

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NAUTILUS, INC.,
Petitioner,

v.

ICON HEALTH & FITNESS INC.,
Patent Owner.

Case IPR2017-01407
Patent 9,616,276 B2

Before GEORGE R. HOSKINS, TIMOTHY J. GOODSON, and
JAMES A. WORTH, *Administrative Patent Judges*.

WORTH, *Administrative Patent Judge*.

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

I. INTRODUCTION

On May 12, 2017, Nautilus, Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–4 and 7–10 (“the challenged claims”) of U.S. Patent No. 9,616,276 B2 (Ex. 1001, “the ’276 patent”) on the following grounds:

References	Basis	Claims challenged
Sawicky ¹ and Wu ²	§ 103(a)	1–4, 10
Sawicky, Wu, and Watson ³	§ 103(a)	7–9
Sawicky and Zhou ⁴	§ 103(a)	1–4, 10
Sawicky, Zhou, and Loach ⁵	§ 103(a)	7–9

ICON Health & Fitness Inc. (“Patent Owner”) did not file a Preliminary Response.

On December 4, 2017, the Board instituted an *inter partes* review. Paper 6 (“Dec.”). We initially instituted review for a subset of the asserted claims and asserted grounds. *See* Dec. 26. Specifically, we determined based on the preliminary record that Petitioner had demonstrated a reasonable likelihood of prevailing in its challenge to claims 1, 2, and 10 as

¹ U.S. Patent No. 5,042,798, iss. Aug. 27, 1991 (Ex. 1011).

² U.S. Patent Application Publication No. 2003/0171192 A1, pub. Sept. 11, 2003 (Ex. 1002).

³ U.S. Patent Application Publication No. 2006/0234840 A1, pub. Oct. 19, 2006 (Ex. 1004).

⁴ U.S. Patent No. 8,517,899 B2, iss. Aug. 27, 2013 (Ex. 1006).

⁵ W.O. Patent Application Publication No. 2007/015096 A2, pub. Feb. 8, 2007 (Ex. 1007).

obvious over Sawicky and Wu; claims 7 and 9 as obvious over Sawicky, Wu, and Watson; claim 8 as obvious over Sawicky, Wu, Watson, and Street⁶; and claims 1, 2, and 10 as obvious over Sawicky and Zhou. *See* Dec. 26. We determined based on the preliminary record that Petitioner had not demonstrated a reasonable likelihood of prevailing in its challenge to claims 3 and 4 as obvious over Sawicky and Wu, nor over Sawicky and Zhou. Dec. 17, 23.

Also on December 4, 2017, we issued a Scheduling Order for the proceeding. Paper 7.

Subsequently on April 27, 2018, pursuant to the holding in *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1355–57 (2018), we issued an Order (Paper 18) modifying our institution decision to institute on all of the challenged claims and all of the grounds presented in the Petition.

After institution of trial, Patent Owner did not file a Patent Owner Response to the Petition. Petitioner did not seek to address further any of the claims or grounds from the Petition added to the proceeding pursuant to SAS.

However, during the proceeding, Patent Owner filed a Motion to Amend (Paper 16, “Mot. Amend”) on March 5, 2018. On May 7, 2018, we issued an Order (Paper 19) authorizing a 10-page extension of the page limit for Petitioner’s opposition to the Motion to Amend and deferred action on a request by Petitioner for authorization for surreplies. On June 4, 2018, Petitioner filed an Opposition to Patent Owner’s Motion to Amend (Paper 20, “Opposition” or “Opp.”). Patent Owner obtained authorization from the

⁶ U.S. Patent No. 4,625,962, iss. Dec. 2, 1986 (Ex. 1008, Appendix V, “Street”).

Board, by email, for a corresponding 10-page extension for Patent Owner's reply thereto. On July 5, 2018, Patent Owner filed a Reply to Petitioner's Opposition to Patent Owner's Motions to Amend (Paper 27, "Motion Reply").⁷

On July 12, 2018, after conferring with the Board, the parties filed a joint stipulation for amending the scheduling order to provide for further briefing by Petitioner. Paper 31. On July 20, 2018, we issued an Order (Paper 34) authorizing Petitioner to file a limited Motion Surreply with the deposition transcript of Dr. Ganaja according to the stipulation of the parties. On August 1, 2018, Petitioner filed a Motion Surreply (Paper 35)⁸ and the deposition transcript of Dr. Ganaja (Ex. 1020).

After a further conference call with the parties on August 3, 2018 held at the request of Patent Owner, we issued an Order (Paper 37) on August 7, 2018, striking portions of the Motion Surreply as contrary to the stipulation of the parties. Paper 37, 3–4. Also pursuant to the Order, Patent Owner filed a list of purportedly improper arguments in the Motion Surreply on August 8, 2018. Paper 38.

On August 10, 2018, Patent Owner filed a Motion to Exclude Evidence (Paper 41, "Mot. Excl."). On August 21, 2018, Petitioner filed an Opposition to Patent Owner's Motion to Exclude (Paper 43). On August 22,

⁷ Patent Owner filed a separate Motion to Amend in each of Cases IPR2017-01407 and -1408, in each case proposing substitute claims numbered 21 and 22. Petitioner filed the same Opposition and Patent Owner filed the same Motion Reply in each of IPR2017-01407 and -1408. We have written separate opinions in order to avoid confusion, e.g., because the proposed substitute claims in IPR2017-01407 and -1408 have overlapping numbering.

⁸ Petitioner's Motion Surreply applies to both IPR2017-01407 and -1408.

2018, Patent Owner filed a Reply to Petitioner's Opposition to Patent Owner's Motion to Exclude (Paper 45).

On August 29, 2018, the Board held a single oral hearing covering IPR2017-01407, IPR2017-01408, and IPR2017-01363, a transcript of which has been entered in the record. Paper 49 ("Tr.").

We have authority under 35 U.S.C. § 6(c). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 2, and 7–10 of the '276 patent are unpatentable. The motion to amend is denied.

A. Related Proceedings

The parties state that there are no related district court proceedings. Pet. 2; *see also* Paper 3, 1. The parties note as related IPR2017-01408, which also challenges the '276 patent. Pet. 2–3; Paper 3, 1. In addition, Petitioner identifies as related for case management purposes IPR2017-01363. *Id.*

*B. The '276 Patent (Ex. 1001)*⁹

The '276 patent issued from the '088 Application¹⁰, which is a continuation of the '793 Application¹¹, which was based on '007 Provisional Application¹². Ex. 1001, [21], [60], [63]; Ex. 1009, 3.

The '276 patent is titled “Strength Training Apparatus With Flywheel and Related Methods” and relates to “strength training equipment including a flywheel and to related methods.” Ex. 1001, [54], 1:15–17.

The '276 patent describes a difficulty in integrating aerobic and anaerobic activities, i.e., it is more difficult to track or calculate calories burned when doing strength training exercises. *Id.* at 1:56–63. The '276 patent discloses a strength-training device that may include a cable and pulley system, a flywheel with a magnetic brake to provide resistance, and a torque sensor. *See id.* at 2:20–34. The flywheel may be combined with a drive mechanism and a one-way clutch that exerts a force on the flywheel in one direction when a user pulls a cable. *Id.* at 2:53–67. The device of the '276 patent may also include a console in communication with the magnetic brake to adjust the resistance and to display the amount of work performed. *Id.* at 2:39–52.

⁹ Petitioner has averred relation of the '276 patent back to a (pre-AIA) provisional application in satisfaction of the certification requirement of 37 C.F.R. § 42.104(a). *See* Pet. 5.

¹⁰ U.S. Patent Application No. 15/019,088, filed Feb. 9, 2016 (Ex. 1009, 1–36, “the '088 Application”).

¹¹ U.S. Patent Application No. 14/213,793, filed Mar. 14, 2014 (Ex. 2005, Ex. 2006 (drawings), “the '793 Application”).

¹² U.S. Provisional Patent Application No. 61/786,007, filed Mar. 14, 2013 (Ex. 2003, Ex. 2004 (drawings); *see also* Ex. 1010, “the '007 Provisional Application”).

An embodiment of the device of the '276 patent is depicted below:

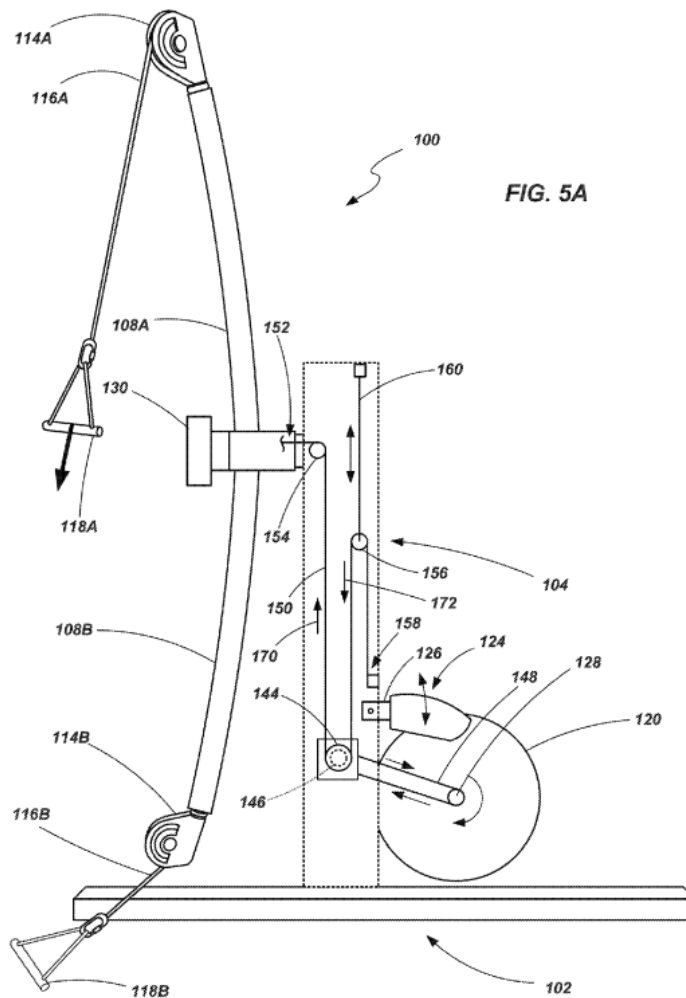


Figure 5A depicts a view of the strength training apparatus. *Id.* at 4:14–17. In particular, Figure 5A depicts displacement of handle 118A due to application of force by an individual during exercise. *Id.* at 6:37–41. Handle 118A is connected to cable 116A, which wraps around pulley 114A. *See id.* at 4:52–54.

Displacement of the handle 118A results in displacement of associated cable 116A and, ultimately, displacement of drive chain 150. *Id.* at 6:42–44. As indicated in Figure 5A, a first portion of drive chain 150 is

displaced upwards towards first sprocket 154 as indicated by directional arrow 170 while a second portion of drive chain 150 is displaced downwards away from second sprocket 156 and towards input shaft 144 as indicated by directional arrow 172. *Id.* at 6:44–49. This displacement of the drive chain also includes the downward displacement of second sprocket 156 against the force of biasing members 160 as seen in both Figures 5A and 5B. *Id.* at 6:49–53. The displacement of drive chain 150 results in the rotation of input shaft 144, actuating drive mechanism 140 such that drive belt 148 drives flywheel 120. *Id.* at 6:53–56.

In one example, input device 132 (depicted in Figure 1) of control panel 130 may be used to set a desired resistance level that is to be applied to flywheel 120 by controlling an actuating member associated with braking mechanism 124. *Id.* at 5:52–55. Output device 134 (e.g., a display) may indicate the current or selected level of resistance. *Id.* at 5:55–57, Fig. 1. Output device 134 of control panel 130 may also provide an indication of the amount of work performed within a period of time calculated, for example, based on the torque applied to flywheel 120 as measured by torque sensor 128. *Id.* at 5:57–61.

C. Illustrative Claim

Claim 1, reproduced below, is the sole independent challenged claim in this proceeding and is illustrative of the subject matter:

1. A strength training apparatus, comprising:
 - a base member;
 - a tower structure coupled to the base member;
 - at least one arm coupled to the tower structure;
 - a pulley being coupled to the at least one arm;
 - a cable extending through the pulley;
 - a handle coupled to a first end of the cable;
 - a flywheel connected to the tower structure;

a magnetic braking mechanism that resists movement of the flywheel; and
a console in communication with the magnetic braking mechanism;
wherein displacement of the handle results in rotation of the flywheel.

Ex. 1001, 8:23–36.

II. ANALYSIS OF GROUNDS ASSERTED IN PETITION

A. Claim Construction

In this *inter partes* review, filed May 12, 2017, a claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears. 37 C.F.R. § 42.100(b) (2016); *see also* *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142 (2016) (affirming that USPTO has statutory authority to construe claims according to 37 C.F.R. § 42.100(b)). Under that standard, and absent any special definitions, we give claim terms their ordinary and customary meaning, as would be understood by one of ordinary skill in the art at the time of the invention. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definitions for claim terms must be set forth with reasonable clarity, deliberateness, and precision. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Petitioner requests construction of the following terms: “sprocket” (claims 3, 4); “in communication with” (claims 1, 3); “biasing member” (claims 2, 3); and “connected to/fixed to” (claims 1, 3, 10). Pet. 7–10. Patent Owner does not request construction of any terms. In our Decision on Institution, we set forth preliminary constructions of the four terms identified by Petitioner. Neither party has contested the constructions set

forth in the Decision on Institution. After considering all evidence and arguments anew, we determine that it is proper to maintain the constructions, which we discuss as follows.

1. “*sprocket*” (claims 3, 4)

Petitioner proposes that the broadest reasonable interpretation of “sprocket” is “a cylindrical element upon which a chain, cable, rope, or belt can be guided.” Pet. 7. Petitioner argues that the Specification teaches that pulleys and sprockets are interchangeable based on the statement in the Specification that “drive chain 150 extends through several pulleys or sprockets.” *See id.* at 7–8 (citing Ex. 1001, 6:23–24). Petitioner also relies on Dr. Rawls for the understanding that the ’276 patent must allow for structures that work with cables, chains, belts, ropes, or other pulling elements. *Id.* at 8 (citing Ex. 1008 ¶¶ 90–91). In other words, Petitioner argues that the ’276 patent makes use of cables which work with pulleys.

In the Decision on Institution, we set forth the preliminary construction of “sprocket” to mean “a wheel with teeth.” Dec. 8. We reasoned that “[t]he plain and ordinary meaning of sprocket as a wheel with teeth is consistent with the usage in the Specification and the claims, which differentiates sprockets from pulleys.” *Id.* (citing Ex. 1001, 4:50–58, 6:17–27; Ex. 3001).

Although there may be areas of functional overlap between a sprocket and a pulley, the parties appeared to be in agreement that a sprocket has teeth, that a pulley does not have teeth, and Petitioner indicated that it did not contest the preliminary construction of “sprocket” set forth in the Decision on Institution. *See* Tr. 49:1–8, 76:1–20.

After considering all evidence and arguments anew, we determine that it is proper to maintain our construction of sprocket from institution as “a wheel with teeth.” See Ex. 3001.

2. *“in communication with” (claims 1, 3)*

Petitioner asserts that the broadest reasonable interpretation of “in communication with” is “direct or indirect connection to, or exchange.” Pet. 8 (citing Ex. 1008 ¶ 94).

In the Decision on Institution, we set forth the preliminary construction of “in communication with” to mean “in direct or indirect connection to.” Dec. 9.

After considering all evidence and arguments anew, we determine that it is proper to maintain our construction of “in communication with” to mean “in direct or indirect connection to.”

3. *“biasing member” (claims 2, 3)*

Petitioner asserts that the broadest reasonable interpretation of “biasing member” is a “component that applies force to machine elements toward their original positions.” Pet. 8–9 (citing Ex. 1008 ¶ 92).

