor teaches communication link 26 can be an Internet connection. Studor, 8:23-37, 16:53-62; *see* Limitation 85(c).

**6. Claim 94: sensors for detecting status of exercise apparatus and transmitting data to remote system**

Studor discloses this limitation. Houh ¶¶ 349-356. First, Studor teaches speed sensor 24 (“*one or more sensors*”) for detecting the speed of exercise equipment 12 (“*data representative of the status of exercise apparatus*”). Studor, 4:49-51 (speed sensor 24 “provides data from which the user’s actual efforts can be inferred.”), 4:52-64 (available types of speed sensors), 5:7-8 (“acquire[s] data from

the speed sensor 24”), 11:37-42 (controllably adjust resistance system as function of speed and terrain characteristics data).

Second, Studor teaches that software program 18 running on the server computer in computer system 16 “accepts as input the ... speed sensor 24 (an optional other sensors) data from the M-S converter 14 as it arrives via the communications link 26.” Studor, 11:5-16, 5:5-10 (M-S converter 14 “acquire[s] data from the speed sensor 24 of the exercise equipment 12, to convert the data as needed, and to then transmit it through a communication link 26 to the computer system 16” including the server computer in computer system 16.”).

**7. Claim 95: safety mechanism communicating with and manipulating exercise device when signal interrupted**

Studor renders obvious discloses this limitation. Houh ¶¶ 197-206, 357. iFIT has construed “*safety mechanism*” to encompass emergency brakes. Ex. 1014, 30-31. Likewise, Studor teaches a braking system (“*safety mechanism*”) for exercise equipment 12 to “automatically decrease the difficulty as needed” and “ensure a safe workout.” Studor, 16:15-28. The braking system (“*safety mechanism*”) is capable of communicate with and manipulating the operating parameters, like the resistance and speed, of exercise equipment 12 (“*exercise mechanism*”). Studor, 4:52-64.

Though not explicit, a POSITA would have understood that Studor’s braking system could “automatically decrease the difficulty,” thus manipulating the

operating parameters of exercise equipment 12, just like the brake could be pulled when the signal stops as shown in iFIT's own contentions. Houh ¶ 205.

Further, manipulating exercise equipment 12 if the signal is interrupted was known. Houh ¶ 204; Rutberg ¶¶ 110-112. A POSITA would have been motivated to implement Studor's brake to manipulate exercise equipment 12 upon a signal interruption because a POSITA would have understood it could be dangerous if exercise equipment 12 continued at the same speed indefinitely. Thus, the safest response upon signal loss would have been to automatically decrease the difficulty, a function already taught in Studor. Studor, 16:15-28; Rutberg ¶¶ 110-112.

Additionally, a POSITA would have had to determine how to implement Studor's exercise system when the connection was interrupted. Like other network-connected applications, a POSITA implementing Studor would have recognized the benefits of determining whether the signal is only intermittently lost (and thus permit continued movement for a set time until the signal is restored) or lost indefinitely (and thus stop immediately). By accounting for these situations, a POSITA would have provided the user with a better experience—the system would not automatically stop or slow down, and then start again every time the connection is lost and then restored. Houh ¶¶ 201-202; Rutberg ¶¶ 93-101, 112.

**VI. Ground 2: The Challenged Claims Are Rendered Obvious by Clem in View of the Knowledge of a POSITA or Hickman**

**A. Motivation to Combine Clem and Hickman**

A POSITA would have been motivated to combine Clem and Hickman with a reasonable expectation of success because they shared a common field of endeavor and solved similar problems known in the art. Houh ¶¶ 373-376. For example, both Clem and Hickman:

- describe exercise systems with local computer systems that can be controlled by a remote system;
- resolve a need for exercise devices that “provide the ability to conveniently alter the control programs within the exercise equipment or to communicate with others regarding control of the exercise equipment during a work out,” by allowing a trainer remote from the local system to control the exercise equipment during a workout. Clem, 1:59-62;
- allow for a personal trainer to instruct a user’s home workout, which, as Hickman itself recognized, is a “convenient, affordable, and effective” exercise and health system that Hickman notes was missing in the prior art. Hickman, 1:20-2:21.

Given these similarities, a POSITA would have looked to the teachings of the other that would have been a complement or obvious extension of their shared

goal to provide a convenient and effective exercise system, particularly given that many of these features were known Internet-related communication features. Houh ¶ 376.

## B. Independent Claim 49

### 1. Preamble

To the extent limiting, Clem discloses the preamble. Houh ¶¶ 377-381, 564-565. Clem teaches a fitness system (“*exercise device*”) with a programmable treadmill that includes a console with a user input and display (highlighted in orange) for conveying information to and from the user relating to a workout. Clem, Abstract, Fig. 3. This information can include “video and audio information” from “a real time two way communication” between a live fitness expert located at a website and the user. Clem, 2:53-65.

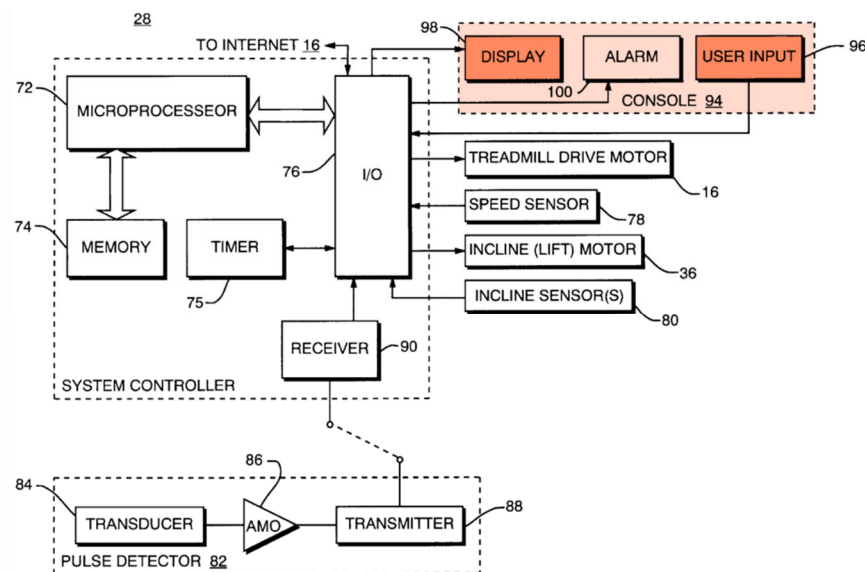


FIG. 3

Clem, Fig. 3 (annotated)

**2. 49[a]: exercise mechanism comprising movable element**

Clem discloses this limitation. Houh ¶¶ 382-386, 566. Clem teaches a treadmill (“*exercise mechanism*”) comprising a continuous tread belt (“*movable element*,” highlighted yellow) for movement in performance of exercise by a user (Figure 2A below). Clem, 3:64-4:4:21, Fig. 2A.

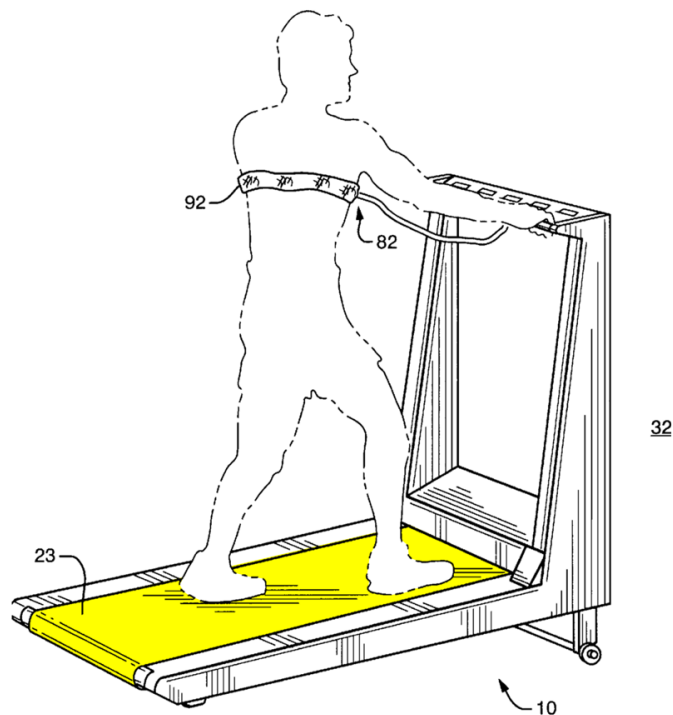


FIG. 2A

**Clem, Fig. 2A (annotated)**

**3. 49[b]: user interface communicating with exercise mechanism and gathering user control signal**

Clem renders obvious this limitation. Houh ¶¶ 387-394, 567-573. Clem teaches a console with an interactive interface (“*user interface device*”) where the user can input commands (“*gather one or more user control signals from the user*”). Clem, Fig. 3 (user input), cl. 23 (“**an interactive interface connected to**

**the user's location**, wherein **commands related to the database can be entered**

at the user location.”); *see also* Abstract, 2:15-17, 2:42-52, 2:14-17; cl. 17, 23;

Houh ¶¶ 388-389, 567-569 (a POSITA would have understood interactive interface is found on console 94).

Figure 3 below shows that the interactive interface found on the console (in orange) gathers information through signals (signal pathway highlighted in yellow) from the user (at the user input) and communicates them to the treadmill's controller (highlighted in green) through input/output circuitry (“*communicating with the exercise mechanism*”). Such user input includes information used by the website to select a control program, which is then downloaded over the Internet (purple) from the website and executed by the controller (green) to control the motors (pink). Clem, 3:1-15, 3:46-48, Fig. 3.

