

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ICON HEALTH & FITNESS, INC.,
Petitioner,

v.

NAUTILUS, INC.,
Patent Owner.

Case IPR2017-00495
Patent 8,323,155 B2

Before BARRY L. GROSSMAN, BART A. GERSTENBLITH, and
ROBERT L. KINDER, *Administrative Patent Judges*.

GERSTENBLITH, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

A. Background

ICON Health & Fitness, Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting institution of *inter partes* review of claims 1–16 of U.S. Patent No. 8,323,155 B2 (Ex. 1001, “the ’155 patent”). Nautilus, Inc. (“Patent Owner”) filed a Preliminary Response (Paper 8) to the Petition.

Pursuant to 35 U.S.C. § 314(a), an *inter partes* review may be instituted only if “the information presented in the petition . . . and any [preliminary] response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” See 37 C.F.R. § 42.108(c).

For the reasons given below, on this record, Petitioner has not established a reasonable likelihood that it would prevail in showing the unpatentability of claims 1–16 of the ’155 patent. Accordingly, we deny the Petition and do not institute an *inter partes* review of the ’155 patent.

B. Related Proceedings

The parties indicate that the ’155 patent is asserted in *Nautilus, Inc. v. ICON Health & Fitness, Inc.*, No. 3:16-cv-05393 (W.D. Wash.). Pet. 1; Paper 4, 1. Petitioner challenges three patents related to the ’155 patent via continuation applications in three other proceedings: IPR2017-00490 (US Patent No. 6,689,019 B2); IPR2017-00493 (US Patent No. 7,341,542 B2); and IPR2017-00494 (US Patent No. 7,632,219 B2). Pet. 1; Paper 4, 1.

C. Real Parties in Interest

The Petition identifies “ICON Health & Fitness, Inc.” as the sole real party in interest. Pet. 1. Patent Owner identifies “Nautilus, Inc.” as the sole real party in interest. Paper 4, 1.

D. The References

Petitioner relies on the following references:

U.S. Patent No. 6,206,804 B1, issued March 27, 2001 (Ex. 1003, “Maresh-I”);

U.S. Patent No. 5,857,941, issued January 12, 1999 (Ex. 1004, “Maresh-II”); and

U.S. Patent No. 6,171,215 B1, issued January 9, 2001 (Ex. 1005, “Stearns”).

E. The Asserted Grounds of Unpatentability

Petitioner challenges the patentability of claims 1–16 of the ’155 patent on the following grounds:

References	Basis	Claims Challenged
Maresh-I and Maresh-II	§ 103(a)	1–4, 6, 8–11, 13, 15, and 16
Maresh-I, Maresh-II, and Stearns	§ 103(a)	5, 7, 12, and 14
Stearns and Maresh-II	§ 103(a)	1–3, 5, 7–10, 12, and 14–16
Stearns, Maresh-II, and Maresh-I	§ 103(a)	4, 6, 11, and 13

Petitioner supports its challenge with a Declaration by Scott Ganaja dated November 17, 2016 (Ex. 1006).

F. The ’155 Patent

The ’155 patent is directed to exercise equipment and, in particular, “to stationary elliptical motion striding equipment.” Ex. 1001, 1:19–21. As explained in the Abstract:

An exercise device providing a fore and aft horizontal component of striding motion that is dynamically user-defined, while providing a vertical component of the motion that is maintained on a predetermined vertically reciprocating path in

some embodiments. The exercise device guides the user's foot in a pseudo-elliptical stride path, while providing a dynamically variable stride length that allows the user to move with a natural stride length. The exercise device allows tall and short users to extend or curtail the stride length to match their natural stride lengths. The length of the reciprocating path is dynamically adjusted during the exercise operation without equipment adjustments by changes in the length of the stride input by the user at a pair of foot engagement pads disposed on laterally spaced apart foot support members.

Ex. 1001, [57].

Figure 1 of the '155 patent is reproduced below:

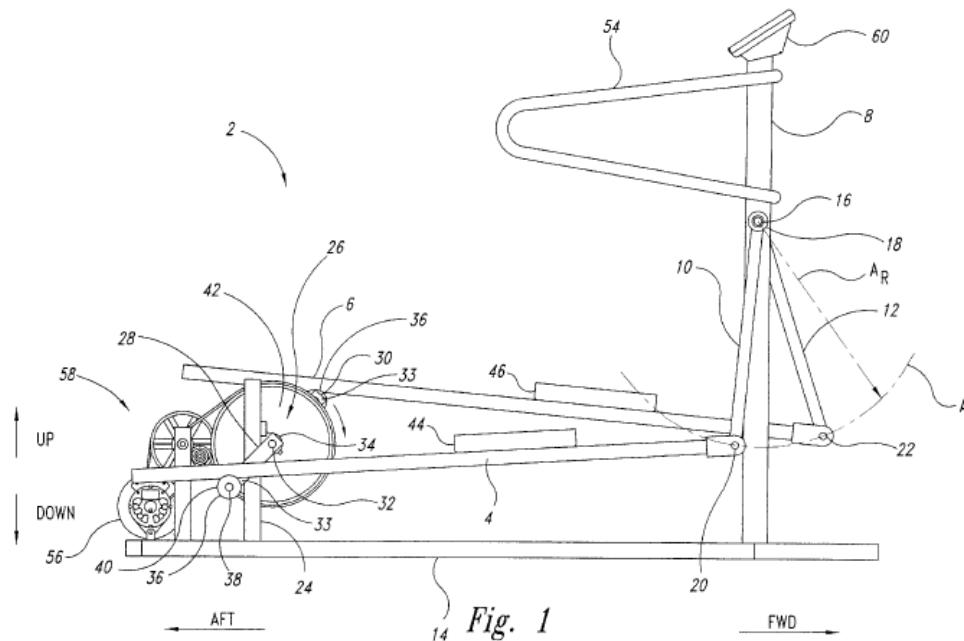


Figure 1 of the '155 patent illustrates one embodiment of the exercise device, which includes “two foot links pivotally suspended at a forward end from an upright pedestal by respective swing arms and rollably supported at a rearward end by rollers on crank arms, with a resistance device resisting the vertical component of the foot link motion via the rotating crank arms.” *Id.* at 3:17–23.

As shown in Figure 1, swing arms 10 and 12 guide the front end portions of foot links 4 and 6 in a pendulous swinging motion through an arcuate path “A.” *Id.* at 5:50–52. The rearward end portions of foot links 4 and 6 each rollingly rest atop roller 36, rotatably mounted on pin 38 attached to distal end 33 of a corresponding one of crank arms 28 and 30. *Id.* at 6:7–9, 12–15. Rollers 36 are shaped to laterally retain foot links 4 and 6 thereon as the foot links reciprocally move freely rearward and forward relative to the rollers during use of exercise machine 2. *Id.* at 6:17–21. The ’155 patent explains that “[t]his arrangement allows the user to use a stride length during the exercise and change stride length without any machine adjustments while the exercise is in progress.” *Id.* at 6:21–24.

G. Illustrative Claim

Claims 1 and 9 are the only independent claims of the ’155 patent.

Claim 1 is illustrative of the claimed subject matter and is reproduced below:

1. A striding exercise device, comprising:
 - a frame;
 - right and left elongate stride members supported on the frame and each including first and second opposed ends and a foot engagement pad positioned therebetween;
 - right and left crank arms operatively associated with the frame and configured to rotate about a crank axis, the right and left crank arms including right and left supports, respectively;
 - and
 - right and left downward-facing cams adjacent the respective first ends of the right and left elongate stride members, the right and left downward-facing cams riding on the right and left supports, respectively.

Id. at 22:19–33.

II. CLAIM CONSTRUCTION

In an *inter partes* review, claim terms in an unexpired patent are construed according to their broadest reasonable interpretation in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). Neither party contends that any claim terms require express construction and, for purposes of this Decision, we agree.

III. ANALYSIS

A. *Level of Ordinary Skill in the Art*

Petitioner contends that a person of ordinary skill in the art at the time invention of the '155 patent would have “at least a bachelor’s degree in mechanical engineering and several years of experience designing mechanical systems or exercise equipment, or an equivalent level of education and experience.” Pet. 5 (citing Ex. 1006 ¶¶ 22–23). Patent Owner indicates that, for purposes of its Preliminary Response, it agrees with Petitioner’s definition of a person of ordinary skill in the art. Prelim. Resp. 6. Accordingly, we adopt the level of ordinary skill in the art as agreed by the parties.

B. *Overview of Obviousness*

The analysis under 35 U.S.C. § 103(a) is objective and includes a determination of “the scope and content of the prior art,” the “differences between the prior art and the claims at issue,” and “the level of ordinary skill in the pertinent art.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966)). The analysis also includes such secondary considerations as “commercial success, long felt but unsolved needs, [and] failure of others”

amongst other considerations “to give light to the circumstances surrounding the origin of the subject matter sought to be patented.” *Id.* (citing *Graham*, 383 U.S. at 17–18).

In undertaking this inquiry:

Often, it will be necessary . . . to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.

Id. at 418. The U.S. Supreme Court explained that “[t]o facilitate review, this analysis should be made explicit,” agreeing with the U.S. Court of Appeals for the Federal Circuit that “[r]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.* (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

C. Obviousness over Maresh-I and Maresh-II

Petitioner contends that the combination of Maresh-I and Maresh-II would have rendered the subject matter of claims 1–4, 6, 8–11, 13, 15, and 16 obvious to one of ordinary skill in the art at the time of the invention. Pet. 13–21. With respect to claims 1 and 9, Petitioner relies upon Maresh-I as disclosing most of the elements of the claim, but relies upon Maresh-II as disclosing what Petitioner refers to as “element 1d”—“right and left downward-facing cams adjacent the respective first ends of the right and left elongate stride members, the right and left downward-facing cams riding on the right and left supports, respectively”—and “element 9c”—“right and left

cams adjacent the respective first ends of the right and left elongate stride members, the right and left cams being variably movable across the respective right and left supports relative to the right and left crank arms rotating about the crank axis.” (Pet. 15–20; Ex. 1007, 1 (element 1d), 3 (element 9c)).