In the Decision on Institution, we set forth the preliminary construction of “biasing member” to mean a “component that applies force to machine elements toward their original positions.” Dec. 9.

After considering all evidence and arguments anew, we determine that it is proper to maintain our construction of “in communication with” to mean a “component that applies force to machine elements toward their original positions.”

4. “connected to/fixed to” (claims 1, 3, 10)

Petitioner asserts that the broadest reasonable interpretation of “connected to/fixed to” is “attached directly or indirectly via intermediate components.” Pet. 9–10 (citing Ex. 1008 ¶¶ 95–96).

In the Decision on Institution, we set forth the preliminary construction of “connected to/fixed to” to mean “in direct or indirect connection to.” Dec. 10.

After considering all evidence and arguments anew, we determine that it is proper to maintain our construction of “connected to/fixed to” to mean “in direct or indirect connection to.”

B. Principles of Law

To prevail in its challenges to the patentability of the claims, Petitioner must prove unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3)

the level of skill in the art; and (4) objective evidence of nonobviousness.
Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17–18 (1966).

*C. Obviousness of Claims 1–4 and 10 over Sawicky (Ex. 1011)
and Wu (Ex. 1002)*

Petitioner contends that claims 1–4 and 10 are unpatentable as obvious over Sawicky and Wu. Pet. 24–42.

1. Overview of Sawicky

Sawicky is titled “Upper Body Aerobic Training Machine” and relates to a multipurpose aerobic training machine that is of compact design and lightweight construction. See Ex. 1011, [54], 1:8–12. Sawicky describes a machine that is operated in the vertical mode and the user’s upper body muscles are involved in pulling downwardly from overhead and continuing the movement to press down from the waist. *Id.* at 1:42–46. Sawicky’s machine makes use of a freewheel that is operatively connected to the grip bar by an assembly of lines and pulleys so that the freewheel is rotated as the grip bar is pulled down. *Id.* at 2:28–32. The rate of rotation and consequently the rate of energy expense are in direct proportion to the rate of downward travel of the grip bar. *Id.* at 2:32–35. Figures 1 and 2 of Sawicky are reproduced below:

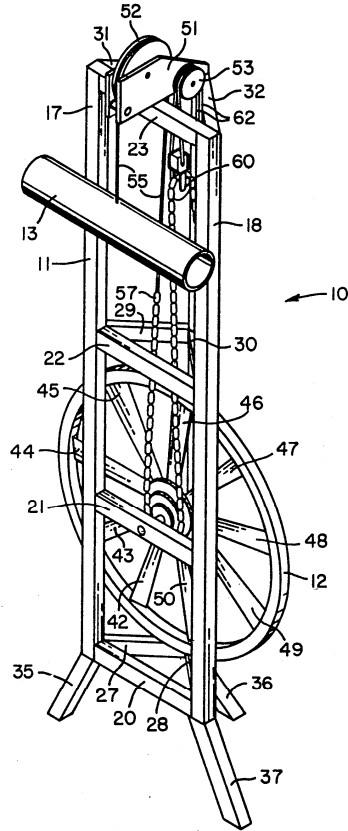


FIG. 1

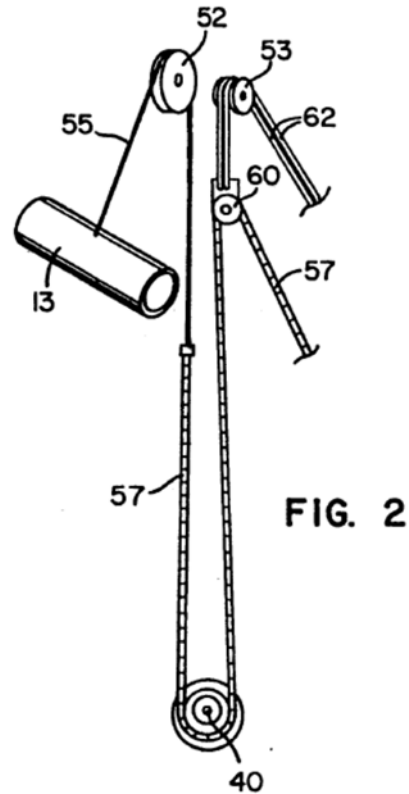


FIG. 2

Figure 1 of Sawicky depicts a perspective view in elevation of a machine with a tripod base and an assembly at the top. *Id.* at 2:62–64. Figure 2 is a fragmentary view that depicts the line and pulley combination apart from the frame. *Id.* at 2:65–68.

Sawicky identifies item 60 as a floating pulley which is kept in tension by elastic cord 62. *Id.* at 3:52–58. Sawicky additionally identifies item 52 as a pulley. *Id.* at 3:41. However, Sawicky discloses a sprocket, item 58, associated with freewheel axle 40, depicted in Figure 3 below (*id.* at 3:49–54):

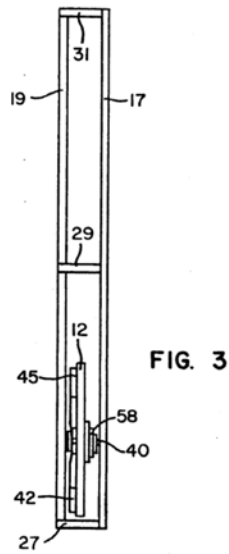


Figure 3 depicts a fragmentary side elevation view of Sawicky's machine.
Id. at 3:1–3.

2. Overview of Wu

Wu is titled “Weight Lifting Exerciser” and relates to an exerciser using a non-friction magnetic resistance device to create a proper exercise resistance. Ex. 1002, [54], ¶ 2. Wu discloses that the machine utilizes a flywheel that travels unidirectionally and that resistance force will not be created in the return direction of the pulling elements. *Id.* ¶¶ 1, 7, 13. A preferred embodiment is depicted in Figure 1 below:

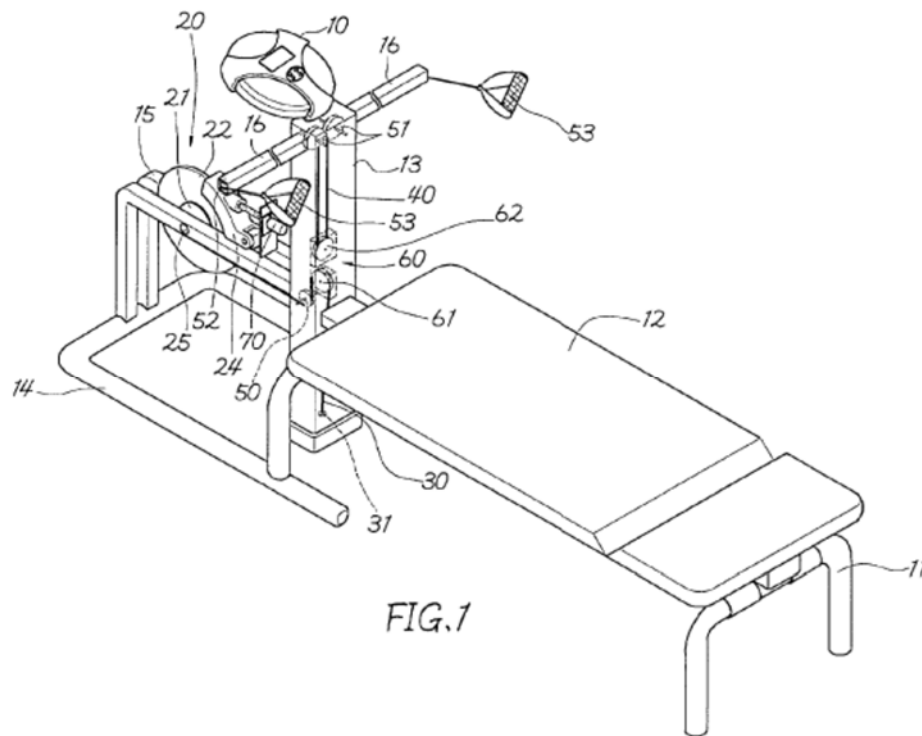


Figure 1 depicts a perspective view of a preferred embodiment. *Id.* ¶ 9.

Electronic element 70 drives magnet set 24 to adjust the clearance between unidirectional flywheel 22 and magnet set 24 so as to obtain an expected exercise resistance. *Id.* ¶ 13.

3. Analysis

In its Petition, Petitioner sets forth its contentions as to how the limitations of claims 1–4 and 10 are disclosed in, or obvious over, the combination of Sawicky and Wu. Pet. 21–22, 24–42. As noted above, Patent Owner did not file a Patent Owner Response. Thus, the record contains only Petitioner’s contentions and evidence and no responsive evidence or argument from Patent Owner.

a. Independent claim 1

i. “a base member” and “a tower structure coupled to the base member”

Petitioner asserts, *inter alia*, that Sawicky discloses a base and a tower coupled thereto. Pet. 25–26 (citing, e.g., Ex. 1011, Abstract, 4:39–55, 2:15–19, 3:12–14, 3:26–29, claim 5, claim 7, Fig. 1; Ex. 1008 ¶¶ 170–173). We find that Sawicky discloses these limitations. In particular, Sawicky discloses a base with several legs attached to a tower-like frame. Ex. 1011, 2:15–19, 3:12–14, Fig. 1.

ii. “at least one arm coupled to the tower structure,” “a pulley being coupled to at least one arm,” “a cable extending through the pulley,” and “a handle coupled to a first end of the cable”

Petitioner asserts, *inter alia*, that Sawicky discloses an arm coupled to the tower, a pulley coupled to the arm, a cable extending through the pulley, and a handle coupled to the cable. Pet. 27–31 (citing, e.g., Ex. 1011, 3:37–39, 3:46–54, Figs. 1–2; Ex. 1008 ¶ 174–182). We find that Sawicky discloses a tower and an arm coupled to a pulley with a cable and handle, as recited. In particular, Sawicky discloses “a bolt-on subassembly including an open box-like frame 51,” coupled to the top of the tower, which accommodates pulley 52 with accompanying cable 55 for grip bar 13. Ex. 1011, 3:38–48, Fig. 1.

iii. “a flywheel connected to the tower structure”

Petitioner asserts, *inter alia*, that Sawicky discloses a fly wheel mounted on rear strut 19 of the tower-like frame. Pet. 31–32 (citing, e.g., Ex. 1011, 3:30–36, Fig. 3; Ex. 1008 ¶ 184). We find that Sawicky discloses a flywheel connected to a tower, as recited. In particular, Sawicky discloses freewheel 12 having axle 40, mounted between tie bar 23 and rear strut 19 where it is journaled in bearings. Ex. 1011, 3:30–36, Fig. 3.

iv. preamble, “a magnetic braking mechanism that resists movement of the flywheel,” and “a console in communication with the magnetic braking mechanism”

Petitioner asserts, *inter alia*, that Wu discloses a strength training apparatus with a magnetic braking system and a console in communication therewith. Pet. 25, 33–35 (citing, e.g., Ex. 1002, Title, Abstract, ¶ 13; Ex. 1008 ¶¶ 170, 186–189). We find that Wu discloses the recited limitations. In particular, Wu discloses a weight lifting exerciser with magnetic resistance 24 and console 10. Ex. 1002 ¶¶ 13, 19. Wu further discloses that resistance on the device is adjustable. *Id.* Wu discloses that electronic adjustment element 70 is utilized to drive magnet set 24 for adjusting the clearance between magnet set 24 and flywheel 22 to obtain an expected exercise resistance. *Id.* ¶ 13. Wu discloses that a user can set a heartrate on the console such that if there is insufficient or excess heartrate, the console will command electronic adjustment element 70 to adjust the resistance. *Id.* ¶ 19. Although setting a heartrate is not a direct way to adjust resistance, the claim does not require more than communication between the console and the magnetic braking mechanism, which is present.

Petitioner contends that a person of ordinary skill in the art would have modified the apparatus of Sawicky with the magnetic resistance taught by Wu, *inter alia*, in order to reduce the size of the flywheel. Pet. 22 (citing Ex. 1008 ¶¶ 149–150). On the basis of the evidence, we are persuaded that a person of ordinary skill would have sought to modify the apparatus of Sawicky by adding a magnetic resistance to reduce the size of the apparatus, to more precisely alter the resistance level, and to maintain a constant or

varied resistance. *See* Ex. 1008 ¶ 149. This is in keeping with a stated goal of Sawicky to provide a compact apparatus. *See* Ex. 1011, 1:11.¹³

v. “*wherein the displacement of the handle results in rotation of the flywheel*”

Petitioner asserts, *inter alia*, that Sawicky’s device possesses the functionality recited in the “wherein” clause. Pet. 36 (citing, e.g., Ex. 1011, 1:43–47, 2:38–32, 3:57–4:5; Ex. 1008 ¶ 192). We find that Sawicky discloses the recited rotation. In particular, Sawicky describes that the freewheel is rotated as the grip bar is pulled down from the topmost position. Ex. 1011, 2:38–32.

vi. *Summary*

We determine that Sawicky and Wu disclose the limitations of independent claim 1 and that it would have been obvious to a person of ordinary skill to combine Sawicky and Wu. Accordingly, we determine that independent claim 1 is obvious over Sawicky and Wu.

b. *claims 2 and 10*

Claim 2 depends from claim 1 and further recites “a biasing member that returns the handle without causing rotation of the flywheel.” Ex. 1001, 8:37–39. Petitioner asserts that Sawicky’s elastic cord 62 is a biasing member. Pet. 36–37. Petitioner argues that a person of ordinary skill in the art would understand that when a single pull cable or chain is fixed to a frame on one end, when the cable or chain is routed over a displaceable

¹³ Although Patent Owner did not file a Patent Owner Response, Patent Owner included some arguments in its Reply in support of its Motion to Amend regarding the rationale for the combination of Sawicky and Wu, which we address below in the context in which they were made. *See* § III.F.1.d.iii., *infra*.

pulley or sprocket connected to a tension cord or biasing member, and when a user has pulled a handle on the other end of the cable or chain, the biasing member will cause the handle to retract when a user releases her pulling force. *See id.* (citing Ex. 1011, 3:45–4:5, Fig. 2; Ex. 1008 ¶¶ 195–196).

We find Sawicky discloses the “biasing member” limitation of claim 2. In particular, Sawicky discloses that elastic cord 62 is attached to floating pulley 60 and anchored to stringer 19; that elastic cord 62 supplies constant tension for roller chain 57; that when a user pulls on grip bar 13, floating pulley 60 is forced downward; and that when the user pulling force ceases, elastic cord 62 provides tension on chain 57, cable 55, and grip bar 13 to return them to their starting position. *See* Ex. 1011, 3:50–4:5, Fig. 2; Ex. 1008 ¶¶ 195–196.

Petitioner asserts that the retraction of the handle does not cause rotation of Sawicky’s flywheel because it is a “freewheel,” which a person of ordinary skill would understand to have a unidirectional clutch. Pet. 38 (citing Ex. 1008 ¶¶ 195–197). We credit, as consistent with other evidence of record, the testimony of Dr. Rawls that a person of ordinary skill would understand that Sawicky’s freewheel 12 has a unidirectional clutch that does not cause rotation when the handle retracts. Ex. 1008 ¶¶ 110, 196; Ex. 1011, 3:30–35, 3:60 (discussing freewheel 12); *see* Ex. 1007, 3:1–3 (freewheel mechanism of Loach).

Claim 10 depends from claim 1 and further recites “wherein the cable includes a second end that is fixed to the tower structure.” Ex. 1001, 8:61–63. Petitioner asserts that Sawicky discloses that its single line of cable 55 and chain 57 is attached directly to an anchor point on stringer 19 (which is part of the upright tower structure). Pet. 41 (citing Ex. 1011, 3:35–55, Figs.

1–3). We find that Sawicky discloses this limitation. In particular, roller chain 57 has an anchor point on stringer 19, which is the rear strut of the tower. Ex. 1011, 3:18–32, 3:50–54, Fig. 3.