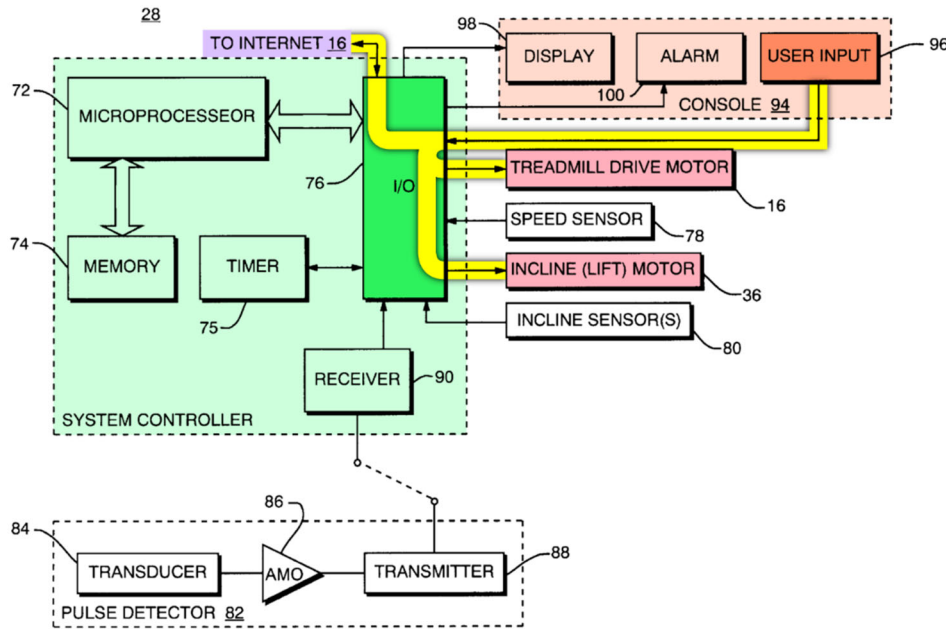


FIG. 3

**Clem, Fig. 3 (annotated)**

To the extent not explicit, a POSITA would have understood that the “user input” in the console is where the treadmill would gather a control signal from the user, since this is the only location in Figure 3 where user input is discussed and is the most likely location for user input. Houh ¶¶ 380, 391, 442, 567-569. Indeed, user interfaces on treadmills commonly included locations for the user to input signals to control speed and/or incline of the treadmill or select programs. Houh ¶¶ 569-571; Brewer, Fig. 1 (user input to control speed, incline highlighted), 1:29-35 (“motorized treadmills **typically have** a speed control by which **the user may vary the speed** of the belt of the treadmill), 2:37-43, 3:56-65, 7:65-8:8 (“speed-up 72 and speed-down 74 switches **are operated by the user to increase or decrease the speed**” of the treadmill); Watterson, Fig. 2 (user input to increase and decrease

speed, select program highlighted), 1:11-20 (“[T]ypical treadmills include controls to vary the speed of the tread as well as ... the angle of inclination of the treadmill surface.”), 3:63-66 (input means 17 vary speed and resistance), 8:11-15 (“Various functions (speed, time, heart rate) **are selected ... using the increase 116 and decrease switches 114** to set the various parameters.”).

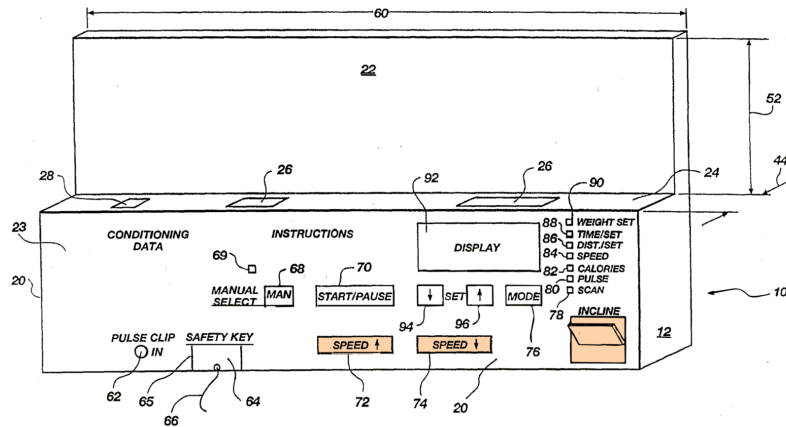


Fig. 1

Brewer, Fig. 1 (annotated)

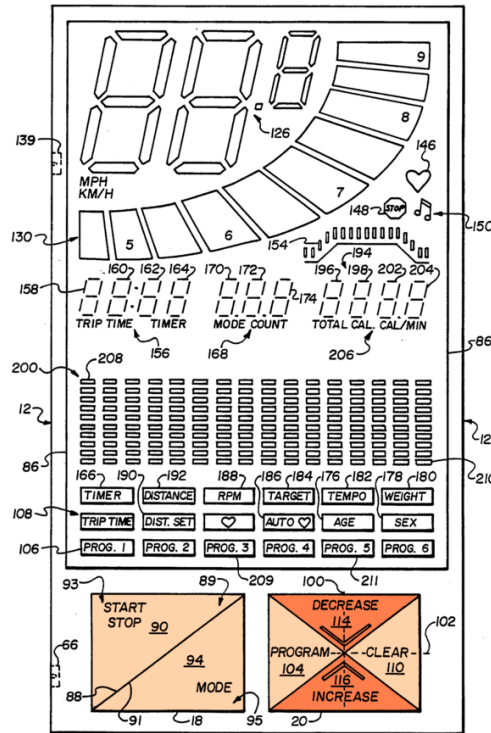


Fig. 2

**Watterson, Fig. 2 (annotated)**

A POSITA would have been motivated to include a user input in Clem to gather control signals so the user could control the device and select exercise programs per their choice while operating it. Houh ¶ 572.

4. **49[c]: mechanism communicating with user interface and enabling transmission of remote control signals to remote communication system and adapted to receive packetized second signal including synchronized control signals**

Clem in view of Hickman renders obvious this limitation. Houh ¶¶ 395-408, 574-584. Clem discloses a “network connection device,” “fitness equipment interface” and “controller” (together “*a communicating mechanism*,” highlighted green in Figure 1 below) that communicates with the interactive interface found on

the console (“*user interface device*” in orange) to enable transmission of user control signals through the Internet (in purple) to a website (“*remote communication system*”). Clem, Figs. 1 (yellow highlighting showing connection between website and controller), 3 (yellow highlighting showing communication from Internet to communicating mechanism and display on user interface device), 3:21-47 (communication channel from website through Internet to the “fitness equipment interface” and “network connection device” to the “controller”), 5:15-17 (microprocessor in controller “control[s] the display 98 which can be located on a console 94”), 5:18-23 (“[I]nformation representative of the operation of any of the devices ... transmitted between the user location 34 and the web site 12 by way of I/O circuitry 76 which is coupled to the internet system 19 by way of interface 22.”); Ground 2 Limitation 49[b] (showing user input transmission from user input to website).

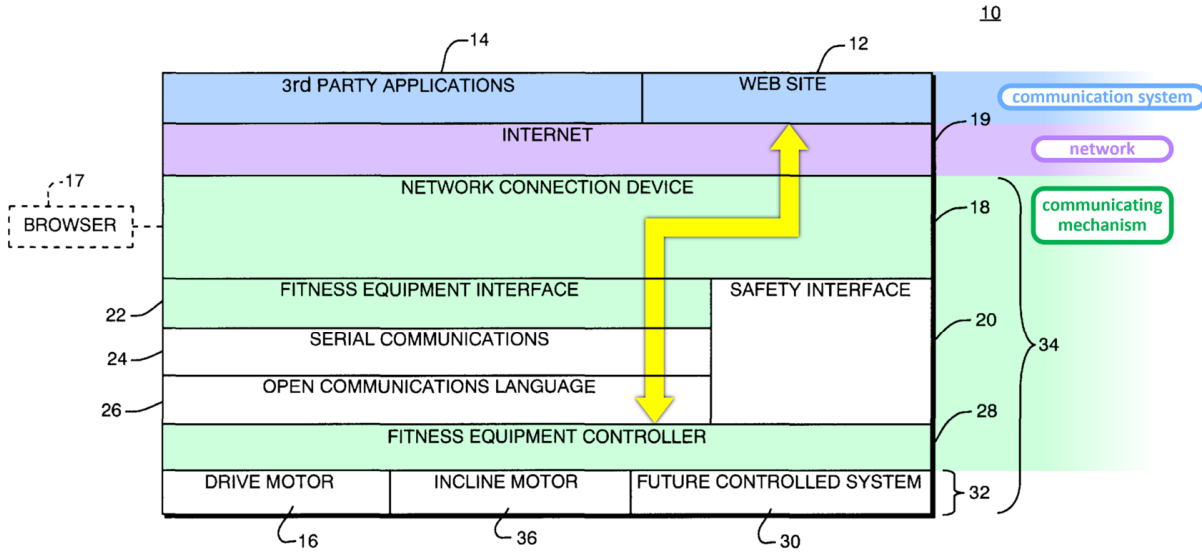


FIG. 1

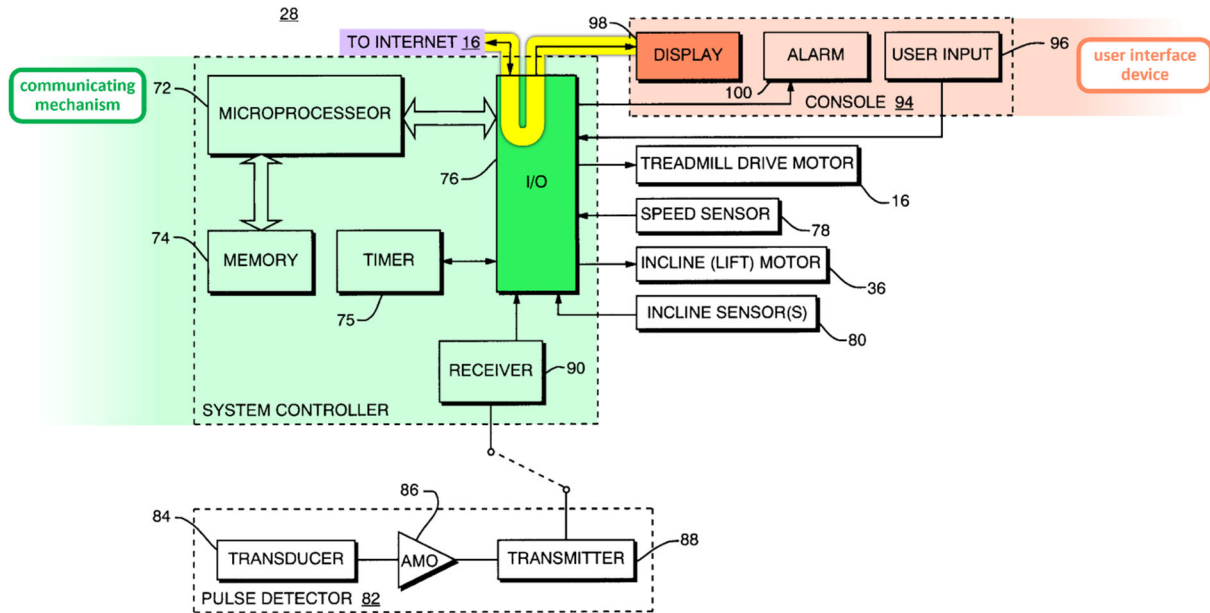


FIG. 3

### Clem, Figs. 1, 3 (annotated)

A POSITA would have understood the user inputs information to select a control program. Clem, cl. 17 ("control program[] is selected according to the user location information"), cl. 23 ("comprising an interactive interface ... wherein

commands related to the database can be entered at the user location.”). The communicating mechanism transmits that information through the Internet to the website and the website selects a control program according to the “current user location information” transmitted. Clem, 3:11-21, Fig. 3; Ground 2 Limitation 49[b].

The communicating mechanism is further adapted to receive from the website a fitness control program which the controller executes to control the motors for incline and speed. Clem, 3:1-7. The fitness control program is sent over the Internet and thus is a packetized control signal (“*packetized second signal*”). Houh ¶¶ 404, 677 (signals sent over Internet are packetized); Ex. 1024, 1; Clem, Figs. 1, 3.

Clem teaches a user “can interact on-line with a live fitness expert located at the web site 12 to engage in a real time two way communication” that includes “the uploading and downloading of video and audio information.” Clem, 2:53-66. Thus the signal transmitted over the Internet from the website to the treadmill includes video and audio signals.

Clem states that control information can be sent “**in addition** to interacting.” Clem, 2:60-64. It also teaches “[t]he user can also interact with fitness experts on-line **and** provide exercise information and receive control information,” which a POSITA would understand as the treadmill receives video and audio

signals from two way interaction at the same time (i.e., synchronized) it receives control information. Clem, 2:17-21, 2:53-3:7. These audio, video, and control signals are packetized and transmitted from the website to the treadmill as part of the “*second signal*.” Houh ¶¶ 412-418, 577-579.

To the extent not explicit, a POSITA would have understood the control signals from the website of Clem include synchronized control signals, including signals to control the motor synchronized with audio and video signals. Such synchronized control signals were known. *See* Studor Limitation 49[c].

Further, a POSITA would have been motivated to include synchronized signals because parts of a workout would need to be performed with timing prescribed by the exercise script, and thus are synchronized for events to occur at the proper time in the exercise script, as opposed to having events delayed or out of order. Thus, control signals are synchronized to the appropriate time as required by the workout routine. Houh ¶ 582. Likewise, a POSITA would synchronize the signals because it would allow the trainer to both communicate in real time while also controlling the operating parameters of the treadmill. Rutberg ¶¶ 72-83, 123-126.

Clem in view of Hickman renders obvious this limitation. Hickman describes a user selection of a script. The remote system computer “can download new exercise scripts or programs to the local system to implement” changes the

personal trainer wants to make based on data analyzed by the trainer. Hickman, 2:36-45, 7:39-49. Such downloading of the new exercise scripts by the local system from the remote system can include synchronized control signals.

**5. 49[d]: means for reproducing second signal**

Clem in view of Hickman renders obvious this limitation. Houh ¶¶ 490-496, 585. Clem discloses the website transmitting signals to a controller (“*second signal*”) which reproduces the signals (1) to control the motors and (2) as part of the two way real time audio and video communication between the fitness expert and user. *See* Limitation 49[c]; Clem, 3:1-7, Fig. 3. The controller reproduces the signals (from the website) to control the incline 36 and drive 16 motors. Clem, 2:66-3:7. Similarly, the controller (and then the display) reproduces the audio and video signals as part of the real time two way communications with the user. Clem, 5:15-23, Fig. 3; Houh ¶¶ 491-494, 585. The “output signals of the microprocessor 72 also control the display 98 which can be located on a console.” Clem, 5:15-17.

A POSITA would have understood that the display is part of the means for reproducing the second signal. A POSITA would have understood from Clem that the user would be able to view and listen to the “video and audio information” from the “real time two way communication” between the live expert at the web site and the user at the “display” as shown in Figure 3. Clem, 2:53-65, Fig. 3. It is the most convenient and likely place for the user to consume the “video and audio

information” and the use of the term “display” informs a POSITA that the “display” is where the output of the “two way communication” with the fitness expert occurs. Houh ¶¶ 494, 585. Further, Hickman teaches a local computer with a full video display and loudspeaker which are both used to reproduce signals from the remote system. Ex. 1013, 4:63-5:17.

**6. 49[e]: means for controlling operating parameters of exercise mechanism responsive to synchronized control signals carried by second signal**

Clem renders obvious this limitation. Houh ¶¶ 409-421, 586-589. Clem teaches a controller 28 (highlighted in green in Figure 3 below) that responds to the synchronized controls signals from the website (as discussed regarding Limitation 49[c]) (signal pathway shown in yellow) to control the speed and incline (“*operating parameters*”) of the treadmill (“*exercise mechanism*”). The “web site 12 ... transmit[s] control information to the user location 34 to control, for example, drive motor 16 and incline motor 36 [highlighted pink in Figure 3 below] of exercise device 32.” Clem, 2:44-47; *see also id.*, 2:60-64 (“a user ... can interactively obtain the control information from a computer located at the web site 12”), 2:66-3:1 (control information from website includes controls signals for controlling the device), 3:1-7 (website sends control program signals to controller which then provides control signals “required for controlling motors”), 4:30-33 (controller provides signals controlling resistance to control speed), 4:44-59

(controller provides signals that control the grade and speed of treadmill); Houh

¶¶ 409, 586-589.

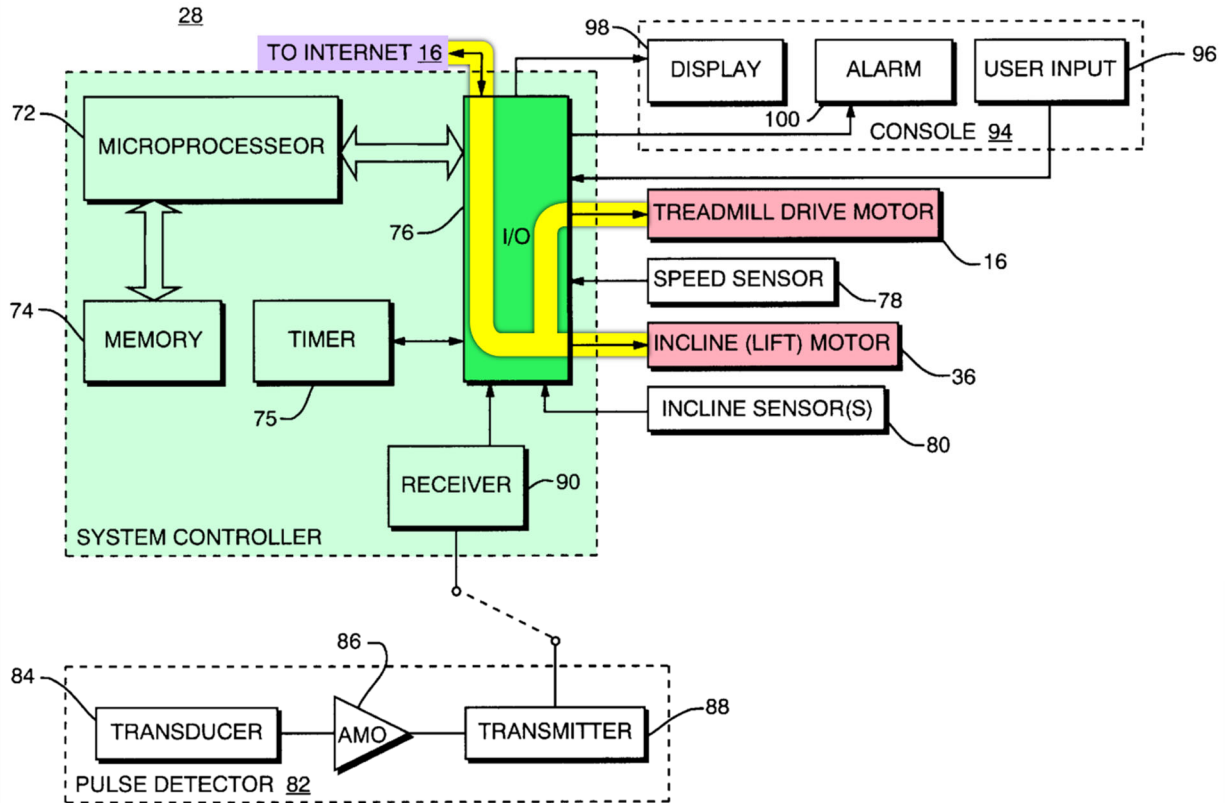


FIG. 3

Clem, Fig. 3 (annotated)

### C. Dependent Claims 50, 52, 54, 56-57, 59, 61

The following claims are unpatentable for the same reasons as claim 49 and as further explained below.