We have determined with respect to claim 1 that a person of ordinary skill would have combined Sawicky and Wu. We, therefore, determine that claims 2 and 10 are obvious over Sawicky and Wu.

c. claims 3 and 4

Claim 3 depends from claim 2 and further recites “wherein the biasing member is in communication with a sprocket, and the cable extends through the sprocket.” Ex. 1001, 8:40–42. Claim 4 depends from claim 3, and further recites “wherein the sprocket is displaceable relative to the tower structure when the handle is pulled.” *Id.* at 8:43–45.

For the “sprocket” of claims 3 and 4, Petitioner relies on Sawicky’s floating pulley 60, which is in communication with elastic cord 62 (i.e., the biasing member). Pet. 38–39 (citing Ex. 1011, 3:34–60, Fig. 2; Ex. 1008 ¶ 198). Applying the above claim construction of “sprocket,” we determine that Petitioner has not made an adequate showing that floating pulley 60 is a “sprocket.” We note that Sawicky differentiates between sprockets and pulleys. Ex. 1011, 3:52–54.

Petitioner further suggests that the use of a sprocket, i.e., in conjunction with a biasing member, instead of a pulley would have been an obvious design choice (citing Ex. 1008 ¶¶ 198–200) and that the ’276 patent indicates that a cable may be used instead of drive chain 150 (citing Ex. 1001, 6:17–20). *See* Pet. 39. Petitioner’s reliance on the teachings of the ’276 patent is misplaced because “[t]he inventor’s own path itself never leads to a conclusion of obviousness; that is hindsight.” *Otsuka Pharm. Co.*,

Ltd. v. Sandoz, Inc., 678 F.3d 1280, 1296 (Fed. Cir. 2012). Neither the Petition nor the Rawls Declaration provide adequate reasoning to distinguish this argument from a hindsight analysis based on the Specification of the '276 patent. See *Cutsforth, Inc. v. MotivePower, Inc.*, 636 Fed. Appx. 575 (Fed. Cir. 2016) (concluding that design choice in itself constituted conclusory reasoning) (citing *In re Sang–Su Lee*, 277 F.3d 1338 (Fed. Cir. 2002); *In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000); *In re Rouffet*, 149 F.3d 1350, 1359 (Fed. Cir. 1998)).¹⁴ Accordingly, we determine that Petitioner has not demonstrated that the combination of Sawicky and Wu renders obvious claims 3 and 4.

D. Obviousness of Claims 7–9 over Sawicky, Wu, and Watson

Petitioner contends that claims 7–9 are unpatentable as obvious over Sawicky, Wu, and Watson. Pet. 22–23, 42–46.

1. Overview of Watson

Watson is titled “Closed Loop Control of Resistance in a Resistance-Type Exercise System” and relates to an exercise device or system that incorporates a rotating member for resisting input forces by a user, and a resistance control arrangement in such a system. See Ex. 1004, [54], ¶ 2. Watson discloses that the rotating member may be the wheel of a bicycle. *Id.* ¶ 10. Figure 5 of Watson is depicted below:

¹⁴ Although we are *not* persuaded by Petitioner’s proffered rationale for replacing *a pulley with a sprocket* (without reference to the Specification of the '276 patent), elsewhere we are persuaded by Petitioner’s proffered rationale for replacing *a sprocket with a pulley* in order to make a lighter machine. See § III.F.d.iii.; see also Tr. 76:17–20.

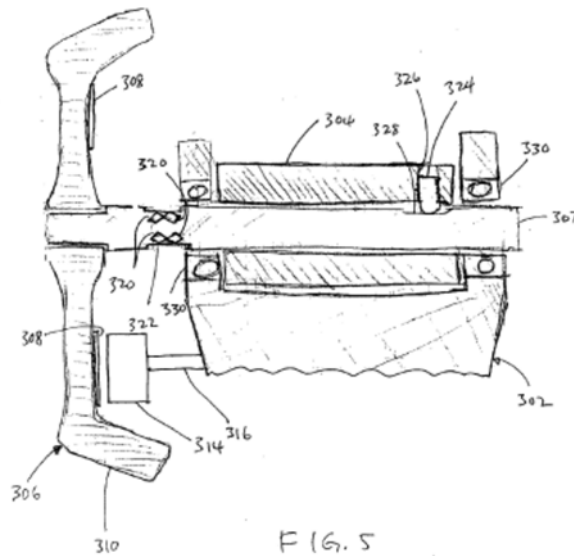


Figure 5 of Watson is a partial longitudinal view of the resistance unit.
Id. ¶ 20.

Figure 5 depicts an embodiment with a rotational torque sensor, which may be in the form of strain gauges 320, which rotate with shaft 307. *Id.* ¶ 43. Watson discloses that the rotational torque sensor is used to determine the degree of resistance to rotation of flywheel 306 by magnet assembly 312. *Id.*

2. Analysis

a. claim 7

Claim 7 depends from claim 1 and further recites “a torque sensor proximate the flywheel.” Ex. 1001, 8:52–53. Petitioner asserts that Watson discloses the recited torque sensor. Pet. 42–43 (citing Ex. 1004 ¶¶ 43, 62; Ex. 1008 ¶ 205). We find that Watson discloses a torque sensor proximate a flywheel. In particular, Watson discloses strain gauges 320, which Figure 5 depicts to be proximate to flywheel 306. See Ex. 1004 ¶ 43, Fig. 5. Petitioner contends that it would have been obvious to a person of ordinary skill to have further modified the apparatus of Sawicky (as modified by Wu)

with Watson’s sensor to sense torque and to generate user performance data which has long been demanded in the industry. Pet. 22 (citing Ex. 1008 ¶¶ 56–71, 151). We are persuaded that a person of ordinary skill would have been motivated to combine the teachings of Watson with those of Sawicky and Wu to generate user data and to better control the resistance apparatus. See Ex. 1008 ¶ 151. Accordingly, we determine that claim 7 is obvious over Sawicky, Wu, and Watson.

b. claim 8

Claim 8 depends from claim 7 and further recites “wherein the console is configured to provide an indication of an amount of work upon rotation of the flywheel.” Ex. 1001, 8:54–56. Petitioner relies on the teaching in Watson that a console may display an amount of power. Pet. 43–44 (citing, e.g., Ex. 1004 ¶¶ 30–32, 51, 62, 64, 66; Ex. 1008 ¶¶ 206–207).

The Petition asserted a ground based on Sawicky, Wu, and Watson. *Id.* Petitioner’s Declarant additionally relied on Street. Ex. 1008 ¶ 61 (*cited in id.* ¶ 207). We stated in the Decision on Institution that we understood the ground to be based on Sawicky, Wu, Watson, and Street. Dec. 19–20. Subsequently, we modified the Decision on Institution pursuant to SAS to proceed on the basis of all claims and all grounds in the Petition. Paper 18 (citing *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348 (2018)).

The Decision on Institution cited as authority *SightSound Techs., LLC v. Apple Inc.*, 809 F.3d 1307, 1312–13 (Fed. Cir. 2015), with a parenthetical for the proposition that governing statutory provisions do not limit the Board’s authority to proceed with AIA trial proceedings only on the specific statutory grounds alleged in the Petition. Dec. 19–20. We recognize that

SAS has modified the Board’s practice on institution. We, therefore, begin our analysis anew, recognizing that Street is not part of the Petition though it remains evidence of record, and is referred to in the Rawls Declaration.

In the Petition, Petitioner relies on the description in Watson of reporting power. Pet. 43–44 (citing Ex. 1004 ¶¶ 30–32, 51, 62, 64, 66). Watson discloses that a user may adjust power (Ex. 1004 ¶ 64) and that a display can report power (*id.* ¶ 66). The Petition asserts that a person of ordinary skill would understand that the power displayed is the work done in unit time and that measuring the power is one well-known way to measure and display the amount of work being done. Pet. 44 (citing Ex. 1008 ¶¶ 206–207). We interpret Petitioner’s argument that the conversion of work to power is “well-known” as an argument based on “common knowledge.” The Office Trial Practice Guide provides for reliance on “common knowledge” for a limitation in a ground based on obviousness where it is undisputed that it is common knowledge and it is supported by the evidence of record. The Office Trial Practice Guide Update (“Update”) (August 2018) at 5 (discussing *K/S Himpp v. Hear-Wear Techs., LLC*, 751 F.3d 1362, 1365 (Fed. Cir. 2014)).¹⁵ Here, it is undisputed that it is common

¹⁵ The Office Trial Practice Guide Update (“Update”) (August 2018) provides:

[A] petitioner asserting anticipation cannot rely on its expert to supply disclosure of a claim element that is not expressly or inherently present in the reference. Similarly, in an obviousness analysis, conclusory assertions from a third party about general knowledge in the art cannot, without supporting evidence of record, supply a limitation that is not

knowledge that “calories” are a measure of work performed, that power is work in a period of time, and that power can be converted to work, e.g., after a period of exercise. *See* Ex. 1008 ¶¶ 61, 206–207. Petitioner’s assertion that power may be converted to work is supported by the evidence of record in the form of the Rawls Declaration and Street, cited therein. Mr. Rawls explains that power over a period of time can be converted to work. *Id.* Mr. Rawls persuasively indicates that a user of the exercise machine would have been interested in the number of calories burned (work performed) to monitor aspects of the user’s workout. *See id.* ¶¶ 56, 61, 207. For these reasons, we determine that Petitioner has satisfied its burden, and has established that claim 8 is obvious over Sawicky, Wu, and Watson.

c. claim 9

Claim 9 depends from claim 7 and further recites “wherein the console further includes an input for selecting an amount of resistance applied by the magnetic braking mechanism to the flywheel.” Ex. 1001, 8:57–60. Petitioner asserts that Wu and Watson both disclose an electronic console in communication with a resistance mechanism and it would have been obvious to include a console on Sawicky’s machine. Pet. 45 (citing Ex. 1002 ¶¶ 13, 19; Ex. 1004 ¶¶ 30–32, 51, 62, 66; Ex. 1008 ¶ 208). Petitioner asserts that Wu discloses an electronic resistance adjusting element for adjusting the clearance between a unidirectional flywheel and a magnet set

evidently and indisputably within the common knowledge of those skilled in the art. *K/S Himpp v. Hear-Wear Techs., LLC*, 751 F.3d 1362, 1365 (Fed. Cir. 2014). Update 5.

so as to obtain an expected exercise resistance. Pet. 45 (citing Ex. 1002, claims 5, 7). Petitioner asserts that a person of ordinary skill would understand that the electronic resistance adjusting element could be accessed through a console, and that Watson also discloses multiple examples of how a user can directly or indirectly control the level of resistance of a variety of braking mechanisms from a console or computer. Pet. 45 (citing, e.g., Ex. 1008 ¶ 208; Ex. 1004 ¶ 51). Petitioner argues that a person of ordinary skill would have been strongly motivated to include this functionality in a combination of Sawicky and Wu because the market has long demanded as much, the functionality was long known to be used in the field, and its implementation requires only the use of known elements that produce predictable results. Pet. 46 (citing Ex. 1008 ¶¶ 209–210).

We find that Wu discloses a mechanism for electronic adjustment of a magnetic braking mechanism (Ex. 1002 ¶ 13, claims 5, 7), that Wu discloses a console (*id.* ¶ 13, Fig. 1), and that Wu discloses automatically adjusting the braking mechanism via the console in response to a change in heartbeat (*id.* ¶ 19). Watson discloses that a user can adjust braking with the console. Ex. 1004 ¶ 51. Viewing the evidence as a whole, we are persuaded by Petitioner that it would have been obvious to modify Sawicky's exercise device to use a magnetic braking mechanism, as taught by Wu, such that a user can adjust the braking using a console, as taught by Watson. Although the invocation of consumer demand could in certain circumstances be conclusory, we credit the testimony of Mr. Rawls that consumers would have been interested in this functionality in order to use an electronic interface to accomplish adjustment, i.e., for ease of use with a common interface, and as the use of known elements to produce predictable results. See Ex. 1008 ¶¶ 208–209;

KSR, 550 U.S. 347, 419 (2007) (use of known elements in predictable manner is likely obvious); *Hynix Semiconductor Inc. v. Rambus Inc.*, 645 F.3d 1336 (Fed. Cir. 2011) (pointing out that “in *KSR*, 550 U.S. at 419, 127 S. Ct. 1727, the Supreme Court noted that “market demand” is a legitimate consideration in determining obviousness”). We conclude that a person of ordinary skill would have sought to use a magnetic brake to better control the resistance apparatus, and the use of a console would facilitate this adjustment. Accordingly, we determine that claim 9 is obvious over Sawicky, Wu, and Watson.

E. Obviousness of Claims 1–4 and 10 over Sawicky and Zhou (Ex. 1006)

Petitioner contends that claims 1–4 and 10 are unpatentable as obvious over Sawicky and Zhou. Pet. 23–24, 46–62.

1. Overview of Zhou

Zhou is titled “Ergometer for Ski Training” and relates to exercise machines, and more particularly, to a ski training apparatus that provides equal resistance to either one of a user’s arms when moved individually or to both arms moving in unison. Ex. 1006, at [54], 1:13–17. According to Zhou, “[n]o matter which handle is pulled and without regard to the order in which the handles are pulled, there is always a smooth resistance force applied to the handle.” *Id.* at 8:44–47. Figure 2 of Zhou is depicted below:

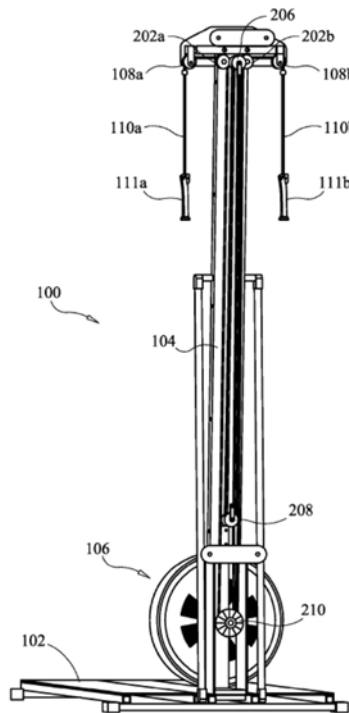


FIG. 2

Figure 2 of Zhou is an “elevation rear view of a ski-movement-simulation ergometer assembly” *Id.* at 4:65–67.

First and second handles 111a and 111b, when gripped by a user, can be used in an individual manner to cause movement of first and second cables 110a and 110b, which in turn, causes the resistance-producing assembly 106 to apply resistance. *Id.* at 6:55–61. The resistance producing assembly can utilize air, magnets, friction, water, oil, pistons, hydraulics, and other means. *Id.* at 9:56–10:22, 11:21–23.

2. Analysis

a. claim 1

The ground based on Sawicky and Zhou relies on similar evidence as the ground based on Sawicky and Wu, with Petitioner relying on Zhou instead of Wu for the preamble, the magnetic braking mechanism and the

console in communication therewith. Pet. 55–56 (citing Ex. 1006, 11:19–23, 14:29–31, Fig. 31; Ex. 1008 ¶¶ 226–227, 229).

With respect to the preamble, Dr. Rawls avers that Zhou discloses a strength training device. Ex. 1008 ¶ 211; Ex. 1011, Abstract, 1:39–47, 4:39–55.

With respect to the magnetic braking system, we find that Zhou discloses that magnets may be used to supply resistance. Ex. 1006, 11:21–23.

Petitioner, relying on the Rawls Declaration, reasons that a person of ordinary skill in the art would have combined the teachings of Sawicky and Zhou because they disclose structurally similar machines and utilize compatible components with interchangeable teachings, it would enhance user experience, and it would provide features and functionality demanded by the market. Pet. 23–24 (citing Ex. 1008 ¶¶ 44–71, 153, 155). The cited portions of the Rawls Declaration explain the functionalities of a magnetic brake. We determine that a person of ordinary skill would have sought to combine the teachings of Sawicky with those of Zhou. In particular, Mr. Rawls explains the benefits of using a magnetic braking system with a flywheel, e.g., to enable a more compact design. Ex. 1008 ¶ 48.