#### 1. Claim 50: user interface device includes manually activated controls

Clem renders obvious this limitation. Houh ¶¶ 591-596. Though not explicit, a POSITA would have understood the “user input” of Clem would include a

manually activated control. Figure 3 shows the user input that can send signals to control the treadmill. Such manual inputs to generate user control signals were well-known. *See* Limitation 49[b] (describing Watterson and Brewer’s disclosure of a manual input to generate a user control signal). A POSITA would have been motivated to include manual inputs in Clem because they were easy to use and intuitive to a user. Houh ¶ 595.

**2. Claim 52: second signal includes audio and video signals and synchronized control signal**

Clem in view of Hickman renders obvious this limitation. Houh ¶¶ 422-432, 597. Clem states that control information can be sent “[i]n addition to interacting.” Clem, 2:60-64. It also teaches “[t]he user can also interact with fitness experts on-line and provide exercise information and receive control information,” which a POSITA would understand to mean the treadmill can receive video and audio signals from the two way interaction at the same time (i.e., synchronized) as control information. Clem, 2:17-21, 2:53-3:7.

A POSITA would have been motivated to implement Clem to have the video and audio signals synchronized with the control signals. Houh ¶¶ 423-430, 597. Doing so would allow the trainer to both communicate in real time while controlling the operating parameters of the treadmill. Rutberg ¶¶ 72-83, 123-126. Sending synchronized control and audio/video signals from a remote site to a user was known. Houh ¶¶ 117, 428-429, 431, 597 (describing Studor, Hickman, and

Shea's teaching synchronized signals); Studor Claim 4; Shea, 6:61-7:4, 15:13-22, 25:38-54.

Clem in view of Hickman renders obvious this limitation. Hickman describes "download[ing] new exercise scripts or programs to the local system computer." Hickman, 2:43-45, 9:4-15 ("provides an auditory, visual ... preview of upcoming script events" including for an "imaginary bicycle ride" wherein script increases resistance).

**3. Claim 54: communication system receives audio and video signals and synchronized control signals from trainer exercise device.**

Clem in view of Hickman renders obvious this limitation. Houh ¶¶ 598-603; Claim 52. Clem teaches a user "can interact on-line with a live fitness expert located at the web site 12 to engage in a real time two way communication" that includes "the uploading and downloading of video and audio information." Clem, 2:53-66. Clem also teaches "in addition to interacting, including conversing, with a live fitness expert, a user of the fitness system 10 at the user location 34 can interactively obtain the control information from a computer located at the web site 12." Clem, 2:60-64.

While Clem does not explicitly teach the fitness expert sending audio and video information from their exercise device, a POSITA would have understood they could have. Integrating a camera and microphone into an exercise device was known, and such an exercise device would allow the trainer to send audio and

video information from an exercise device. *See* Houh ¶¶ 442-450, 468-472, 599-601 (describing knowledge of POSITA to incorporate camera and microphone into device); Clem, 2:44-47, 3:1-7.

A POSITA would have been motivated to do so because it would allow the trainer to accompany the user in performing exercise, which could encourage the user to continue and maintain an exercise regimen, change the user's workout without leaving the device, and demonstrate proper exercise technique. Rutberg ¶¶ 84-92, 127-130.

**4. Claim 56: exercise device communicates with communication system via network**

Clem discloses this limitation. Houh ¶¶ 395-401, 574-583, 604-606; *see* Limitation 49[c].

**5. Claim 57: network selected from WAN, LAN, home network, packetized network, and Internet**

Clem renders obvious this limitation. Houh ¶¶ 395-401, 574-583, 607-610; Limitation 49[c]; Claim 56.

**6. Claim 59: means for reproducing comprises audio and video output device**

Clem in view of Hickman renders obvious this limitation. Houh ¶¶ 498-511, 611; *see* Ground 2 Limitation 49[c]; Clem, 2:53-65, 3:1-7. A POSITA further would have understood that the display on the console in Clem reproduces video and audio information it receives from the website and controller. Clem, 2:53-65,

5:15-17, Fig. 3. Though not explicit, a POSITA would have understood that the display on the console in Clem would have contained audio/video output devices because (1) displays were known to output audio/video information and (2) Clem describes receiving audio and video information, and the display is the only location for viewing this location shown in Figure 3.

Consoles with audio and video output devices were within knowledge of a POSITA. Ground 1 Claim 59; Shea, 7:5-16, 9:53-57, Figs. 4, 5, 7. A POSITA would have been motivated to include audio/video output devices in Clem because it would allow the: trainer to demonstrate correct form or provide other visual instruction, user to receive instructions, and trainer to provide motivation. Rutberg ¶¶ 68-71, 117-122.

Clem in view of Hickman renders obvious this limitation. Hickman describes “an output on a display 56 that can be viewed” sitting on the stationary bicycle that “can be a full video display. Hickman, 4:63-64, 4:66-5:5. It also describes a speaker to output the voice of the “personal trainer associated with the remote system.” Hickman, 5:13-15.

**7. Claim 61: communication system generates packetized second signal based on analysis of user control signals**

Clem in view of Hickman renders obvious this limitation. Houh ¶¶ 574-584, 612-617; *see also* Ground 2 Limitation 49[c]. Hickman describes a user selecting a script at the local computer (“*user control signal[]*”) which is uploaded “to be

analyzed by the personal trainer at the remote computer [(“*communication system*”).]” Hickman, 2:36-45, 7:38-48, 2:36-45, 8:10-14. These local computer “control[s] the resistance” based upon the script. Hickman, cl. 1.

#### **D. Independent Claim 78**

##### **1. Preamble**

To the extent limiting, Clem renders obvious the preamble. Houh ¶¶ 618-623. Clem teaches an exercise system (“*exercise device*”) that enables a user to download new fitness equipment programs (“*exercise program*”) that are stored on a website (“*communication system*”). Clem, Abstract, 3:1-15 (“web site can store a plurality of control programs”), cl. 17; *see* Ground 2 Limitation 49[c].

To the extent not explicit, a POSITA would have understood that Clem’s disclosure of the website “select[ing] a control program ... according to ... the current user location information” requires user input information that selects the program. Clem, 3:11-21. Likewise, a POSITA would have understood that the user will run or walk on the treadmill (i.e., perform exercise) using the operating parameters from the control program. *See* Ground 1 Limitation 78[Preamble] (describing Studor’s selection of program for user performance); Limitation 49[c] (describing Hickman’s selection of program for user performance).

A POSITA would have been motivated to have the user perform the exercise program the user selected because that is the purpose of Clem—to provide an interactive exercise device for the user. Houh ¶ 622.

**2. 78[a]: exercise mechanism comprising movable element and configured to enable user to exercise in response to exercise program selected from one or more exercise programs stored on remote communication system in network communication with exercise mechanism**

Clem discloses this limitation. Houh ¶¶ 382, 388-390, 409, 574-579, 624-628. Clem teaches a treadmill (“*exercise mechanism*”) with a continuous belt (“*movable element*”) that is configured to enable a user to exercise in response to the fitness equipment control program (“*exercise program*”) selected from a “plurality of control programs” that are stored on a website (“*remote communication system*”) that is in network communication over the Internet with the treadmill. Clem, Abstract, 2:14-21, 3:1-63, Figs. 1, 3; Ground 2 Limitations 49[a]-[c].

**3. 78[b]: control means communicating with exercise mechanism for receiving packetized control signals from remote communication system indicative of selected exercise program and for changing operating parameters of exercise mechanism based upon selected exercise program**

Clem renders obvious this limitation. Houh ¶¶ 395-411, 629-630. Clem teaches a controller (“*control means*”) that communicates with the treadmill (“*exercise mechanism*”) for receiving a control program ([“*packetized control*

*signal*”]) from the website (“*remote communication system*”) that is indicative of the program selected by the user. Limitations 49[b]-[c]; 78[Preamble]-[a]. The controller also changes the speed and/or incline (“*operating parameters*”) of the treadmill based on the selected program. See Limitations 49[c]-[d]; Clem, 3:1-7 (describing controller executing program and sending corresponding control signals to motors), 3:17-21 (website selects control program based on user input), Figs. 1, 3.

**E. Dependent Claims 79-84**

The following claims are unpatentable for the same reasons as claim 78 and as further explained below.

**1. Claim 79: selected exercise signals comprise audio and video signals**

Clem renders obvious this limitation. Houh ¶¶ 412-418, 632. Clem teaches a user “can interact on-line with a live fitness expert located at the web site 12 to engage in a real time two way communication” that includes “the uploading and downloading of video and audio information.” Clem, 2:53-66; *see also* Limitation 49[c].

**2. Claim 80: communication system comprises storage devices to store exercise programs**

Clem renders obvious this limitation. Houh ¶¶ 485-489, 633. Clem discloses a website (“*communication system*”) that “can store a plurality of control programs [(“*exercise programs*”).” Clem, 3:11-14.

Though not explicit, a POSITA would have understood that because the website “store[s]” control programs, it must have a device to store the programs.