Petitioner also relies on Zhou for the limitation of “a console in communication with the magnetic braking system.” We find that Zhou discloses that a work-measurement device 3100, as shown in Figure 31, receives feedback from resistance producing assembly 106. Ex. 1006, 14:31–35. Petitioner asserts that work-measurement device 3100 is a work measurement and display device, which is a type of console, and that a person of ordinary skill would have been motivated to combine the

electronic system with the Sawicky machine because the use of electronics to track and measure exercise use was well-known and would have been a predictable improvement to Sawicky. Ex. 1008 ¶¶ 229–230. We credit the testimony of Mr. Rawls as consistent with the evidence of record. See Ex. 1006, 14:29–64, Fig. 31. We are persuaded by Petitioner that a person of ordinary skill would have included Zhou’s work-measurement device 3100, along with Zhou’s magnetic braking system, in Sawicky’s device in order to track and measure exercise use. See Ex. 1008 ¶¶ 229–230.¹⁶

Accordingly, we determine that independent claim 1 is obvious over Sawicky and Zhou.

b. claims 2, 3, 4, and 10

The ground based on Sawicky and Zhou relies on similar evidence as the ground based on Sawicky and Wu. Petitioner relies on Sawicky for the further recitations of claims 2 and 10, which we have already found Sawicky to disclose. See *supra* §§ II.C.3.b., II.C.3.c; Pet. 59–59, 61–62.

Accordingly, we determine that claims 2 and 10 are obvious over the combination of Sawicky and Zhou, for similar reasons as for independent claim 1. See *supra* §§ II.C.3.b., II.E.2.a.

Petitioner also relies on Sawicky for the further recitations of claims 3 and 4. See Pet. 59–61. However, we determine that Petitioner has not shown that claims 3 and 4 are obvious over the combination of Sawicky and Zhou, for similar reasons as the combination of Sawicky and Wu, i.e.,

¹⁶ Although Patent Owner did not file a Patent Owner Response, Patent Owner included some arguments in its Reply in support of its Motion to Amend regarding the rationale for the combination of Zhou and Sawicky, which we address below in the context in which they were made. See § III.F.2.d.iii., *infra*.

Petitioner has not proffered adequate reasoning for replacing a pulley with a sprocket in this context. See Pet. 60–61; § II.C.3.c.

F. Obviousness of Claims 7–9 over Sawicky, Zhou, and Loach

Petitioner contends that claims 7–9 are unpatentable as obvious over Sawicky, Zhou, and Loach. Pet. 24, 62–64.

1. Overview of Loach

Loach is titled “Exercise Machine” and relates to exercise machines for performing short duration resistance exercises as well as aerobic endurance exercises. Ex. 1007, [54], 1:1–4. Loach further addresses the need for exercise equipment that can be easily transported and stowed in small spaces. *Id.* at 1:4–6. Figure 1 of Loach is depicted below:

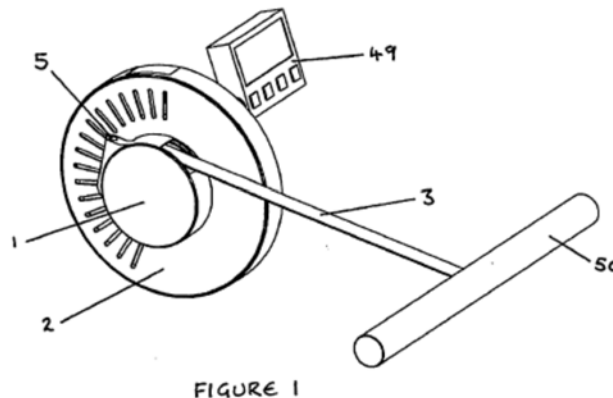


Figure 1 of Loach illustrates an exercise machine incorporating a resistance unit according to the invention. *Id.* at 8:2–3.

Drum unit 1 contains a coil of cable 3. *Id.* at 8:24. The drum unit may be fixed to brake unit 2 such that drum 6 (not shown) may rotate while the housing of the drum unit is fixed. *Id.* at 8:24–26. Handle 3 may be fitted to the end of the cable. *Id.* at 8:26.

2. Analysis

Petitioner asserts that Zhou and Loach disclose the “torque sensor” limitation of claim 7 as follows:

A POSITA would understand that in order to provide that functionality, Zhou would include a torque sensor proximate the flywheel. [Rawls ¶ 240 and Ex. 1006, 14:29–31.]

However, to the extent a more explicit disclosure is needed, Loach discloses a compatible torque sensing device for use with a rotating member and magnetic resistance mechanism. Ex. 1007 at 4, 12, 15, Fig. 9. Loach’s device provides torque data T, to its electronics. *Id.* at 15. Because both are systems that measure energy related to a rotating member, adding Loach’s torque sensor to the combined Sawick[y] and Zhou machine is a simple and obvious modification that provides predictable results. Rawls ¶ 241.

Pet. 62–63 (emphasis omitted). We determine that Petitioner has not provided sufficient evidence that Zhou discloses a torque sensor. Further, we determine that Petitioner has not adequately explained the nature of the proposed combination of Sawicky, Zhou, and Loach. *See* 37 C.F.R. § 42.104(b)(3), (4). In other words, Petitioner has not explained with adequate specificity how the components are proposed to be combined to teach the invention of claim 7. *See* Pet. 24.

We, therefore, determine that Petitioner has not demonstrated that claim 7, and claims 8 and 9 depending therefrom, are obvious over the combination of Sawicky, Zhou, and Loach.

III. PATENT OWNER’S MOTION TO AMEND

Patent Owner’s motion to amend is contingent on a finding of unpatentability of claims 1 and 2 by the Board. Mot. Amend 1. Because we conclude that Petitioner has demonstrated that claims 1 and 2 are unpatentable (among other claims), we proceed to consider Patent Owner’s

motion to substitute claims 21 and 22 for claims 1 and 2. For the reasons discussed below, Patent Owner's motion to amend is denied. In particular, we determine that substitute claims 21 and 22 lack adequate written description support. We also determine that claims 21 and 22 would have been obvious over the combination of Wu, Sawicky, Watt, Dalebout, and Hope.

A. Threshold Requirements

In an *inter partes* review, claims may be added as part of a proposed motion to amend. 35 U.S.C. § 316(d).

The parties dispute the allocation of burdens, with Patent Owner arguing that Petitioner bears the burden of proving unpatentability and a lack of written description, as it would for indefiniteness. *See* Mot. Amend 1–2 (citing *Bosch Automotive Service Solutions, LLC v. Matal*, 878 F.3d 1027 (Fed. Cir. 2017)).

The Board must assess the patentability of the proposed substitute claims “without placing the burden of persuasion on the patent owner.” *Aqua Prods., Inc. v. Matal*, 872 F.3d 1290, 1328 (Fed. Cir. 2017) (en banc). Patent Owner's proposed substitute claims, however, must still meet the statutory requirements of 35 U.S.C. § 316(d) and the procedural requirements of 37 C.F.R. § 42.121 as a threshold matter. *See* “Guidance on Motions to Amend in view of *Aqua Products*” (2017), available at https://www.uspto.gov/sites/default/files/documents/guidance_on_motions_to_amend_11_2017.pdf. Accordingly, Patent Owner must demonstrate: (1) the amendment proposes a reasonable number of substitute claims; (2) the amendment does not seek to enlarge the scope of the claims of the patent or introduce new subject matter; (3) the amendment responds to a ground of

unpatentability involved in the trial; and (4) the original disclosure sets forth written description support for each proposed claim. *See* 35 U.S.C.

§ 316(d)(1)(B),(3); 37 C.F.R. § 42.121; *Hospira, Inc. v. Genentech, Inc.*, Case IPR2017-00737, slip op. at 47 (PTAB Oct. 3, 2018) (Paper 108).¹⁷

B. Proposed Substitute Claims 21 and 22

Proposed substitute claims 21 and 22 are reproduced below with markings showing proposed changes from claims 1 and 2, respectively. Deletions are shown in brackets and additions are underlined.

Claim 21 (substitute for original claim 1): A strength training apparatus, comprising:

- a base member;
- a tower structure coupled to the base member;
- at least one arm coupled to the tower structure;
- a pulley being coupled to the at least one arm;
- a cable extending through the pulley;
- a handle coupled to a first end of the cable;
- a flywheel connected to the tower structure;

a magnetic braking mechanism that resists movement of the flywheel by applying a level of resistance to rotation of the flywheel, the magnetic braking mechanism including an arm having means for providing a magnetic flux through which the flywheel rotates, the arm configured to pivot, relative to the flywheel, to alter the level of resistance applied to rotation of the flywheel; [and]

a console in communication with the magnetic braking mechanism, the console configured to calculate an amount of power expended by a user pulling on the handle during a workout routine, the console further including means for input and means for output, the means for input configured to allow the user to select the level of resistance applied to rotation of the flywheel

¹⁷ In our view, the allocation of the burden on this issue is not outcome determinative on the facts of this case, for the reasons discussed in more detail in Section III.D.3., *infra*.

by the magnetic braking mechanism, the means for output configured to provide an indication of the selected level of resistance, the means for output further configured to provide an indication of the calculated amount of power expended by the user, the console further configured to communicate via radio with a portable computing device;

an application program configured to be loaded on the portable computing device, the application program configured to:

receive and store a physical fitness goal that may be achieved using the strength training apparatus, the stored physical fitness goal inputted by the user via an interface provided by the portable computing device;

track progress of the user toward completing the stored physical fitness goal;

indicate to the user the progress of the user toward completing the stored physical fitness goal;

determine whether the user has achieved the stored physical fitness goal;

indicate to the user that the user has achieved the stored physical fitness goal when it is determined that the stored physical fitness goal has been achieved;

display a customized workout routine for the user to perform with the strength training apparatus, the customized workout routine providing instructions to the user relating to the customized workout routine;

display videos on the portable computing device that demonstrate how to use the strength training apparatus;

display text on the portable computing device that instructs how to use the strength training apparatus; and

store information regarding past workout routines performed by the user on the strength training apparatus;

a second pulley rotatable about a second axis that is fixed relative to the tower structure;

a third pulley rotatable about a third axis that is displaceable relative to the tower structure; and

a drive cable coupled to the cable and that extends through the second pulley and through the third pulley and that includes

an end that is coupled to a fixed location with respect to the tower structure;

wherein displacement of the handle results in displacement of the cable, rotation of the pulley, displacement of the drive cable, rotation of the second pulley, rotation of the flywheel, rotation of the third pulley, and displacement of the third axis of the third pulley relative to the tower structure.

Claim 22 (substitute for original claim 2): The strength training apparatus of claim [1] 21, further including a biasing member, wherein:

the biasing member is coupled to the third pulley and includes an end that is coupled to a fixed location with respect to the tower structure;

the biasing member is configured to allow the third axis of the third pulley to be displaced vertically downward relative to the tower structure;

the biasing member is configured to pull the third axis of the third pulley to vertically return upward relative to the tower structure;

the drive cable is configured such that the user pulling on the handle causes the drive cable to drive the flywheel to rotate and causes the drive cable to vertically displace the third axis of the third pulley downward relative to the tower structure; and

the biasing member is configured such that the user releasing the handle, after pulling thereon, pulls the third axis of the third pulley to vertically return upward relative to the tower structure and pulls on the drive cable which [that] returns the handle without causing rotation of the flywheel.

Mot. Amend 5–20; Ex. 2002, 1–4.

C. Claim Construction

We construe only those terms that are in controversy, and only to the extent necessary to resolve the controversy. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). Claim 21 makes use

of “means” language in reciting the following limitations: (1) “means for providing magnetic flux”; (2) “means for input”; and (3) “means for output.”

Patent Owner asserts that these claim limitations fall under 35 U.S.C. § 112 ¶ 6. Motion Reply 9. Patent Owner argues that Petitioner failed to construe these claims. *See id.* at 9–11. Petitioner, in its Motion Surreply, states:

And importantly, ICON does not propose constructions and does not contest, other than the “means for output” element, that the prior art teaches limitations 21i and 21j. This is likely because the “means for” limitations are extraordinarily simple: “means for input” clearly corresponds to buttons, switches, or dials, “means for output” at least to displays, and “means for providing a magnetic flux” to magnets.

Motion Surreply 9. We construe these terms as follows.

The use of the term “means” in a claim creates a rebuttable presumption that it falls within 35 U.S.C. § 112 ¶ 6, and conversely a claim that lacks “means” language bears a presumption that it does not fall within 35 U.S.C. § 112 ¶ 6. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (en banc). If a claim does not recite structure for a recited function, then it is considered to fall under 35 U.S.C. § 112 ¶ 6. *Id.*

1. “means for providing a magnetic flux”

Claim 21 recites, in pertinent part, “a magnetic braking mechanism that resists movement of the flywheel by applying a level of resistance to rotation of the flywheel, the magnetic braking mechanism including an arm having means for providing a magnetic flux through which the flywheel rotates, the arm configured to pivot, relative to the flywheel, to alter the level of resistance applied to rotation of the flywheel.” Mot. Amend 8.

The recited function is providing a magnetic flux.

We then consider what if any structures are in the claim that perform the recited function. There is no evidence that a “means for providing a magnetic flux” is itself a term of art that has a structure known in the art. The “means for providing a magnetic flux” is recited as part of an arm, which is in turn included in the magnetic braking mechanism. We determine that the recited arm is not intended, by itself, to perform the recited function. Accordingly, we determine that there is no structure in the claim that performs the recited function, and the “means for providing a magnetic flux” falls under 35 U.S.C. § 112 ¶ 6.

Patent Owner refers to the disclosure of a plurality of magnets providing magnetic flux, which are part of arm 126, which in turn is part of magnetic braking mechanism 124 in the Specification. Mot. Amend 7 (citing ’088/’793/’007 Applications FIGS. 2–3, elements 124, 126, and 120; ’088/’793 Applications ¶¶ 46–47; ’007 Application ¶¶ 37–38). We determine that the plurality of magnets recited in the Specification provides the corresponding structure that performs the recited function.¹⁸

¹⁸ We note that the limitation “magnetic braking mechanism” is a limitation that is also found in the original claims, that the parties have not argued that the “magnetic braking mechanism” itself falls under 35 U.S.C. § 112 ¶ 6, and we have not construed the “magnetic braking mechanism” of the original claims to fall under 35 U.S.C. § 112 ¶ 6. Rather, we have treated it as an instance of functional claiming that might make use of any type of magnet, and have applied it in this manner above. We further note that the proposed claim amendment recites further structure of a pivoting arm, which supports the notion that, even as amended, the recitation of a “magnetic braking mechanism” itself does not fall under 35 U.S.C. § 112 ¶ 6.

Nevertheless, we determine that the additional recitation of a “means for providing a magnetic flux,” as part of the arm of the magnetic braking

2. “*means for input*”

Claim 21 recites, in pertinent part, “[a console having] means for input [and means for output], the means for input configured to allow the user to select the level of resistance applied to rotation of the flywheel by the magnetic braking mechanism.”

The claim thus recites a function of an input to allow the user to select the level of resistance applied to rotation of the flywheel by the magnetic braking mechanism. There is no evidence of record that “means” or “means for input” is a term of art with a known structure, by itself or in this context. We thus determine that the claim does not provide any cognizable structure for the recited function. Accordingly, we determine that “means for input” falls under 35 U.S.C. § 112 ¶ 6.