Houh ¶ 488. Such a device for storing control programs well-known. Shea, 3:1-4, 11:67-12:8; Studor, 8:61-64; *see* Ground 1 Claim 16 (regarding Studor).

**3. Claim 81: network selected from group consisting of LAN, WAN, and Internet**

Clem renders obvious this limitation for the same reasons discussed regarding Claim 57. Ground 2 Limitations 49[b]-[c], Claim 57; Houh ¶¶ 607-610, 634.

**4. Claim 82: exercise mechanism includes actuators to vary operating parameters**

Clem discloses this limitation. Houh ¶¶ 382-385, 409, 635-637. The treadmill in Clem includes a “plurality of resistance mechanisms” (“*actuators*”) including a “grade-adjustment mechanism” and “speed-varying mechanism.” Clem, 3:64-66, 4:7-15, 4:34-43.

**5. Claim 83: control means comprises decoder to decode packetized control signal and processor to activate actuators**

Clem renders obvious this limitation. Houh ¶¶ 638-642. First, in response to the control program signal, the microprocessor (“*processor*”) in the controller activate the motors. *See* Ground 2 Limitation 49[c], [e]; Clem, Fig. 3, 5:1-15 (“output signals from the microprocessor 72, interfaced though the output circuitry 76, control the drive motor 16 and incline motor 36”).

Though not explicit, a POSITA would have understood the controller in Clem is or includes a decoder for decoding the control program data, which is a digital signal sent from the website, to provide control signals for controlling the motors, which usually require variable current or voltage. Without a decoder, Clem would not be able to control the motors directly using the control program data. Houh ¶ 640.

**6. Claim 84: communication system comprises storage devices, control signal generator, control processor**

Clem in view of Hickman renders obvious this limitation. Houh ¶¶ 643-655. First, Clem discloses a website (“*communication system*”) that “can store a plurality of control programs” (“*second signals*”). Clem, 3:11-14; *see also* Claim 80.

Second, Clem teaches a website (“*control signal generator*”) configured to generate and transmit second signals to the user. Clem, 2:44-48 (“permits the web site 12 to transmit control information to the user location 34”); Ground 2 Limitation 49[c] (describing generation of control signals).

Third, Clem teaches that “[i]n addition to interacting ... with a live fitness expert, a user ... can interactively obtain the control information from a computer located at the web site 12.” Clem, 2:60-63. This “communication can include the uploading and downloading of video and audio information.” Clem, 2:64-65. Clem

discloses the website sending video, audio, and control signals in a synchronized and packetized signal. Ground 2 Limitation 49[c], Claim 52.

A POSITA would have understood the computer at the website in Clem includes the claimed “*control processor*,” which was known, as shown in Studor. Ground 1 Limitation 84[c]; *see also* Ground 2 Claim 52.

Further, Clem in view of Hickman renders obvious this limitation. Hickman teaches a remote computer (“*control processor*”) that can “download new exercise scripts or programs to the local system computer” over the Internet (“*packetized control signal*”). Hickman, Abstract, 2:31-45. The personal trainer provides instructions that can be simultaneous, since the script can include audio telling the user that they are “approaching a hill” and that there will be an “increased resistance” while accompanied by a control signal increasing the resistance. Hickman, 5:6-18, 9:4-15. Implementing Hickman’s computer in Clem’s website would have been an obvious extension of Clem’s teaching to send control data to the treadmill.

## **F. Independent Claim 85**

### **1. Preamble**

To the extent limiting, Clem discloses the preambles. Houh ¶¶ 656-658. Clem teaches a fitness system 10 (“*exercise system*”) with a treadmill interactively coupled with a website. Clem, 2:36-38, 3:64-66.

**2. 85[a]: local system including at least one exercise apparatus to an associated local computer**

Clem discloses this limitation. Houh ¶¶ 659-662. Clem discloses a system at the user's location 34 ( "*local system*," highlighted green) with a treadmill ("*exercise apparatus*") associated to a controller with a microprocessor ("*associated local computer*"), as shown in Figures 1 and 3. Houh ¶¶ 659-661. The controller with the microprocessor is associated with and controls the treadmill. Clem, Fig. 3; Houh ¶¶ 659-661.

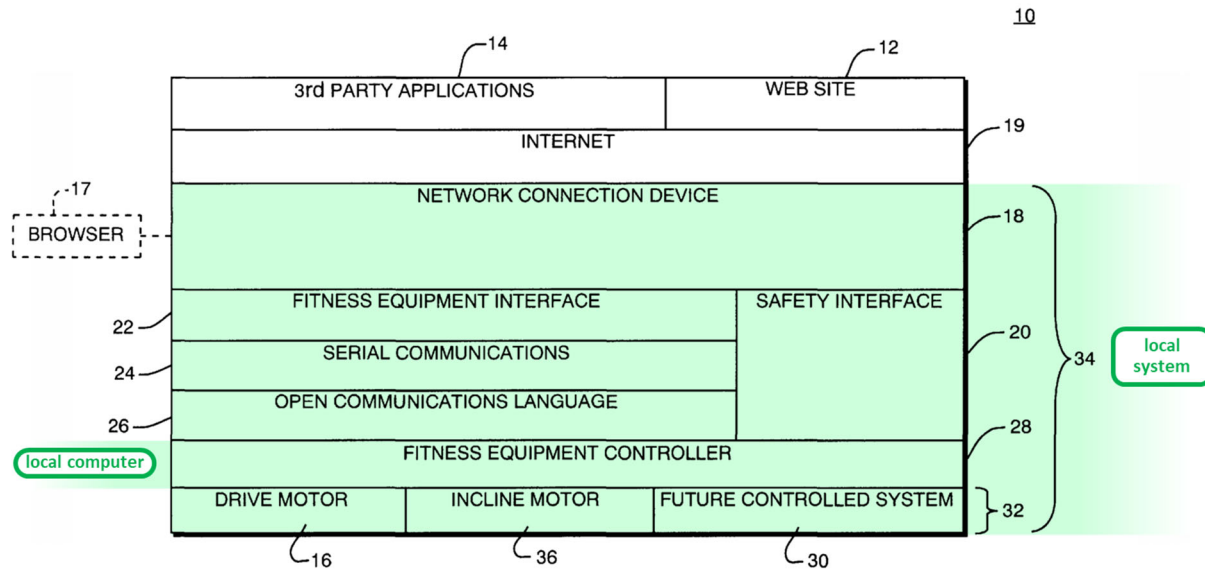


FIG. 1

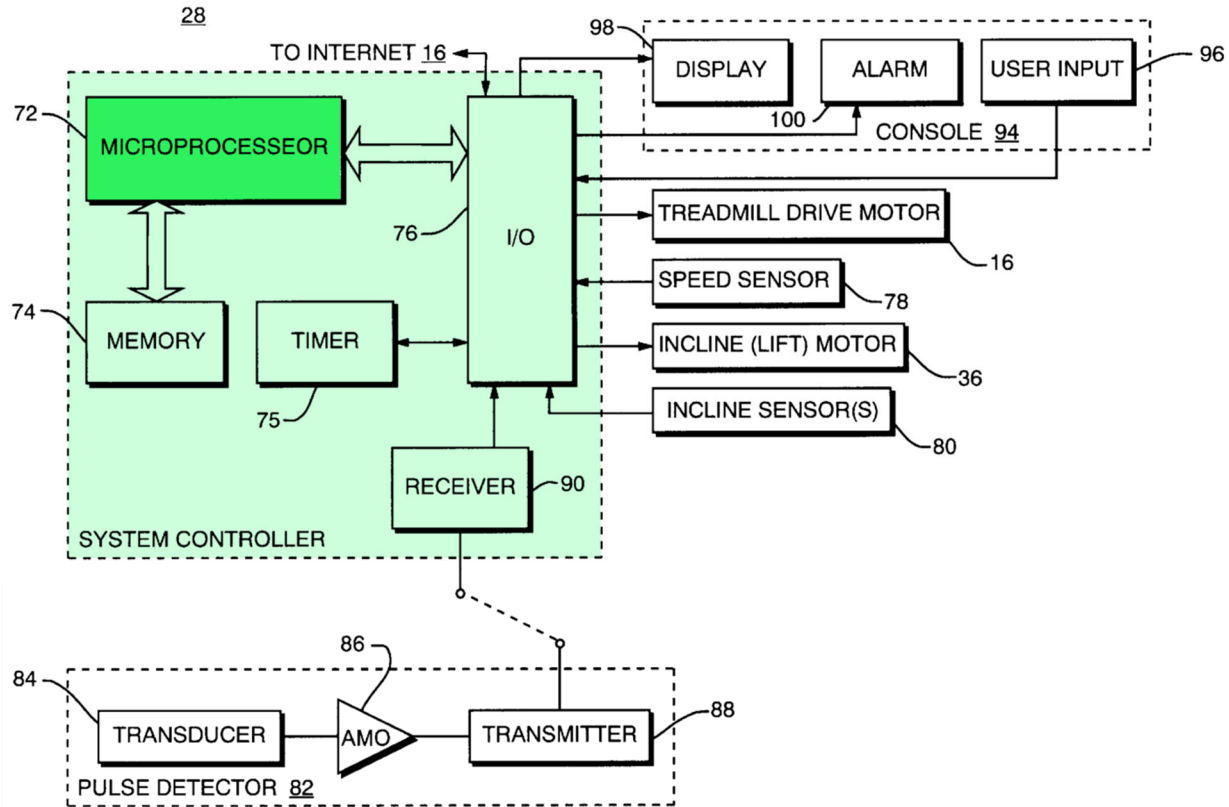


FIG. 3

**Clem, Figs. 1, 3 (annotated)**

**3. 85[b]: remote system including remote computer; and**

Clem renders obvious this limitation. Houh ¶¶ 663-665. Clem teaches “a user of the fitness system 10 at the user location 34 can interactively obtain the control information from a computer [(“remote computer”)] located at the web site 12 [(“remote system”).” Clem, 2:60-65. Clem also discusses that a user can interact on-line with a live fitness expert located at the website. Clem, 2:53-65. A POSITA would have understood that the live fitness expert could communicate through the remote computer with the user at the local system and that the website

is hosted on server computers remote from a user that allow access to the website through the Internet. Houh ¶ 664.