Patent Owner relies on input device 132 in the Specification as providing written description support for the added limitation. Mot. Amend 8–9 (citing, e.g., ’088/’793 Applications ¶¶ 50–51, Figs. 1–2; ’007 Application ¶¶ 41–42, Figs. 1–2). According to the Specification, input device 132 is part of the control panel 130, may be used to set a desired resistance level, and is described as including buttons, switches, or dials. Ex. 1001, 5:40–43 (“e.g., buttons, switches, or dials”), 5:51–55. We determine that buttons, switches, or dials in a control panel provide the corresponding structure that performs the recited function. See 35 U.S.C. § 112 ¶ 6.

mechanism, without additional structural recitation refers to the plurality of magnets provided in the Specification of the ’276 patent. Ex. 1001, 5:4–7.

3. “*means for output*”

Claim 21 recites, in pertinent part, “[a console having means for input] and means for output, . . . , the means for output configured to provide an indication of the selected level of resistance, the means for output further configured to provide an indication of the calculated amount of power expended by the user.”

The claim thus recites a function of an output to provide an indication of the selected resistance and of the calculated amount of power expended by the user. We determine that the recited means does not provide any cognizable structure for the recited output function. Accordingly, we determine that “means for output” falls under 35 U.S.C. § 112 ¶ 6.

Patent Owner relies on output device 134 in the Specification as providing written description support for the added limitation. Mot. Amend 9 (citing ’088/’793 Applications ¶¶ 59, 61–62; ’007 Application ¶¶ 50, 52–53). According to the Specification, output devices 134 are part of the control panel 130 and may include LED lights, displays and alarms, and an output device 134 (e.g., a display) is further described as having the ability to indicate the current or selected level of resistance and to provide an indication of the amount of work performed within a period of time calculated, for example, based on the torque applied to the flywheel 120 as measured by the torque sensor 128. See Ex. 1001, 5:43–61. We determine that a display provides the structure corresponding to the recited functions of indicating the selected resistance and amount of work performed.

D. New Matter/Written Description

The parties dispute whether there is written description support for the following aspects of claim 21: (1) configuration with three pulleys, one of which is displaceable, and a drive cable and (2) “radio communication.”

1. The Law of Written Description

The written description requirement is contained in 35 U.S.C. § 112 ¶ 1, and reflects the prohibition of 35 U.S.C. § 132 against adding new matter to the claims. The test for sufficiency of written description is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date. *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). Adequacy of written description is a question of fact. *Id.* (citing *Ralston Purina Co. v. Far-Mar-Co, Inc.*, 772 F.2d 1570, 1575 (Fed. Cir. 1985)).

Compliance with the written description requirement will necessarily vary depending on the context, including the nature and scope of the claims, the complexity and predictability of the relevant technology, the existing knowledge in the particular field, the extent and content of the prior art, the maturity of the science or technology, and the predictability of the aspect at issue.” *Id.* (citing *Capon v. Eshhar*, 418 F.3d 1349, 1357–59 (Fed. Cir. 2005)). While the written description requirement does not demand any particular form of disclosure, or that the specification recite the claimed invention *in haec verba*, a description that merely renders the invention obvious does not satisfy the requirement. *Id.* at 1352 (citations omitted).

*2. configuration with three pulleys, one of which is displaceable,
and a drive cable*

Claim 21 recites in pertinent part: “a pulley being coupled to the at least one arm,” “a second pulley rotatable about a second axis that is fixed relative to the tower structure,” and “a third pulley rotatable about a third axis that is displaceable relative to the tower structure.” Mot. Amend 6, 15–16.

The '088 Application provides:

A drive chain 150 (or drive belt or cable or other appropriate structure) has a first end 152 that is coupled to the cables 116A and 116B that extend through pulleys 114A and 114B and either extend through, or adjacent to, the arms 108A and 108B. The drive chain 150 extends through several pulleys or sprockets including, for example, a first sprocket 154, the input shaft 144 (or an associated pulley or sprocket coupled therewith) and a second sprocket 156.

Ex. 1009 ¶ 53; *see also* Ex. 2003 ¶ 53 ('007 Provisional Application); Ex. 2005 ¶ 53 ('793 Application).

Patent Owner asserts that the '088 Application describes elements 114A and 154, which are first and second pulleys. *See* Mot. Amend 6, 15 (citing, e.g., Ex. 1009 ¶¶ 45, 53, Fig. 1). Patent Owner asserts that the '088 Application describes element 156, which it asserts is a sprocket or pulley (a third pulley) and is connected to drive chain 150 and is displaceable. *See* Mot. Amend 16–17 (citing, e.g., Ex. 1009 ¶ 53, Fig. 4A).

Petitioner argues that the specification only describes a specific configuration and that Patent Owner was only in possession of this configuration. Motion Surreply 3. Petitioner argues that the specification refers to items 154 and 156 as sprockets, i.e., “first sprocket 154” and “second sprocket 156,” and argues that the Board’s claim construction

distinguishes between sprockets and pulleys. Opp. 7. Both of these assertions are accurate, i.e., the second sentence of paragraph 53 (quoted above) refers to items 154 and items 156 as “sprocket[s],” and the uncontested claim construction distinguishes between sprockets and pulleys. Ex. 1009 ¶ 53; *see supra* § II.A.1. Patent Owner, however, argues that the use of a sprocket in these positions is illustrative or exemplary, that the same sentence of the specification describes that either sprockets and pulleys can be used, that the previous sentence of the Specification indicates that drive chain 150 (used with a sprocket) can be replaced with a drive cable (i.e., for use with a pulley), and that a person of ordinary skill in the art would have understood from this description that item 156 can be either a sprocket or a pulley. *See* Motion Reply 3–4 (citing, e.g., Ex. 1001, 5:17–14; Ex. 2013, 60:13–62:20). Patent Owner also asserts that Petitioner’s own expert (Mr. Cox) admits that the illustrations of sprocket 154 and sprocket 156 in FIG. 4A look like pulleys. Motion Reply 4 (citing Ex. 2013, 66:23–67:12).

As to Petitioner’s argument regarding the specification’s identification of items 154 and 156 as “first sprocket 154” and “second sprocket 156,” we agree with Patent Owner that the Specification uses introductory language to mark this as an example, i.e., “for example.” Ex. 1009 ¶ 53. Further, the specification’s use of “including” marks this as a non-exclusive example. *See id.*

We are persuaded by Patent Owner that the specification of the ’088 Application contemplates, and describes, that either sprockets or pulleys may be used and that a person of ordinary skill would have understood that this would be the case for any of the three positions. Although there are a number of permutations involved, it would be burdensome for an applicant

for a patent to have to describe each permutation. “[A] sufficient description of a genus instead requires the disclosure of either a representative number of species falling within the scope of the genus or structural features common to the members of the genus so that one of skill in the art can ‘visualize or recognize’ the members of the genus.” *Ariad Pharmaceuticals, Inc.*, 598 F.3d at 1350 (citing *Regents of the University of California v. Eli Lilly & Co.*, 119 F.3d 1559, 1568 (Fed.Cir.1997)). This is not a case in which a patentee has defined a genus functionally nor is this a case where a patentee is attempting to capture a genus of millions of possibilities. Here, the specification describes the genus in structural terms, i.e., the use of pulleys or sprockets, at a limited number of positions, and describes that either may be used. Accordingly, we understand the description in the specification to be adequate written description to indicate to a person of ordinary skill that this type of substitution is acceptable and that the patentee was in possession of the invention at the time of the invention. The testimony of Mr. Ganaja is in accord. See Ex. 2011 ¶¶ 22–28.¹⁹

Accordingly, we determine that the ’088 Application provides adequate written description support for the claimed configuration of pulleys and drive cable, including the use of three pulleys (at items 114A, 154, and 156) and a drive cable. See Ex. 1009 ¶¶ 45, 53, Figs. 1, 4A.

¹⁹ Although we do not treat the concession of Mr. Cox (Ex. 2013, 66:23–67:12) as a party admission binding on Petitioner, we agree that Figure 4A is also in accord with the understanding that pulleys can be used at positions 154 and 156 (see Ex. 1009, Fig. 4A).

3. *“the console further configured to communicate via radio with a portable computing device”*

Patent Owner asserts that when read in context, the disclosure of the '088 Application as a whole would convey to a person of ordinary skill a console configured to communicate via radio, as recited. *See* Mot. Amend 10; Motion Reply 6. Patent Owner relies on the console of the '088 Application and asserts that the Specification incorporates the teaching of radio communication in the '361 Application²⁰, as discussed in more detail below. The parties dispute the extent to which the '088 Application incorporates the '361 Application.

In particular, Patent Owner asserts that the claimed console corresponds to control panel 130 of the '088 Application, that the '088 Application discloses that the control panel may include connection for communication with other devices (Ex. 1009 ¶ 50), and that the '088 Application incorporates the '361 Application in its entirety. Mot. Amend 10 (citing, e.g., Ex. 1009 ¶ 50); Motion Reply 6. Patent Owner asserts that the '361 Application provides that exercise apparatus 102 communicates with other devices, including client computing device 106, which includes a portable computing device. Motion Reply 8 (citing Ex. 2009 ¶¶ 47, 49; Ex. 2012 (Ferraro Decl.) ¶¶ 26–36). Patent Owner asserts that the '361 Application provides that this communication occurs over a “radio communication link,” or “other methods.” *Id.* at 8–9 (citing Ex. 2009 ¶ 47).

Petitioner argues that the incorporation of the '361 Application was insufficient because to properly incorporate a document by reference, the

²⁰ U.S. Patent Application No. 13/754,361, filed Jan. 30, 2013 (Exs. 2009 and 2010 (drawings), “the ‘361 Application”).

host document “must identify with *detailed particularity* what specific material it incorporates and *clearly indicate* where that material is found in the various documents.” Opp. 10–12 (citing *Cook Biotech Inc. v. Acell, Inc.*, 460 F.3d 1365, 1376 (Fed. Cir. 2006); *Zenon Envtl., Inc. v. U.S. Filter Corp.*, 506 F.3d 1370, 1379 (Fed. Cir. 2007); *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1283 (Fed. Cir. 2000); *Wrigley Jr. Co. v. Cadbury Adams USA LLC*, 631 F. Supp. 2d 1010, 1031–32 (N.D. Ill. 2009)). Patent Owner argues that the use of the phrase “in its entirety” indicates full rather than partial incorporation of the ’361 Application. Ex. 2003 ¶ 62; Motion Reply 6–8 (citing *PAICE LLC v. Ford Motor Co.*, 881 F.3d 894 (Fed. Cir. 2018); *Harari v. Lee*, 656 F.3d 1331, 1335 (Fed. Cir. 2011); *Zenon Envtl., Inc.*, 506 F.3d at 1370; Ex. 2013, 76:4–6).

Whether and to what extent material has been incorporated by reference into a host document is a question of law. *Cook Biotech Inc. v. Acell, Inc.*, 460 F.3d 1365, 1376 (Fed. Cir. 2006). We agree with Petitioner that a proper incorporation is based on a clear indication of what is being incorporated, with due respect for the particularity voiced by the applicant. *See, e.g., Zenon Envtl., Inc.*, 506 F.3d at 1379. Nevertheless, we find that that standard is met here. The ’088 Application provides “One example of customizing a work-out that may be utilized in conjunction with the exercise apparatus described herein is set forth in U.S. Patent Application No. 13/754,361, filed on Jan. 30, 2013, the disclosure of which is incorporated by reference herein in its entirety.” Ex. 2003 ¶ 62. We find this to be clear language of incorporation. Although the ’088 Application states that a disclosure is incorporated “in its entirety,” it refers more specifically to one example of the ’361 Application which provides “customizing a work-out”

that may be utilized in conjunction with the exercise apparatus of the '088 Application. *Id.* Further, as a matter of grammar, the antecedent of the “disclosure” being incorporated could be either the application or “one example” that is described in the application. We determine that this case more closely resembles the language at issue in *Zenon* where there was incorporation of material for a specific teaching than in *PAICE*, where there was no qualification as to the extent of the incorporation. *Compare Zenon*, 506 F.3d at 1379, *with PAICE*, 881 F.3d at 907. Accordingly, we determine that the example of “customizing a work-out” in conjunction with the exercise apparatus is expressly incorporated.²¹

In the Detailed Description of the '361 Application, paragraph 46 provides an embodiment whereby a computer may be used with an exercise apparatus to generate a customized workout routine:

[A]n exercise apparatus may include a bar code, a Quick Response (QR) code, an Radio Frequency (RF) tag, etc. that includes information about the apparatus. The computing device may scan the encoded information affixed to the exercise apparatus, and based on the specified goals inputted by the user, the computing device may generate a customized workout routine for that particular exercise apparatus that will assist the user to accomplish his/her physical fitness goals.

Ex. 2009 ¶ 46.

²¹ We note that the '361 Application is titled “Systems and Methods to Generate a Customized Workout Routine.” Thus, regardless of whether the '361 Application is incorporated in its entirety, a significant portion of the '361 Application may be involved. Nevertheless, we focus on paragraphs 46, 47, and 49 of the '361 Application which specifically refer to one or more examples of customizing a workout routine with an exercise apparatus. Ex. 2009 ¶¶ 46, 47, 49.

The paragraph that follows proceeds to provide in more detail, and with reference to Fig. 1, that “client computing device 106 may acquire the information from the apparatus 102.” *Id.* ¶ 47. The same paragraph provides an embodiment with near field communication (NFC) capabilities, and concludes that:

As a result, using NFC standards, a radio communication link may be established between the apparatus 102 and the device 106. The client computing device 106 may acquire the information from the exercise apparatus 102 via the radio communication link. The apparatus 102 and the device 106 may exchange information via other methods in addition to bar codes, QR codes, and NFC technologies.

Id.

We determine that at least this portion of the '361 Application is incorporated by clear and particular reference in the '088 Application, i.e., as one example of customizing a workout, whereby a computer may scan the RF tag of an exercise apparatus and generate a customized workout routine for a given user on that apparatus. This falls within the '088 Application's particularized reference to the '361 Application for customizing a workout.

Petitioner disputes that the specification supports communication with a “portable computing device.” Opp. 6. However, Patent Owner argues that paragraphs 47 and 49 of the '361 Application clarify that computing device 106, described in paragraph 47 of the '361 Application, includes portable computing devices. Motion Reply 8; *see also* Mot. Amend 10. Patent Owner's Declarant observes that paragraph 49 of the '361 Application describes that the client computing device 106 may be a smartphone, a laptop, a tablet, or any other portable computing device. Ex. 2012 ¶ 33. We agree with Dr. Ferraro that paragraph 49 of the '361 Application discloses

that in one embodiment computing device 106 may be a smartphone, laptop, tablet, or “any other portable computing device.” Ex. 2009 ¶ 49. Further, we determine that this portion of the ’361 Application is incorporated into the ’088 Application along with paragraphs 46 and 47 of the ’361 Application because it is an elaboration on the identity of computing device 106 disclosed in paragraph 47, which describes how to customize a workout.

Petitioner also argues that the disclosure of an RFID tag and an NFC link is insufficient support for the proposed claim language that recites the use of “radio” communication more broadly. Opp. 13; Motion Surreply 4–5 (citing *D Three Enterprises v. Sunmodo Corp.*, 890 F.3d 1050 (Fed. Cir. 2018)). We find that RF and NFC are representative of “radio” communication in this context, and the enumeration of more than one species here indicates it is appropriate to use radio more generally. Cf. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc) (discussing claim construction in the context of the law of 35 U.S.C. § 112).

Petitioner also argues that, even if incorporated, the disclosure fails to disclose that *the console* communicates by radio, as recited in substitute claim 21. Opp. 12–13. Petitioner argues that the disclosure of the ’361 Application does not locate the source of communication in the console. Opp. 13 (citing Ex. 1018 ¶¶ 54–57). We agree.