4. **85[c]: communication link for communicating packetized data between the local computer and the remote system, such that the local system may receive remote system data from the remote system, including packetized control signals for controlling operation of the at least one exercise apparatus**

Clem renders obvious this limitation. Houh ¶¶ 666-670. Clem includes an “internet system” (“*communication link*”) for communicating “control information from a computer located at the web site 12” (“*remote system*”) to the user through the controller (“*local computer*”). See Ground 2 Limitations 49[c], 85[a], 85[b]; Clem, Fig. 3 (showing signal (in yellow) from Internet (purple) to controller (in green) to either motors (in pink) or the display in the console (in orange)).

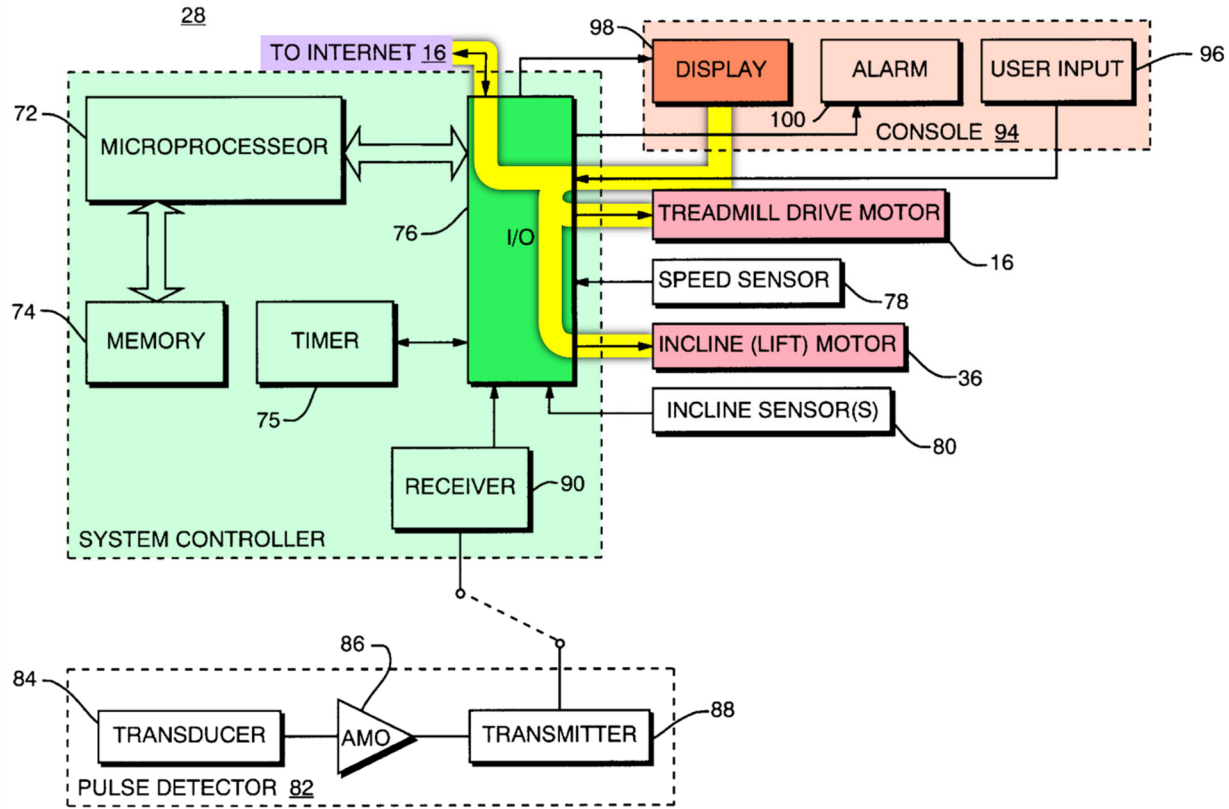


FIG. 3

**Clem, Fig. 3 (annotated)**

The communicated information includes a two way realtime audio/video communication between a live fitness expert at the remote computer and the user. Clem, 2:36-65. This realtime audio/video communication is part of the “*remote system data from the remote system*” sent over the Internet and received by the controller. Clem, 2:36-65. The website can also send control signals to directly control the treadmill (including its motors for controlling grade and/or speed) or can send a control program executed by the controller to control the grade and/or speed of the treadmill. Clem, 2:66-3:7, 3:34-63. Such control signals are also part

of the “*remote system data from the remote system*” and are “*packetized control signals for controlling operation of the at least one exercise apparatus.*” Houh ¶¶ 667-669. Such signals are packetized because they are sent via Internet. Houh ¶ 669 (signals sent over the Internet are packetized); Ex. 1024, 1.

**G. Dependent Claims 87, 89-90, 92-95**

The following claims are unpatentable for the same reasons as claim 85 and as further explained below.

**1. Claim 87: control signals correspond to exercise program**

Clem in view of Hickman renders obvious this limitation. Houh ¶¶ 672-676. Clem teaches sending control information (“*control signals*”) that include “one of a plurality of control programs” (“*exercise program*”) that are selected according to the user location information. Clem, cls. 16-17; *see also id.*, Abstract, 2:15-1, 73:1-7.

Though not explicit, the user downloads the programs (Clem, Abstract, 2:15-17) which a POSITA would have understood to mean the user selects the program. Houh ¶¶ 389, 568-569, 672. Clem itself recognized that it was known how to vary the resistance according to a stored program to achieve target heart rates or increase the resistance of exercise equipment. Clem, 1:29-39.

A POSITA would have been motivated to implement the claimed control signal because having such a control signal corresponding to an exercise program

selected by the user simplifies the actions for the user to perform, as the user does not need to manually adjust resistances to perform a workout according to the workout. Houh ¶¶ 673-675.

Clem in view of Hickman renders obvious this limitation. Houh ¶¶ 674-676. Hickman discloses selection of an exercise program (“*exercise program*”), thus creating a script for the exercise program for the user of the stationary bicycle (“*exercise apparatus*”) to perform. Hickman, 7:38-48, 8:32-46, cl. 1.

**2. Claim 89: remote system remotely controls operation of local computer based on packetized control signals.**

Clem renders obvious this limitation. Houh ¶¶ 677-678. The website (“*remote system*”) in Clem remotely controls the operation of the controller (“*local computer*”) based on packetized control signals. Clem, 2:66-3:7, 5:17-22. The controller receives packetized control signals from the website that control the operation of the controller and the treadmill. Clem, Abstract, 2:66-3:7; *see* Ground 2 Claim 85 (discussion of packetized control signals); Houh ¶¶ 403-407, 677.

**3. Claim 90: input device gathering user signal selected from group consisting of audio and video input devices**

Clem renders obvious this limitation. Houh ¶¶ 679-682. Clem teaches a console with an interactive interface (highlighted orange in Figure 3 below). Clem, Fig. 3 (user input), cl. 23.

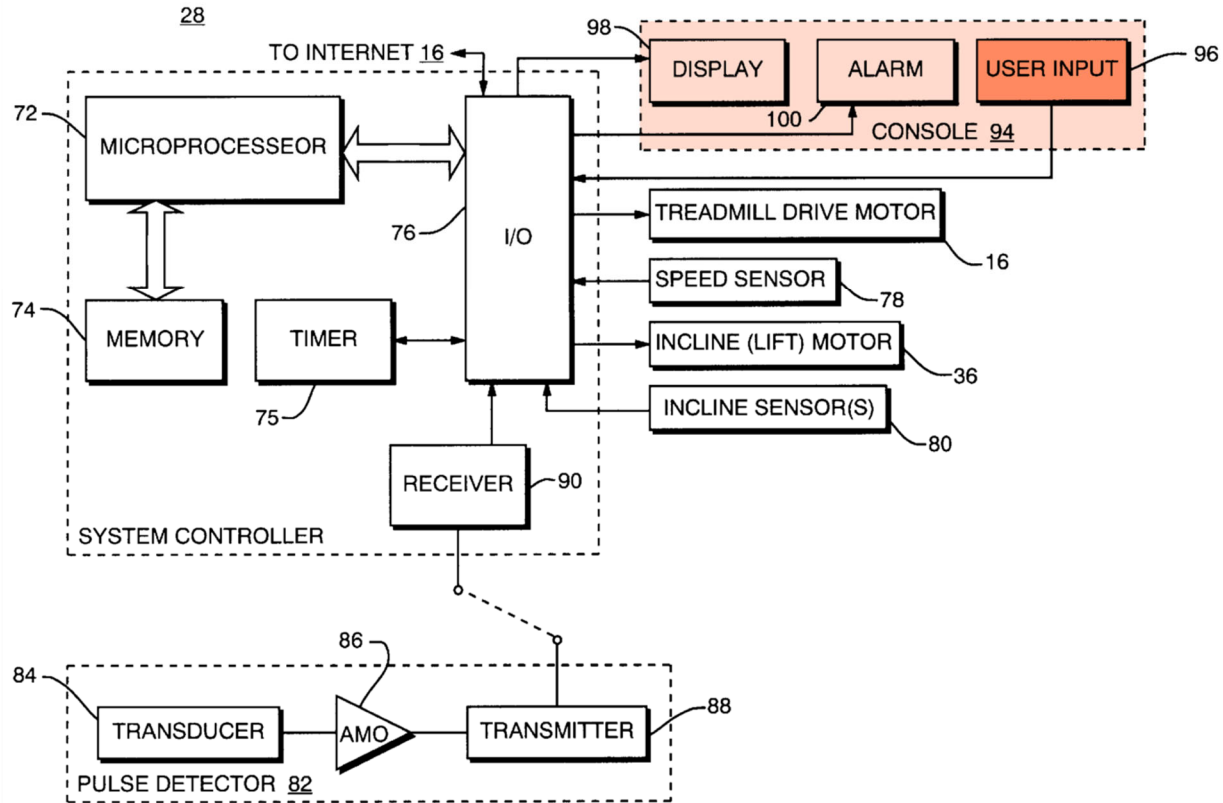


FIG. 3

**Clem, Fig. 3 (annotated)**

Clem allows two way communication between the user and live fitness expert that “can include the uploading and downloading of video and audio information” and can be transmitted “prior to” or “during” an exercise session. Clem, 2:48-57, 2:64-65. To the extent not explicit, a POSITA would have understood that Clem’s user input in the console includes an “audio” and “video” input device because it is the only location for user input described in Clem. Clem, Fig. 3, 2:34-65. Further, having an audio and video input was known. Studor,

15:48-53; French, 10:46-53; Bobick, 15:3-11; Hickman, 5:15-17; Houh ¶¶ 445, 680 (describing claimed input devices).

A POSITA would have been motivated to include audio and video input into the “user input” in Clem because it would allow the trainer to receive video of the user to allow them to advise on the correct form. Rutberg ¶¶ 56-58, 113-116. Including audio and video input devices also allows the trainer to gauge the effort of the user, which a POSITA would use to decide on when to provide encouragement or how to vary the user’s routines. Rutberg ¶¶ 56-58, 113-116.

**4. Claim 92: packetized control signals are synchronized with audio or video signal**

Clem in view of Hickman renders obvious this limitation. Houh ¶¶ 422-432, 683-684. Clem teaches sending packetized signals that can include audio and visual information for two way real time communication and for controlling (directly or indirectly) the speed or incline of the treadmill. Clem, 2:53-3:14; Ground 2 Limitation 85[c].

Though not explicit, a POSITA would have understood that the display of this audio/visual information on the display on the console requires a synchronized audio/video signal with packetized control signals. Clem, 5:16-23. Thus, in sending a control signal through the controller to the display that contains audio/video information, the packetized control signal of the display is synchronized with an audio or video signal. Houh ¶¶ 424-429, 683.

Moreover, in an interaction with a live expert, the live expert would have been able to simultaneously send audio/video information to the user (during the real time two way communication) while also controlling the operating parameters, thus synchronizing the packetized control signal to control the operating parameters with an audio or video signal. Houh ¶¶ 423-430, 683. A POSITA would be motivated to synchronize the signals so that the trainer could provide instructions based on the precise parameters the user was experiencing, for a simulation of a natural environment (to improve user motivation), or making the workout more effective and safe. Rutberg ¶¶ 79-83, 124-126.

Clem in view of Hickman renders obvious this limitation. Houh ¶¶ 431, 683. Hickman includes a “communication tool of a human personal trainer” that can “download new exercise scripts or programs to the local system computer” while also having the remote personal trainer provide vocal instructions or encouragement while the user performs the workout. Hickman, 2:31-45, 5:6-18. Such instructions can be simultaneous, as the script can include audio for telling the user that they are “approaching a hill” and that there will be an “increased resistance” while accompanied by a control signal increasing the resistance. Hickman, 9:4-15; Houh ¶¶ 431, 683. Implementing Hickman’s synchronization into Clem’s real time communication would further the interactive session discussed in both.

**5. Claim 93: communication link comprises network connection**

Clem discloses this limitation. Houh ¶¶ 685-688. Clem discloses an Internet system with a network connection between the network connection device and the website. Clem, Fig. 1, 3:33-46.

**6. Claim 94: sensors for detecting status of exercise apparatus and transmitting data to remote system**

Clem discloses this limitation. Houh ¶¶ 540-542, 689-690. Clem includes a fitness device with both speed and incline sensors (“*one or more sensors*”) that detect data representative of the speed and incline of the treadmill. Clem, 5:24-37. Clem further discloses that this information included in the controller” can be “interactively transmitted between the user location” and “the web site 12 by way of I/O circuitry.” Clem, 5:18-23. Information communicated between the user location to the website is transmitted via the “internet system” (“*communication link*”). Clem, Fig. 3; Ground 2, Limitation 85[c]Houh ¶¶ 668, 689-690.

**7. Claim 95: safety mechanism communicating with and manipulating exercise device when signal interrupted**

Clem renders obvious this limitation. Houh ¶¶ 533-539, 691-692. iFIT has construed a “*safety mechanism*” to encompass an emergency brake. Ex. 1014, 30-31. Consistent with this construction, Clem teaches a safety interface (“*safety mechanism*”) that detects “whether a user falls off or the user heart rate goes too high and shutting the treadmill off.” Clem, 3:27-32.

Though not explicit, a POSITA would have understood that Clem's safety interface could shut off the treadmill when a control signal is shut off, thus manipulating treadmill speed, just like the brake could be pulled when the signal stops as shown in iFIT's own contentions. Houh ¶¶ 534-538, 692.

Further, manipulating the treadmill in Clem if the signal is interrupted was known. A POSITA would have been motivated to manipulate the treadmill upon a control signal interruption because a POSITA would have understood it could be dangerous if the treadmill continued at the same speed indefinitely. Thus, a POSITA implementing Clem would have been motivated to implement the safety interface to shut the treadmill off in the same way it does when it detects whether the user has fallen off or the user's heart rate is too high. Clem, 3:27-32.

Moreover, a POSITA implementing Clem would have determined how to implement the fitness system if the connection to the website is interrupted. Like other network-connected applications, a POSITA implementing Clem would have recognized the benefits of determining whether the signal is only intermittently lost (and thus permit continued movement for a set time until the signal is restored) or lost indefinitely (and thus stop the movement immediately). By addressing these situations, a POSITA would have provided the user with a better experience—the system would not automatically stop or slow down, and then start again every time

the connection is lost and then restored. Houh ¶¶ 536, 692; Rutberg ¶¶ 97-100, 131-133.

## **VII. Secondary Considerations**

Although iFIT has alleged commercial success, copying, and industry praise of its iFIT platform as objective indicia of nonobviousness in the related litigation and IPR2021-00342, iFIT's evidence of nexus is grossly deficient. Specifically, iFIT has provided no evidence that its platform practices the challenged claims. *Club Champion LLC v. True Spec Golf LLC*, IPR2019-01148, Paper 11, 14-15 (Dec. 3, 2019). Regardless, it is iFIT's burden to make such evidence of record in the proceeding; it is insufficient to state that this evidence is merely known to Petitioner. *C.R. Bard, Inc. v. Medline Indus., Inc.*, IPR2019-00208, Paper 21 at 9-10 (June 6, 2019). Should iFIT proffer any evidence in its POPR, Peloton should be given leave to file a reply.

## **VIII. The Board Should Reach the Merits of This Petition**

The Board should decide whether to institute based on the merits. Petitioner also reserves the right to seek a reply to the POPR to address discretionary arguments raised therein.

### **A. Institution is warranted under *Advanced Bionics***

“At bottom, [the § 325(d)] framework reflects a commitment to defer to previous Office evaluations of the evidence of record unless material error is shown.” *Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GMBH*,

IPR2019-01469, Paper 6 at 9 (Feb. 13, 2020) (precedential).

Here, the Office did not substantively review Studor and Clem. Applicant iFIT buried these references in IDS forms filed after allowance, listing nearly 100 references. Ex. 1002, 92. The Examiner issued another notice of allowance soon after without meaningful mention of either. *Id.*, 86-94.

Buried, the Examiner materially erred by “misapprehending or overlooking specific teachings of [Studor and Clem].” *Advanced Bionics* at 8 n.9. In particular, Studor and Clem each teach the “packetized control signal [that] is received from a remote source” that iFIT argued, and the Examiner agreed, is missing from Hickman ’537. Ex. 1002, 159. The Examiner never considered Hickman ’537 (or Hickman)<sup>4</sup> in combination with Clem, as proposed here, particularly with respect to Clem’s teaching of packetized control signals received from a remote source.

Accordingly, the Board should reach the merits of this petition.

**B. Institution is warranted over *General Plastic***

The *General Plastic* factors favor institution, even in view of IPR2021-00342 on claims 29 (disclaimed pre-institution) and 47 of the ’062 Patent. “Our intent in formulating the factors was to take undue inequities and prejudices to

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<sup>4</sup> For the purposes of this petition, Hickman and Hickman ’537 are substantively the same. However, Hickman has an earlier filing date.

Patent Owner into account.” *General Plastic Indus. Co. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 15-16 (Sept. 6, 2017) (precedential). Here, denial would not be equitable, particularly given iFIT’s strategic decision to wait nearly 10 months after the complaint was filed to inject 47 new claims into the related litigation.

**Factors 1 and 5 (same petitioner, same claims)** favor institution. This is not a true “follow-on petition” because there is no prior petition on the present challenged claims. *Netflix, Inc. v. Avago Techs. Int’l*, IPR2021-00431, Paper 8 at 3 (June 25, 2021); *Volkswagen Grp. of Am., Inc. v. Carucel Invs, L.P.*, IPR2019-01573, Paper 7 at 6-8 (Jan. 22, 2020). If anything, the staggered petitions are a direct result of iFIT’s own litigation tactics to add new claims to the related litigation one month after the Board instituted review on the first petition.