There is no disclosure in any place within the ’361 Application that it is *the console* that communicates by radio, and it is not necessarily the case that an RFID tag or bar code, as described in the ’361 Application, would be located in a console. See, e.g., Ex. 2009 ¶¶ 46–49. Rather than using a console or control panel on the exercise device to actively control a portable computing device, the ’361 Application uses portable computing device 106

to scan a tag or bar code on exercise device 102, where the exercise device is passively scanned so that the portable computing device can obtain data about the machine. *See also id.* ¶ 71 (passing data to the computing device). There is no disclosure that the portable computing device sends information to the exercise device to control that device, or that the user will necessarily perform the suggested workout. Although not argued, there may also be a separate monitoring apparatus 502 in the form of a camera or a magnetic strip attached to a dumbbell apparatus, or a gyroscope, that obtains information about whether the user has completed the workout. *Id.* ¶¶ 64, 77. However, it is not necessarily the case based on the disclosure of the '361 Application that the portable computing device communicates by radio with the console of the exercise device. Nor is there evidence that the NFC communication would necessarily include communication with the console of the exercise device. Rather, based on the context of the '361 Application, one would expect the NFC communication to perform a similar function as the RFID or barcode communication, i.e., by providing the portable computing device with information about the exercise apparatus. *See, e.g., id.* ¶¶ 46–49.

Patent Owner argues that the incorporated portions of the '361 Application would be read in context with paragraph 50 of the '088 Application which provides for the console to communicate with other devices. Motion Reply 8 (citing Ex. 1009 ¶ 50). Petitioner responds that Patent Owner is attempting to combine disparate teachings in a way that renders them obvious and does not qualify as possession of the invention for purposes of written description. *See* Motion Surreply 1–2. Although Patent Owner is correct that the console of the '088 Application communicates, this

communication does not necessarily occur via radio. If anything, the disclosure that the control panel “may include connections” for communication with other devices indicates that this communication occurs through a physical connection. See Ex. 1009 ¶ 50 (“The control panel may further include connections for communication with other devices.”).

We agree with Petitioner that obviousness is not the standard for written description. See *Ariad*, 598 F.3d at 1352. Even assuming incorporation of the ’361 Application into the ’088 Application, we agree with Petitioner that the manner in which Patent Owner seeks to combine embodiments is in the nature of an obviousness analysis. Wireless communication was known, and wired connection capabilities were also known. See Ex. 1018 ¶ 15. However, it is not clear from the ’088 Application that *the console* is capable of wireless communication. If anything, the ’088 Application indicates that the console is configured for wired communication. By contrast, the type of wireless communication in the ’361 Application which Patent Owner relies on (e.g., paragraphs 46 and 47) is passive communication identifying an exercise machine’s type, and is disclosed as analogous to a bar code or RFID tag being scanned. Although it might have been obvious to combine teachings to locate wireless communication at the console, i.e., to allow the portable computer to control the exercise machine or provide direct feedback, there is no such teaching present. And obviousness is not the nature of the inquiry.

For these reasons, we do not find adequate written description support for claim 21, or for its dependent claim 22.

E. Petitioner's Argument that Amendments Are Not Responsive

Petitioner argues that the proposed amendments are not “responsive” to the grounds asserted in the Petition, as required by 37 C.F.R.

§ 42.121(a)(2), because the amendment is based on another strategy. See Opp. 13, 15 (citing *Idle Free Sys., Inc. v. Bergstrom*, IPR2012-00027, slip op. at 5 (PTAB June 11, 2013) (Paper 26)). Petitioner argues that this rule must encompass something other than the prohibitions against new matter and broadening of the claims so as not to be superfluous. Opp. 14 (citing *TRW Inc. v. Andrews*, 534 U.S. 19, 31 (2001)).

Although Petitioner argues that the issue of responsiveness is a matter of first impression (see Opp. 13–14), the Board has previously interpreted 37 C.F.R. § 42.121(a)(2). For example, the Board has previously observed that a patent owner, in addressing grounds based on § 102 or § 103, may at the same time include additional limitations to address potential issues under § 101 and § 112. *Veeam Software Corp. v. Veritas Techs., LLC*, Case IPR2014-00090, 2017 WL 3034509, slip op. 28–29 (PTAB July 17, 2017) (Paper 48). The Board reviews the entirety of the record to determine whether a patent owner's amendments respond to a ground of unpatentability in the trial. *Apple Inc. v. Valencell, Inc.*, Case IPR2017-00321, 2018 WL 2734878, slip op. at 50 (PTAB June 5, 2018) (Paper 44) (citing *Western Digital Corp. v. SPEX Tech., Inc.*, Case IPR 2018-00082, slip op. at 5–7 (PTAB Apr. 25, 2018) (Paper 13) (informative)). The determining feature may not be removed and replaced. *Epicor Software Corp. v. Protegrity Corp.*, Case CBM2016-00006, 2016 WL 1566568, slip op. at 44 (PTAB Apr. 18, 2016) (Paper 54).

Applying these principles here, we determine first that the recitation of a third pulley that is displaceable in proposed claims 21 and 22 is responsive to the grounds asserted in the Petition that are based upon known configurations of exercise machines using pulleys and sprockets. *See* Mot. Amend 16–17 (“a third pulley rotatable about a third axis that is displaceable relative to the tower structure; . . . wherein displacement of the handle results in displacement of the cable, rotation of the pulley, displacement of the drive cable, rotation of the second pulley, rotation of the flywheel, rotation of the third pulley, and displacement of the third axis of the third pulley relative to the tower structure.”); *see also id.* at 17–20 (reciting, e.g., features of motion of third pulley). Second, we determine that the further detail in proposed claim 21 for the magnetic braking mechanism is responsive to the grounds asserted in the Petition based on a magnetic braking mechanism. *See id.* at 7–8 (“a magnetic braking mechanism that resists movement of the flywheel by applying a level of resistance to rotation of the flywheel, the magnetic braking mechanism including an arm having means for providing a magnetic flux through which the flywheel rotates, the arm configured to pivot, relative to the flywheel, to alter the level of resistance applied to rotation of the flywheel”). Third, we determine that the recitations relating to variable resistance and power output are closely tied to the use of the magnetic braking mechanism and the function of such in the recited exercise machine, particularly where, as here, the exercise machine relates to strength training in a machine with both aerobic and anaerobic capacity. *See id.* at 9–10 (“a console in communication with the magnetic braking mechanism, the console configured to calculate an amount of power expended by a user pulling on the handle during a workout routine, the

console further including means for input and means for output, the means for input configured to allow the user to select the level of resistance applied to rotation of the flywheel by the magnetic braking mechanism, the means for output configured to provide an indication of the selected level of resistance, the means for output further configured to provide an indication of the calculated amount of power expended by the user”); see also Ex. 1001, [54], 1:15–18, 1:56–63.

This is not a situation where a patentee is attempting to remove one feature and substitute another feature. *Epicor Software Corp.*, Case CBM2016-00006, slip op. at 44. We determine that, in the context of the record in its entirety, the proposed amendments provide responsive additions and are allowed to concomitantly provide further detail for purposes of compliance with 35 U.S.C. § 112. *Western Digital Corp.*, Case IPR 2018-00082, slip op. at 5–7; *Veeam Software Corp.* Case IPR2014-00090, slip op. 28–29.

F. Unpatentability

Petitioner asserts that proposed substitute claims 21 and 22 are unpatentable as obvious over the combination of Wu, Sawicky, Watt, Dalebout, and Hope and over the combination of Zhou, Sawicky, Lull, Pyles, and Riley. Opp. 23–35; see also Mot. Surreply 6–12. To support its Opposition, Petitioner proffers the declaration of Mr. Cox. Ex. 1018. Patent Owner disagrees. Motion Reply 6–12. To support its Motion Reply, Patent

Owner proffers the declarations of Mr. Ganaja (Ex. 2011) and Mr. Ferraro (Ex. 2012).

1. Claims 21 and 22 as Obvious Over Wu, Sawicky, Watt, Dalebout, and Hope

a. Watt (Ex. 1012)

Watt is titled “Exercise Bike” and relates to exercise equipment, and more particularly to stationary exercise bikes. Ex. 1012, [54], 1:14–15. According to Watt, certain prior art bicycles replaced the standard bicycle front wheel with a heavy flywheel and made use of a direct drive transmission but provided minimal information to the user regarding “pedal cadence, power, heart rate and so on.” *See id.* at 1:35–46. According to Watt, there was a need for this type of information because these bikes are often used in group riding programs at health clubs or training programs that focus on the transitions between different types of riding, e.g., high or low revolutions per minute, changing the resistance of the flywheel, standing up to pedal or leaning forward, and riding within targeted heart rate or power ranges. *Id.* at 1:47–56.

Watt discloses an exercise bike that may include a frame, a drive train, a flywheel, a braking system, and a power sensor. *Id.* at 2:2–4. The drive train may be operatively associated with the frame. *Id.* at 2:4–5. The flywheel may be operatively associated with the drive train. *Id.* at 2:5–6. The braking system may be operatively associated with flywheel. *Id.* at 2:6–7. The power sensor may be operatively associated the braking system. *Id.* at 2:6–7. The power sensor may include an accelerometer that measures a position of the braking system relative to a predetermined reference point. *Id.* at 2:8–10.

b. Dalebout (Ex. 1014)

Dalebout is titled “Elliptical, Exercise Machine With Integrated Anaerobic Exercise System” and relates to exercise equipment and, more specifically, to exercise devices that provide aerobic and anaerobic activities. Ex. 1014, [54], 1:7–10. According to Dalebout, prior art exercise machines were generally configured for only one of anaerobic exercises and aerobic exercises, but not for both. *Id.* at 1:38–40. Dalebout discloses systems, apparatuses, and methods that enable a user to optionally perform both aerobic and anaerobic activity. *See id.* at 1:63–67. Dalebout describes a device that allows a user to move an exercise machine into a contracted position, an expanded position, or a combination therebetween. *See id.* at 1:66–2:1. When the telescoping frame is expanded, a user can conveniently engage in elliptical exercises, and when the telescoping frame is contracted, a user can conveniently engage in strength training exercises. *Id.* at 2:6–10.

Figure 7 of Dalebout is reproduced below (*see id.* at 3:4–7):

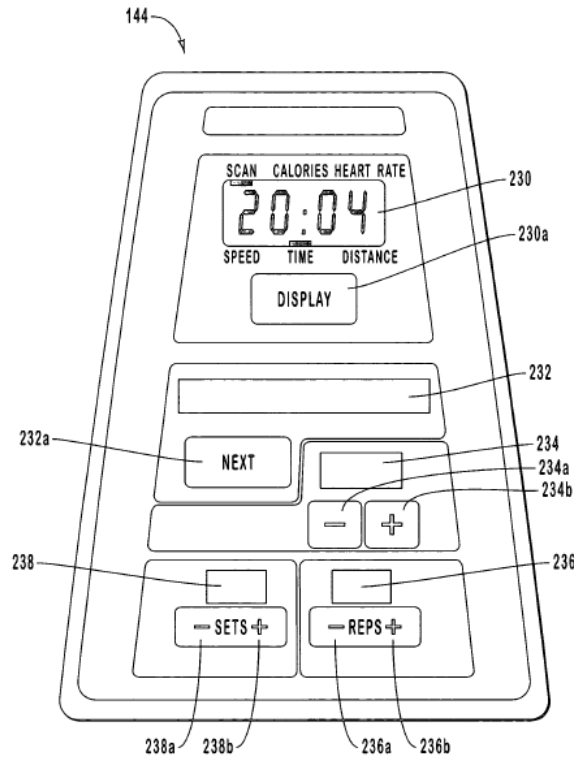


Fig. 7

Fig. 7 is front view of an electronic console of the exercise system for managing anaerobic and aerobic exercise information in accordance with an implementation of [Dalebout's] invention.

Dalebout discloses electronic console 144 with an input interface that allows a user to select a level of anaerobic resistance. *Id.* at 11:1–3. Electronic console 144 can be configured to have input and output displays. *Id.* at 11:16–17. For example, with respect to aerobic exercise data, electronic console 144 comprises counter interface 230 that displays incremental factual data such as calories burned, heart rate, speed of exercise time of exercise, and distance traveled. *Id.* at 11:17–22.

c. Hope (Ex. 1016)

Hope is titled “Fitness Monitoring Methods, Systems, and Program Products, and Applications Thereof” and relates to program products, methods, and systems for providing fitness monitoring. Ex. 1016, [54], ¶ 1. According to Hope, prior art systems were capable of transferring performance of a workout to a computer for further analysis, and there was a need for improved program products, methods, and systems for providing fitness monitoring that would allow athletes to, among other things, better use data generated from past performances to gauge their improvement, to schedule activities and set goals for the future, to share their performance data with others, to stay motivated, and/or to enable them to exercise at intensities appropriate for their current fitness level and goals. *Id.* ¶¶ 4–5.

In one embodiment, a monitoring device may measure various performance parameters associated with the athlete’s physical activity and provide feedback to the athlete during the activity. *Id.* ¶ 59.

d. Analysis

In its Opposition, Petitioner sets forth its contentions as to how Wu, Sawicky, Watt, Dalebout, and Hope disclose each limitation of claim 21 and why it would have been obvious for a person of ordinary skill to have combined the teachings of the prior art. Opp. 23–31. Patent Owner disputes these contentions, and in particular disputes that the prior art relied on by Petitioner discloses the following limitations: “means for input,” “means for output,” and “magnetic braking mechanism including an arm configured to pivot relative to the flywheel.” Motion Reply 11–21.

i. “means for input” and “means for output”

Applying the claim construction above, claim 21’s recitations of a “means for input” and a “means for output” refer to buttons, switches, or dials for selecting resistance and a separate display for indicating resistance and for indicating power.

A. “means for input”

Petitioner asserts that the use of consoles including those with input means such as dials, buttons, and touch screens, and output means such as displays, in exercise equipment with flywheels was “well known.” Opp. 25 (citing Ex. 1018 (Cox Decl.) ¶¶ 24–35, 104; Ex. 1008 (Rawls Decl.) ¶¶ 56–57); *see also* Motion Surreply 6–7 (citing Ex. 1018 ¶¶ 24–35, 104–105, 125–126; Ex. 1008 ¶¶ 56–71), 8 (citing Ex. 1008 ¶¶ 56–71, 141, 243, 368; Ex. 1018 ¶¶ 28, 43, 105, 125–126²²). Petitioner states that “Given the well-established nature of these features on exercise machines of all types, using a dial on a console to select a resistance level and having the console display that level and power was obvious.” Motion Surreply 7. Petitioner indicates that these were known elements, intended ways, and predictable results. *See id.* Petitioner also asserts that Dalebout discloses that a user can select a level of aerobic resistance at an input interface of a console, and in particular Dalebout’s console 144 has resistance interface 234 with selectable decrement button 234a and increment button 234b to allow input. *See id.* (citing Ex. 1014, 11:1–3, 11:38–45; Ex. 1008, 56–71).

²² We understand Petitioner’s citation “125–16” on page 8 of the Motion Surreply to refer to the range 125–126 because Ex. 1018 has 139 paragraphs and does not have a paragraph 216.

Patent Owner argues that Wu’s console does not contain a dial. Motion Reply 13. However, Patent Owner does not dispute that Dalebout discloses buttons for selecting resistance. *See id.*

We agree with Petitioner’s assertion that the prior art discloses buttons for selecting resistance. In particular, Dalebout discloses buttons 234a and 234b on console 144 for selecting resistance (Ex. 1014, 11:1–3, 11:38–45).

In this manner, Dalebout discloses a “means for input.”

B. “means for output”

Petitioner asserts that Wu discloses console 10. Opp. 25 (citing Ex. 1002 ¶ 19). Petitioner asserts that output means such as displays in exercise equipment with flywheels was “well known.” *Id.* at 25 (citing Ex. 1018 ¶¶ 24–35, 104–105; Ex. 1008 ¶¶ 56–71); *see also* Motion Surreply 6–7 (citing Ex. 1018 ¶¶ 24–35; Ex. 1008 (Rawls Decl.) ¶¶ 56–71), 8 (citing Ex. 1008 ¶¶ 56–71, 141, 243, 368). Petitioner states that “Given the well-established nature of these features on exercise machines of all types, using a dial on a console to select a resistance level and having the console display that level and power was obvious.” Motion Surreply 7 (citing Ex. 1018 ¶¶ 24–29, 104–105, 125–126); *see also id.* at 8 (citing Ex. 1018 ¶¶ 28, 43, 105, 125–126²³). Petitioner indicates that these were known elements, intended uses, and predictable results. *See id.*

Mr. Cox avers that it was known to use a display to indicate power in watts, citing for example Watt (Ex. 1012, 3:45–47, 16:25–27) and the 2007 Vision Fitness catalog, the 2007 Vision Fitness elliptical catalog, and the

²³ We understand Petitioner’s citation “125–16” on page 8 of the Motion Surreply to refer to the range 125–126 because Ex. 1018 has 139 paragraphs and does not have a paragraph 216.

2012 Vision Fitness Classic Console. Ex. 1018 ¶ 25 & accompanying figure (citing App. B, D at 4–5, T), ¶ 29, ¶ 104. Mr. Cox also avers Dalebout and Zhou disclose calculating power. *Id.* ¶¶ 104 (citing Ex. 1014, 11:12–22), 125 (citing Ex. 1006, 14:35–42).²⁴

Patent Owner argues that none of references cited by Petitioner disclose a dial and there is no disclosure of a display that displays the level of resistance as selected by a dial. See Motion Reply 13. Patent Owner argues that none of the disclosed consoles includes a single means that both indicates the selected level of resistance as well as provides an indication of the calculated amount of power. *Id.* at 14.

We agree with Patent Owner that Petitioner has not shown a single display that indicates both power and a resistance level selected. Dalebout's item 234 displays the resistance selected by buttons 234a and 234b. See Ex. 1014, 11:15–17, 11:40–46, Fig. 7. As to Petitioner's assertions for displaying power, we find that Dalebout's display indicates the number of calories being burned, e.g., at the given exertion level (see Fig. 7) but there is no disclosure that Dalebout's display indicates a level of power. Dalebout and Zhou both disclose displays for work or calories, but not power. Ex. 1014, 11:12–22; Ex. 1006, 14:35–42.

Nevertheless, Watt discloses a display that indicates power (Ex. 1012, 3:45–47, 16:25–27). Petitioner argues that it would have been obvious to add the additional console functionality exemplified in Dalebout and Watt to generate and display user performance data, enable control of the resistance

²⁴ An additional paragraph of Petitioner's Motion Surreply on this issue was subject to an Order (Paper 35) striking a portion of the Motion Surreply as contrary to a stipulation of the parties regarding briefing. See *supra*, at 3.

level, and monitor the fitness of the user, because of consumer demand for display of users' performance, and as the use of known elements to produce predictable results. Opp. 20, 26; Motion Surreply 9 (citing Ex. 1018 ¶¶ 28, 43, 104–105, 125–[126]). We are persuaded by Petitioner that a person of ordinary skill would have sought to display power, as taught by Watt, in addition to work (calories) so that a user of the exercise machine could monitor his or her performance data. See Ex. 1008 (Rawls Decl.) ¶¶ 207, 284. Although the invocation of consumer demand may in certain circumstances be conclusory, we credit the testimony that there was consumer demand for the ability to monitor power output for similar reasons as for monitoring calories, i.e., the display could inform the user how fast he or she is going to burn calories. See *id.* ¶¶ 207, 284; see also Ex. 1018 ¶¶ 90, 93. Such consoles allowed for a user to adjust machine parameters based on fitness monitoring. See Ex. 1018 ¶ 93.

ii. *“magnetic braking mechanism including an arm configured to pivot relative to the flywheel”*

Petitioner asserts that using a magnetic braking unit with a flywheel was well known in the art. Opp. 24 (citing Ex. 1018 ¶¶ 17–23, 103; Ex. 1008 ¶¶ 47–55). Petitioner asserts that Wu discloses “[a] magnet set 24 is fitted to one side of the unidirectional flywheel 22.” *Id.* (citing Ex. 1002 ¶ 13; Pet. 33–34). Petitioner also asserts that Watt discloses flywheel 130, with brake assembly 132 that contains magnets 134, which create a magnetic flux. *Id.* (citing Ex. 1012, 4:31–35, 4:49–5:14). Petitioner asserts that Watt's overlap of magnets 134 with flywheel 130 may be increased or decreased by selectively pivoting brackets 136, 138 relative to the frame. *Id.* Petitioner asserts that the use of pivoting arms (i.e., brackets) to adjust resistance by moving magnets was standard for magnetic brakes in flywheel-

based exercise machines. *Id.* (citing Ex. 1018 ¶¶ 17–23, 103). We find that Watt discloses this limitation. Ex. 1012, 4:31–35, 4:49–5:14. Watt discloses magnets 134 mounted on brackets 136, 138, such that the brackets pivot and can move towards flywheel 130 to increase forces opposing rotation of the flywheel. *Id.* at 4:49–5:14.

iii. “*Motivation to Combine*” Wu, Sawicky, and Watt

Petitioner contends that it would have been obvious to use a magnetic brake pivoting arm as taught by Watt with the magnetic flywheel of Wu, in the tower of Wu or Sawicky, as an obvious design choice using known elements to yield predictable results. Opp. 19, 24–25. Petitioner further contends that a magnetic braking mechanism has the advantages of allowing higher resistance with a small flywheel, that it can provide resistance silently, that it can provide constant resistance, and that it can provide more precise control of resistance. Motion Surreply 11–12 (citing Ex. 1008 ¶¶ 48, 148–149).

Patent Owner argues that it was not standard to use such a braking mechanism in a cable-pulley machine. Motion Reply 15–16 (citing Ex. 2013, 24:24–25:3, 25:16–26:1, 95:22–24). Prior art is analogous when it is: (1) from the same field of endeavor as the claimed invention; or (2) reasonably pertinent to the particular problem faced by the inventor, if the art is not from the same field of endeavor. *See In re Bigio*, 381 F.3d 1320, 1325–26 (Fed. Cir. 2004). We determine that Watt is within the same field of endeavor because it relates to exercise equipment, but even if a distinction could be drawn between aerobic and anaerobic equipment, Watt is also directed to the problem of adding resistance.

Patent Owner argues that Petitioner has not articulated a sufficient reason to modify the braking system of Wu because Wu already achieves desired braking. Motion Reply 15–16. Patent Owner also argues that the use of a magnetic braking mechanism would be contrary to the teaching in Sawicky of dynamically adjusting the work load over the range of the stroke, that Sawicky was already light-weight, and that Sawicky’s freewheel produces air that fans the user, which would have been seen as advantageous to a user. *Id.* at 17 (citing Ex. 1011, 2:36–39), 18 (citing Ex. 1011, 1:51–55; Ex. 2011 ¶¶ 41–49), 20 (citing Ex. 1011, 1:62–64; Ex. 2013 85:1–4). We are persuaded by Petitioner that, notwithstanding the change in design from air resistance to magnetic resistance, there are advantages to a magnetic braking system such that a person of ordinary skill would have sought to modify Sawicky with the magnetic brake of Wu, i.e., to provide higher resistance, more particular selection of resistance (constant or varied), and quieter resistance than air-based systems. Ex. 1008 ¶¶ 48, 149; *In re Urbanski*, 809 F.3d 1237, 1243 (Fed. Cir. 2016) (“one of ordinary skill would have been motivated to pursue the desirable properties taught by Wong, even at the expense of foregoing the benefit taught by Gross”). For example, we credit the testimony of Mr. Rawls that a magnetic braking system would allow more precise control of resistance, and monitoring of resistance, than a system based on air resistance. *See, e.g.*, Ex. 1008 ¶ 149; *see also* Ex. 1004 ¶ 64 (“the accuracy is limited only by the accuracy of the measurement device”). Further, the use of a magnetic braking system would more easily enable the use of an electronic console. *See* Ex. 1008 ¶ 149; *see, e.g.*, Ex. 1004 ¶¶ 65–66. We are also persuaded that a person of ordinary skill would have sought to further modify the magnetic brake of Wu to use a

pivoting arm, as taught by Watt, i.e., to facilitate adjustment of resistance and for a light form-factor design of a magnetic brake. *See* Ex. 1018 ¶ 91.

As to Patent Owner’s argument that Petitioner has not explained how to mount a pivoting arm onto the tower of Sawicky, we are persuaded by Petitioner that persons of ordinary skill in the art would have known how to attach a pivotable bracket to the tower of Sawicky, as modified by Wu, with predictable results. *See* Ex. 1018 ¶¶ 91–92.

Patent Owner also argues that Petitioner “has provided no explanation of where such a pivoting system would be mounted in the tower structure of Sawicky.” Motion Reply 16. Patent Owner argues that such a device would topple over onto the user. *Id.* at 17. However, Petitioner argues that the design was well-known. Motion Surreply 12 (citing Ex. 1018 ¶¶ 18–23, 92; Ex. 1008 ¶¶ 46–55). We find that Petitioner and Petitioner’s Declarant have established that a person of ordinary skill would have had a reasonable expectation of success in mounting a pivoting arm with bracketing, as taught by Watt. *See* Ex. 1018 ¶¶ 91–92; *see also id.* ¶¶ 17–20, 23, 75, 78.

Although Patent Owner argues that Sawicky’s tower would not have been stable with the braking system as modified with the teachings of Wu and Watt (Motion Reply 17), we determine that a person of ordinary skill in the art could have used elements of the towers of Wu and Watt, i.e., to maintain stability.

iv. Other Limitations

Petitioner asserts that Wu, Sawicky, Watt, Dalebout, and Hope render obvious the additional limitations of claims 21–22 (Pet. 23–31), and Patent Owner does not dispute that these assertions. *See* 37 C.F.R. § 42.23(a). We

find that Wu, Sawicky, Watt, Dalebout, and Hope disclose these additional limitations.

Although these limitations are undisputed, we provide factual findings and conclusions as follows. We find that Dalebout discloses that the console is capable of wireless communication (Ex. 1014, 12:51–55); Hope discloses application software that runs on portable fitness device (Ex. 1016 ¶ 102); Hope discloses that a user can enter a fitness goal (*id.* ¶¶ 105, 138); Hope discloses the user may track fitness goals (*id.* ¶¶ 107, 136); Hope discloses that a user may track progress toward completion of a goal (*id.* ¶ 56); Hope discloses that informing the user of progress (*id.* ¶¶ 136, 145); Hope discloses signaling when there is a “workout completed” (*see id.* ¶ 137, Figs. 29, 30); Hope discloses providing a workout plan and schedule (*id.* ¶ 146); Hope discloses providing a description of strength training exercise and a video (*id.* ¶¶ 117, 127); and Hope discloses storing performance data (*id.* ¶ 133). We are persuaded that a person of ordinary skill would have sought to combine these functionalities to provide benefits of tracking fitness and to aid in achieving user goals. *See* Ex. 1018 ¶¶ 94–96.

Sawicky discloses fixed sprocket 58 and floating pulley 60 attached to elastic cord 62 (Ex. 1011, 3:49–57, Fig. 2) and Wu discloses the use of multiple pulleys (Ex. 1002 ¶¶ 13–17, Fig. 4). We are persuaded that it would have been obvious to use a pulley with a cable, as taught by Wu, in place of a sprocket with a chain, as taught by Sawicky, e.g., to create a lighter machine that functions in a predictable fashion, as recited. *See* Ex. 1018 ¶¶ 118–119. In view of the totality of the record, we agree that a person of ordinary skill would have combined these additional teachings as the use of prior art elements used as intended to produce predictable results.

See Ex. 1018 ¶¶ 105–121.²⁵ The limitations of claim 22 are similarly satisfied as a result of pulling the handle of the modified device. See Ex. 1018 ¶ 122.

v. Conclusion

We conclude that claims 21 and 22 would have been obvious over Sawicky, Wu, Watt, Dalebout, and Hope.

2. Claims 21 and 22 as Obvious Over Zhou, Sawicky, Lull, Pyles, and Riley
a. Lull (Ex. 1013)

Lull is titled “Exercise Bicycle With Magnetic Flywheel Brake” and relates to an exercise bicycle with a magnetic flywheel brake configured to finely adjust the resistance applied to the flywheel during exercise. Ex. 1013, [54], 1:29–31. According to Lull, prior art indoor cycles were hard to adjust in order to provide the proper handlebar height, seat height, and separation between the handlebar and seat for a myriad of different body sizes, e.g., to use in a group or club setting where people are constantly adjusting equipment. *Id.* at 1:48–56.

Lull discloses a brake arm pivotally mounted to the frame and including at least one magnet, with the magnet positioned in the brake arm adjacent to the flywheel and not in contact with the flywheel, and with the position of the magnet relative to the flywheel inducing a magnetic braking force on the flywheel. *Id.* at 2:1–5. Lull discloses a handle that is operably supported on the frame and configured to pivot the brake arm to position a pair of magnets relative to the flywheel to increase or decrease magnetic

²⁵ We note that we have already addressed the reasoning for the combination of the Sawicky and Wu, *supra* § III.F.1.d.ii.

braking induced between the flywheel and the pair of magnets. *Id.* at 2:11–16.

b. Pyles (Ex. 1015)

Pyles is titled “Interactive Fitness Equipment” and relates to fitness equipment that is interactive with computers, the Internet, and other electronic media devices. Ex. 1015, [54], ¶ 1. According to Pyles, prior art fitness machines were limited to use with the particular electronic media device that is built into the piece of fitness equipment, had electronics that were at risk for becoming obsolete, and might have had video monitors that were top heavy, keyboards that were difficult to operate, or touch screens that could become smudged with operation. *See id.* ¶¶ 4–5. Pyles describes a need for fitness equipment that is adaptable to a variety of electronic media devices, is easy to operate, and has a balanced weight and appearance. *Id.* ¶ 6.

Pyles discloses a fitness device capable of interfacing with electronic media devices, such as computers, set-top boxes, cable boxes, video cassette recorders, and digital recording and playback devices. *Id.* ¶ 8. Additionally, there may be an electronic sensor for monitoring a particular exercise parameter and sending a corresponding signal to an interface. *Id.* Pyles describes that the fitness device allows the user to watch television and recorded video, listen to music, monitor the news, communicate with other people, and play games with a computer or over the Internet. *Id.* ¶ 10. The Internet link can also be used to connect to a special web site portal where a database of health and exercise information is processed for individual users of the fitness equipment. *Id.* The web site includes a special database

whereby an individual user's personal workout and health history can be accessed. *Id.* ¶ 10.

c. Riley (Ex. 1017)

Riley is titled “Athletic Performance Sensing and/or Tracking Systems and Methods” and relates to the same. Ex. 1017, [54], 1:21–22. In particular, such systems may include components for sensing athletic performance, storing and displaying desired information, and may facilitate transfer of athletic performance data from the performance sensing system to a processing system and/or a display device. *Id.* at 1:21–31. According to Riley, prior art electronic performance monitoring components had deficiencies, for example, in their portability, convenience, customizability, and/or user friendliness. *Id.* at 2:1–3. Riley describes certain embodiments where the electronic output device may be (and/or may include at least some functions of) a conventional and commercially available electronic audio, video, and/or alphanumeric display or output device (such as a cellular telephone, watch, PDA, pager, MP3 player, audio player, radio, portable television, portable DVD player, video playing device, or the like). *Id.* at 4:10–16. The interface system or device, when present and/or necessary, may physically plug into an existing port or jack (such as a universal serial bus port, a serial port, a parallel port, or other data or power/recharger input port) provided in the output device, including into conventional ports known and used in commercially available electronic devices. *Id.* at 4:23–29. Riley discloses a device that includes the following functions:

provide motivational and/or reward content, optionally media content at preselected times during a workout and/or during predetermined events (e.g., when a user approaches or reaches a goal, a personal best, etc.); provide specialized workout routines based on user selected events, properties, goals, etc.; and

modify and extend workout routines by adding one or more songs or additional media content to the workout routine.