And to be sure, Peloton did not delay (Factor 5) after learning that iFIT asserted an additional 46 claims of the 96 claims in the ’062 Patent. Peloton expeditiously prepared two petitions covering all 46 claims within roughly two months of receiving Patent Owner’s contentions. Ex. 1014.

**Factors 2 and 4 (knowledge of prior art)** are immaterial. At the time of filing of the first petition, iFIT had only asserted two claims (now one, after iFIT disclaimed independent claim 29) of the 96 claims of the ’062 Patent. Peloton newly asserts Clem in combination with Hickman to address the 46 claims iFIT

just added to the related litigation, not to address the claim subject to the prior petition. Ex. 1014 (asserting the challenged claims for the first time).

**Factor 3 (filing of second petition in relation to POPR and Institution Decision on first petition)** is neutral. With only two claims initially asserted in district court, it would have been a waste of Board and party resources for Peloton to file the first petition on all 96 claims of the '062 Patent. Peloton now files the present petitions only because iFIT just added the challenged claims in district court on August 6, 2021—nearly one month *after* the first petition had already been instituted on July 7, 2021. Ex. 1014. Thus, iFIT made it practically impossible to file the present petitions before the POPR and Institution Decision on the first petition. And iFIT has only itself to blame for any knowledge Peloton gained (with respect to its new challenge of **46 previously unasserted claims**) from the POPR and Institution Decision regarding **just one** previously asserted (but not disclaimed) claim.

**Factors 6 and 7 (finite Board resources and other considerations)** favor institution. The present petition does not constitute a “serial and repetitive attack[]” on the '062 Patent that would “implicate the efficiency concerns underpinning *General Plastic.*” *Valve Corp. v. Elec. Scripting Prods., Inc.*, IPR2019-00062, Paper 11 at 15 (Apr. 2, 2019) (precedential). The opposite, Peloton’s petitions—the first petition on claim 47 filed two months after iFIT asserted that claim and the

present petitions filed two months after iFIT asserted challenged claims—advance the very purpose of the Board to provide an efficient alternative forum that will conserve party and judicial resources.

**C. Institution is warranted over *Fintiv***

It is impossible to meaningfully address the *Fintiv* factors at this early stage of the concurrent litigation in *iFIT Inc. v. Peloton Interactive, Inc.*, No. 1:20-cv-01386-RGA (D. Del. Oct. 15, 2020). Regardless, *Fintiv* should not provide any basis for denial. Trial is currently set for June 12, 2023, after the Board’s final written decision.

**IX. Mandatory Notices under 37 C.F.R. § 42.8**

**A. Real Parties-in-Interest**

The sole real party-in-interest is Petitioner Peloton Interactive, Inc.

**B. Related Matters**

The ’062 Patent is asserted in the following case that may be affected by a decision in this proceeding *iFIT Inc. v. Peloton Interactive, Inc.*, No. 1:20-cv-01386-RGA (D. Del.).

Claim 47 of the ’062 Patent is also subject to *inter partes* review in *Peloton Interactive, Inc. v. ICON Health & Fitness, Inc.*, IPR2021-00342.

Peloton is also concurrently filing another petition for *inter partes* review on claims 1, 3, 4, 5, 8-11, 15-16, 21-23, 26-28, 30, 36, 38, 40, 45-46, 48 of the '062 Patent.

**C. Grounds for Standing**

Petitioner certifies that the '062 Patent is available for *inter partes* review and that Peloton is not barred from requesting this proceeding.

**D. Lead and Backup Counsel and Service Information**

Pursuant to 37 C.F.R. §§ 42.8(b)(3), 42.8(b)(4), and 42.10(a), Peloton designates the following lead counsel:

- Lisa K. Nguyen (Reg. No. 58,018): lisa.nguyen@lw.com; Latham & Watkins LLP, 140 Scott Drive, Menlo Park, CA 94025; 650.470.4848 (Tel.); 650.463.2600 (Fax).

Peloton also designates the following backup counsel:

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Pursuant to 37 C.F.R. § 42.10(b), a Power of Attorney from Peloton is attached. Peloton consents to electronic service.

**E. Fee for *Inter Partes* Review**

The Director is authorized to charge the fee specified by 37 C.F.R. § 42.15(a) to Deposit Account No. 506269.

**X. Conclusion**

For these reasons, Petitioner respectfully requests *inter partes* review of the challenged claims of the '062 Patent.

Respectfully submitted,

Dated: October 13, 2021

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**CLAIM LISTING**

49. An exercise device configured to enable a user to receive workout-related information, comprising:
- (a) an exercise mechanism comprising a movable element for movement in performance of exercise by a user;
  - (b) a user interface device communicating with the exercise mechanism and configured to gather one or more user control signals from the user;
  - (c) a communicating mechanism in communication with the user interface device and adapted to enable transmission of the user control signals to a remote communication system, the communicating mechanism being further adapted to receive a packetized second signal including synchronized control signals from the remote communication system;
  - (d) means for reproducing the second signal; and
  - (e) means, responsive to the synchronized control signals carried by the second signal, for controlling the operating parameters of the exercise mechanism.
50. An exercise device as recited in claim 49, wherein the user interface device comprises one or more manually activated controls configured to generate the user control signals.
52. An exercise device as recited in claim 49 wherein the second signal comprises one or more audio and video signals and the synchronized control signal.
54. An exercise device as recited in claim 49, wherein the communication system receives the one or more audio and video signals and the synchronized control signals from an exercise device of a trainer.
56. An exercise device as recited in claim 49, wherein the exercise device communicates with the communication system via a network.
57. An exercise device as recited in claim 56, wherein the network comprises a network selected from the group consisting of a wide area network, a local area network, a home network, a packetized network, and the Internet.
59. An exercise device as recited in claim 49, wherein the means for reproducing the second signal comprises one or more audio output devices and one or more video output devices.

61. An exercise device as recited in claim 49, wherein the communication system analyses the user control signals and generates the packetized second signals based upon the analysis of the user control signals.

78. An exercise device for enabling one or more users to select and perform an exercise program stored on a communication system, the exercise device comprising:

(a) an exercise mechanism comprising a movable element for movement in performance of exercise by a user, the exercise mechanism being configured to enable a user to exercise in response to an exercise program selected from one or more exercise programs stored on a remote communication system in network communication with the exercise mechanism; and

(b) control means, communicating with the exercise mechanism, for receiving one or more packetized control signals from the remote communication system indicative of the selected exercise program and for changing one or more operating parameters of the exercise mechanism based upon the selected exercise program and the one or more packetized control signals.

79. An exercise device as recited in claim 78, wherein the selected exercise signals comprise at least one audio signal and at least one video signal.

80. An exercise device as recited in claim 78, wherein the communication system comprises one or more storage devices adapted to store the one or more exercise programs.

81. An exercise device as recited in claim 78, wherein the network is selected from the group consisting of a local area network, a wide area network, and the Internet.

82. An exercise device as recited in claim 78, wherein the exercise mechanism includes one or more actuators configured to vary one or more operating parameters of the exercise mechanism.

83. An exercise device as recited in claim 78, wherein the control means comprises at least one decoder configured to decode the one or more packetized control signal and at least one processor configured to activate the one or more actuators in response so the one or more decoded control signals.

84. An exercise device as recited in claim 78, wherein the communication system comprises:

- (a) one or more storage devices adapted to store the one or more audio and video signals;
- (b) a control signal generator configured to generate one or more control signals; and
- (c) a control processor configured to synchronize and packetize the controls signals with the one or more audio and video signals and deliver the packetized control signal to the exercise mechanism.

85. An exercise system comprising:

- (a) a local system including at least one exercise apparatus to an associated local computer;
- (b) a remote system including a least one remote computer; and
- (c) a communication link for communicating packetized data between the local computer and the remote system, such that the local system may receive remote system data from the remote system, including packetized control signals for controlling operation of the at least one exercise apparatus.

87. An exercise system as recited and claim 85, wherein the one or more control signals correspond to an exercise program selected by a user of the least one exercise apparatus.

89. An exercise system as recited in claim 85, wherein the remote system remotely controls an operation of the local computer based upon the packetized control signals.

90. An exercise system as recited in claim 85, further comprising one or more input devices gathering a signal from a user of the at least one exercise apparatus, the one or more input devices being selected from a group consisting of audio and video.

92. An exercise system as recited in claim 85, wherein the packetized control signals are synchronized with at least one of an audio signal or a video signal.

93. An exercise system as recited in claim 85, wherein the communication link comprises a network connection.

94. An exercise system as recited in claim 85, wherein the exercise apparatus comprises one or more sensors for detecting data representative of the status of the

exercise apparatus is configured to transmit the data to the remote system via the communication link.

95. An exercise system as recited in claim 85, further comprising a safety mechanism in communication with the at least one exercise apparatus, the safety mechanism manipulating the at least one exercise apparatus in the event that a packetized control signal is interrupted.

**CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. § 42.24**

I hereby certify that this Petition complies with the word count limitation of 37 C.F.R. § 42.24(a)(1)(i) because the Petition contains a total of 13,967 words, which is the sum of 13,928 words calculated by Microsoft Word's word-count feature and 39 words hand-counted in the figures. This total excludes the cover page, signature block, and the parts of the Petition exempted by 37 C.F.R. § 42.24(a)(1).

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**CERTIFICATE OF SERVICE**

The undersigned certifies that a complete copy of this Petition for *Inter Partes* Review of U.S. Patent No. 7,166,062 and all Exhibits and other documents filed together with this Petition were served on the official correspondence address for the patent shown in PAIR via FEDERAL EXPRESS next business day delivery, on October 13, 2021.

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