Id. at 2:37–45; *see also id.* at 2:15–37.

d. Analysis

In its Opposition, Petitioner sets forth its contentions as to how Zhou, Sawicky, Lull, Pyles, and Riley disclose each limitation of claims 21 and 22 and why it would have been obvious for a person of ordinary skill to have combined the teachings of the prior art. Opp. 31–35. Patent Owner disputes these contentions, for similar reasons as for the ground based on Wu, Sawicky, Watt, Dalebout, and Hope. Motion Reply 11–21.

i. “means for input” and “means for output”

Applying the claim construction above, claim 21’s recitations of a “means for input” and a “means for output” refers to buttons, switches, or dials for selecting resistance and a separate display for indicating resistance and for indicating power.

A. “means for input”

The parties rely on similar argument and evidence as for the asserted ground based on Wu, Sawicky, Watt, Dalebout, and Hope. *See* Opp. 32; Motion Surreply 6–8; Motion Reply 14. Patent Owner argues that Zhou and Sawicky do not disclose a dial and none of the other references cited by Petitioner (Pyles and Riley) disclose dials. *Id.*

We observe that Petitioner elsewhere relies on Lull’s adjustable braking mechanism. *See* Opp. 31–32 (citing Ex. 1013, 3:4–7; Ex. 1018 ¶ 124). Although not specifically cited by Petitioner with respect to this limitation, we find that Lull’s adjustable braking mechanism is adjusted using brake adjustment assembly 102, which includes brake knob 108. *See*

Ex. 1013, 6:35–7:7, Fig. 11. However, this knob is not connected to an (electronic) console or control panel, as is required for the “means for input.”

Petitioner asserts that Pyles discloses a console that can adjust resistance. Opp. 32 (citing Ex. 1015 ¶ 28). Petitioner asserts that Riley discloses the use of a “rotary dial” as an input means on a computing device—of which a console is an example. Motion Surreply 8–9 (citing Ex. 1017, 13:21–25). Petitioner also asserts that Loach discloses a user interface “consisting of a display and a number of buttons, switches, and/or dials” and would “allow the user to select the level of resistance provided by the machine.” *Id.* at 8 (citing Ex. 1007, 3). Considering the evidence, we find that Pyles discloses a console that adjusts resistance, that Riley discloses a dial as an input on a computer, and that Loach discloses dials that adjust resistance. Ex. 1015 ¶ 28; Ex. 1017, 13:21–25; Ex. 1007, 3.

Petitioner contends that “[g]iven the well-established nature of these features on exercise machines of all types, using a dial on a console to select a resistance level and having the console display that level and power was obvious,” e.g., as the predictable use of known results in intended ways, and was one of a limited number of ways of providing user input. See Motion Surreply 7, 9 (citing Ex. 1018 ¶¶ 24–29, 104–105, 125–126). Mr. Rawls, Petitioner’s Declarant, elsewhere indicates that there was consumer demand for a device that allows a user to easily adjust resistance. Ex. 1008 ¶ 56.

Viewing the evidence as a whole, we determine that it would have been obvious to a person of ordinary skill to modify the brake adjustment mechanism of Lull in view of Riley’s teachings of a dial input on a computer and Pyles’ teachings of a console that adjusts resistance, i.e., to allow a user

to adjust resistance on a dial on a console, in order to easily adjust resistance. We consider Loach to provide further evidence of a reasonable expectation of success in modifying Lull's braking mechanism with the teachings of Riley in this manner. Ex. 1007, 3.

B. "means for output"

Petitioner asserts that Zhou discloses a "device for measuring and displaying the work performed." Opp. 32 (citing Ex. 1006, 14:29–31). Petitioner asserts that output means such as displays in exercise equipment with flywheels were "well known." Motion Surreply 6–7 (citing Ex. 1018 ¶¶ 24–35; Ex. 1008 ¶¶ 56–71), 8 (citing Ex. 1008 ¶¶ 56–71, 141, 243, 368). Petitioner states: "Given the well-established nature of these features on exercise machines of all types, using a dial on a console to select a resistance level and having the console display that level and power was obvious." *Id.* at 7 (citing Ex. 1018 ¶¶ 24–29, 104–105, 125–126); *see also id.* at 8 (citing Ex. 1018 ¶¶ 28, 43, 105, 125–126²⁶). Petitioner indicates that the combination would have been of known elements, in intended ways, for predictable results. *See id.* at 7.

Mr. Cox avers that it was known for a display to indicate power in watts, citing for example, Watt (Ex. 1012, 3:45–47, 16:25–27), the 2007 Vision Fitness catalog, the 2007 Vision Fitness elliptical catalog, the 2012 Vision Fitness Classic Console. Ex. 1018 ¶¶ 25 & accompanying figure (citing App. B, D at 4–5, T), 29, 104. Mr. Cox also avers Dalebout and

²⁶ We understand Petitioner's citation "125–16" on page 8 of the Motion Surreply to refer to the range 125–126 because Ex. 1018 has 139 paragraphs and does not have a paragraph 216.

Zhou disclose calculating power. Ex. 1018 ¶¶ 104 (citing Ex. 1014, 11:12–22), 125 (citing Ex. 1006, 14:35–42).²⁷

Patent Owner argues that none of references cited by Petitioner disclose a dial and there is no disclosure of a display that displays the level of resistance as selected by a dial. See Motion Reply 14. Patent Owner also argues that none of the disclosed consoles includes a single means that both indicates the selected level of resistance as well as providing an indication of the calculated amount of power. *Id.* at 14.

We determine that Zhou discloses displays for work or calories being burned by a user. Ex. 1006, 14:29–36. However, we agree with Patent Owner that Petitioner has not shown that these displays indicate both power and a resistance level selected.

Further, to the extent that Petitioner has above shown that it would have been obvious to have a dial on a console that allows a user to select a resistance in the first instance, Petitioner has not shown that there was a prior art display in addition to the dial that shows the resistance selected, as required by the “output means” of claim 21.

To the extent that Petitioner is arguing that a single element can satisfy two claim limitations at the same time (see Tr. 89:15–17) such that a dial would also be considered a display (means for output), we do not find that to be the case on this set of facts. This may be the case under certain fact patterns. See *Linear v. Int’l Trade Comm’n*, 566 F.3d 1049, 1055 (Fed. Cir. 2009) (“there is nothing in the claim language or specification that

²⁷ An additional paragraph of Petitioner’s Motion Surreply on this issue was subject to an Order (Paper 35) striking a portion of the Motion Surreply as contrary to a stipulation of the parties regarding briefing. See *supra*, at 3.

supports narrowly construing the terms to require a specific structural requirement or entirely distinct “second” and “third” circuits. Rather, the “second” and “third” circuits must only perform their stated functions.”). However, here there are two “means” limitations under 35 U.S.C. § 112 ¶ 6, which incorporate by reference the structures from the Specification. We, therefore, understand the “means for output” to be a display that is different from the dial relied on for the “means for input.” Nor has Petitioner provided contentions or reasoning for the proposition that it would have been obvious to combine individual prior art elements to arrive at the claimed invention. Accordingly, we determine that Petitioner has not shown that the combination of Zhou, Sawicky, Lull, Pyles, and Riley teaches or suggests a “means for output” that indicates power and resistance, separate from a “means for input,” as required by claim 21.

ii. *“magnetic braking mechanism including an arm configured to pivot relative to the flywheel”*

Petitioner asserts that Zhou discloses that the flywheel “can utilize magnets” to create resistance. Opp. 31 (citing Ex. 1006 at 11:19–23; Ex. 1018 ¶ 124; Ex. 1008 ¶¶ 121, 344). Petitioner argues that Lull discloses a flywheel with a magnetic brake that “is pivotally coupled with the frame such that magnets provided in a brake arm may be positioned relative the flywheel to induce more or less resistive power on the flywheel.” *Id.* at 31–32 (citing Ex. 1013, 3:4–7; Ex. 1018 ¶ 124).

We determine that Lull recites the recited magnetic braking mechanism, with magnets in an arm that pivots relative to a flywheel to adjust resistance. Ex. 1013, 3:5–11.

Petitioner contends that a person of ordinary skill would have modified Sawicky’s tower with the magnetic braking of Zhou and Lull, and

the console adjustment of Pyles and Riley, in order to provide for facile adjustment of resistance. *See* Opp. 22–23 (citing Ex. 1018 ¶¶ 97–99). Petitioner contends that a person of ordinary skill would have further modified the exercise apparatus with the fitness tracking of Riley in order to provide motivation or encouragement for a user of the exercise machine. *See* Opp. 23 (citing Ex. 1018 ¶¶ 100–101). Patent Owner contends that a person of ordinary skill in the art would not have combined Zhou with Sawicky because it would have been contrary to the design goals of Sawicky, for similar reasons as argued for the ground based on Wu, Sawicky, Watt, Dalebout, and Hope. *See* Motion Reply 10–12.

For similar reasons as for the ground based on Wu, Sawicky, Watt, Dalebout, and Hope, we agree with Petitioner that a person of ordinary skill would have sought to replace the air resistance mechanism of Sawicky with the magnetic braking of Zhou and Lull. *See* Ex. 1018 (Cox. Decl.) ¶¶ 97–99; *see also supra* §§ III.F.1.d.ii., III.F.1.d.iii.

iii. Other “Motivation to Combine” Arguments

Petitioner contends that a person of ordinary skill would have modified Sawicky’s tower with the magnetic braking of Zhou and Lull, and the console adjustment of Pyles and Riley, in order to provide for facile adjustment of resistance. *See* Opp. 22–23 (citing Ex. 1018 ¶¶ 97–99). Petitioner contends that a person of ordinary skill would have further modified the exercise apparatus with the fitness tracking of Riley in order to provide motivation for a user. Opp. 23 (citing Ex. 1018 ¶¶ 100–101). Patent Owner contends that a person of ordinary skill in the art would not have combined Zhou with Sawicky because it would have been contrary to the

design goals of Sawicky, for similar reasons as argued for the ground based on Wu, Sawicky, Watt, Dalebout, and Hope. *See* Motion Reply 10–12.

For similar reasons as for the ground based on Wu, Sawicky, Watt, Dalebout, and Hope, we agree with Petitioner that a person of ordinary skill would have sought to replace the air resistance mechanism of Sawicky with the magnetic braking of Zhou and Lull. *See* Ex. 1018 (Cox. Decl.) ¶¶ 97–99; *see also supra* §§ III.F.1.d.iii., III.F.1.d.iv.

Conclusion

We conclude that Petitioner has not shown that the combination of Zhou, Sawicky, Lull, Pyles, and Riley renders obvious claim 21, and its dependent claim 22, because Zhou, Sawicky, Lull, Pyles, and Riley do not disclose a “means for output.”

IV. PATENT OWNER’S MOTION TO EXCLUDE

Patent Owner moves to exclude Mr. Cox’s Declaration. Mot. Excl. 2–8. Specifically, Patent Owner argues that Mr. Cox is not qualified to be a technical expert by reason of education or experience, and that although he has business experience working with others with technical knowledge of electrical circuitry, he does not possess that knowledge himself. *Id.* at 4–6 (citing, e.g., *Dur Auto. Sys. Of Ind., Inc. v. CTS Corp.*, 285 F.3d 609 (7th Cir. 2002); Ex. 2013, 51:9–12, 17:17–19, 33:10–15, 43:8–11).

In opposition to Patent Owner’s motion, Petitioner argues that Mr. Cox never held himself out as a mechanical engineering expert, that his experience qualifies him as an expert in the field of product design/development of fitness and exercise equipment, and that his opinions in these proceedings are useful because that is the field in which the proposed claims fall. Paper 43, 10–11. Petitioner asserts that Mr. Cox was

personally involved in product development at Vision Fitness and Dyaco North America, and personally worked on certain Vision Fitness consoles and the product underlying the Pyles reference. *Id.* at 3–4, 7 (citing Ex. 1018 ¶¶ 4–6, 20, 25–30, 82; Ex. 2013, 37:9–16). Petitioner argues that there is no jury present in this proceeding, that Federal Rule of Evidence 702 takes a “liberal approach to expert witness qualification,” and that “[g]aps in an expert witness’s qualifications or knowledge generally go to the weight of the witnesses’s testimony, not its admissibility.” *Id.* at 6 (citing 29 Fed. Prac. & Proc. Evid. § 6264.1 (2d ed.)). Petitioner argues that mastery can be demonstrated by skill in analysis and answering questions and that formal training is not required. *Id.* at 9 (citing *Carnegie Mellon Univ. v. Marvell Tech. Grp., Ltd.*, 807 F.3d 1283, 1302–1303 (Fed. Cir. 2015), *Argonaut Ins. Co. v. Samsung Heavy Indus. Co. Ltd.*, 929 F. Supp.2d 159, 172–76 (N.D.N.Y. 2013)). Patent Owner replies that *Carnegie Mellon* related to the admissibility of expert testimony for damages, and that the expert in *Argonaut* also had forty certifications. Paper 45, 9 (citing *Carnegie Mellon*, 807 F.3d at 1302–1303; *Argonaut*, 929 F. Supp.2d at 173).

We agree with Petitioner that Mr. Cox has experience working on the design teams for specific projects (Ex. 1018 ¶¶ 4–6, 20, 25–30, 82), and it is undisputed that he has business experience. Therefore, at the least, Mr. Cox is qualified to testify as to certain market and design considerations that bear on the motivation to combine, as well as what features were common in the industry. We determine that Patent Owner’s arguments regarding Mr. Cox’s lack of formal training go to issues of credibility, weight, and the sufficiency of the evidence rather than admissibility. *See SEB S.A. v. Montgomery Ward & Co., Inc.*, 594 F.3d 1360, 1372–73 (Fed. Cir. 2010) (upholding district

court's admission under Rule 702 of the testimony of a witness who lacked experience in the design of the patented invention, but had experience with materials selected for use in the invention); PTAB Trial Practice Guide August 2018 Update at 3 ("There is . . . no requirement of a perfect match between the expert's experience and the relevant field."), available at www.uspto.gov/sites/default/files/documents/2018_Revised_Trial_Practice_Guide.pdf; see generally *Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1363–64 (Fed. Cir. 2008); *Mytee Prods., Inc. v. Harris Research, Inc.*, 439 F. App'x 882, 886–87 (Fed. Cir. 2011) (non-precedential) (upholding admission of the testimony of an expert who "had experience relevant to the field of the invention," despite admission that he was not a person of ordinary skill in the art). Accordingly, Patent Owner's Motion to Exclude is *denied*.

V. CONCLUSION

We conclude that Petitioner has shown by a preponderance of the evidence that (1) claims 1, 2, and 10 are unpatentable over the combination of Sawicky and Wu; (2) claims 7–9 are unpatentable over the combination of Sawicky, Wu, and Watson; and (3) claims 1, 2, and 10 are unpatentable over the combination of Sawicky and Zhou. We conclude that Petitioner has *not* shown by a preponderance of the evidence that claims 3 and 4 are unpatentable over the combination of Sawicky and one of Wu and Zhou, nor that claims 7–9 are unpatentable over the combination of Sawicky, Zhou, and Loach.

We conclude that proposed substitute claims 21 and 22 lack adequate written description support and would have been obvious over Sawicky, Wu, Watt, Dalebout, and Hope, and the Motion to Amend is *denied*.

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 2, and 7–10 are unpatentable;

ORDERED that claims 3 and 4 have not been shown to be unpatentable on the grounds asserted and instituted;

FURTHER ORDERED that Patent Owner's Motion to Amend (Paper 16) is *denied*;

FURTHER ORDERED that claims 1, 2, and 7–10 of the '276 patent be cancelled;

FURTHER ORDERED that Patent Owner's Motion to Exclude (Paper 41) is *denied*; and

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

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Patent 9,616,276 B2

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