1. *Maresh-I*

Maresh-I “relates to exercise methods and apparatus and more particularly, to exercise equipment which facilitates exercise through a curved path of motion.” Ex. 1003, 1:14–16. Maresh-I explains that it “provide[s] a novel linkage assembly . . . [that] allows foot supports to travel along elliptical paths which may be altered by adjustable components at the operator’s discretion.” *Id.* at 1:34–39. Figure 13 is reproduced below:

FIG. 13

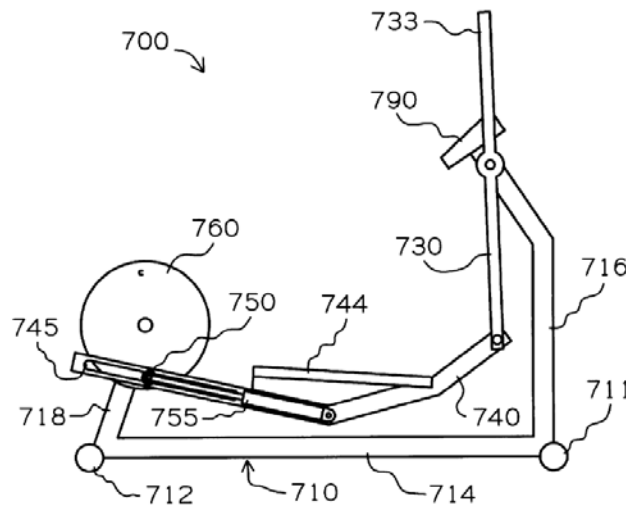


Figure 13 “is a side view of a seventh embodiment” of the disclosed exercise apparatus. *Id.* at 2:17–18.

Maresh-I explains:

The apparatus 700 generally includes a frame 710 and a linkage assembly movably mounted on the frame 710. Generally speaking, the linkage assembly encourages a force receiving member 740 to travel through an elliptical path of motion having a selectively variable length. . . .

On each side of the apparatus 700, the linkage assembly generally includes a forward rocker link 730, a force receiving link 740, a crank 760, and a roller 750 interconnected between the force receiving link 740 and the crank 760. On the embodiment 700, the crank 760 on the left side of the apparatus 700 is 180 degrees out of phase with the crank 760 on the right side of the apparatus 700, and the links on the left side move in opposite directions relative to their right side counterparts.

Id. at 8:61–9:18.

Additionally, Maresh-I teaches:

[A] crank 760 is keyed to a common shaft which is rotatably mounted on the rear stanchion 718 In this embodiment 700, the cranks 760 are flywheels with radially displaced pins secured thereto. . . . A separate roller 750 is rotatably connected to each crank 760 and projects axially away from the crank 760.

On each side of the apparatus 700, a force receiving link 740 has a rear end supported by a respective roller 750. In particular, the roller 750 projects into an elongate slot 745 formed in the force receiving link 740. . . .

Each roller 750 cooperates with a respective crank 760 to introduce rotational movement and a degree of freedom, in series, between the frame 710 and a respective force receiving member 740.

Id. at 9:24–50.

2. Maresh-II

Maresh-II also is directed to “exercise methods and apparatus and more particularly, to exercise equipment which facilitates exercise through a curved path of motion.” Ex. 1004, 1:5–7. Figure 7 is reproduced below:

Fig. 7

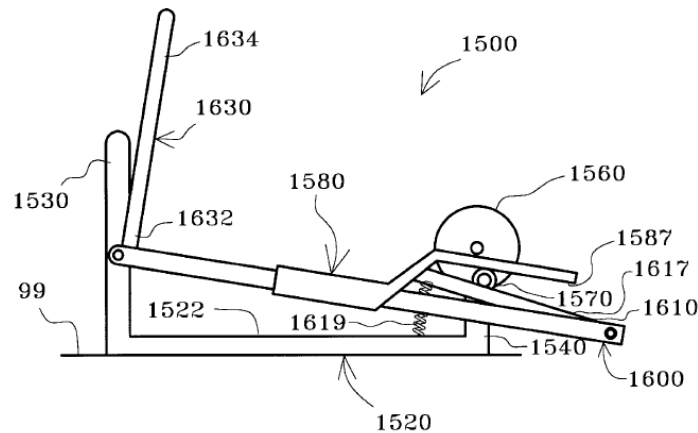


Figure 7 of Maresh-II shows a side view of the exercise apparatus with only one side of the linkage assembly shown. *Id.* at 2:37–39.

Maresh-II explains:

[T]he exercise apparatus 1500 includes a frame 1320 having a base 1522, which rests upon a floor surface 99, a forward stanchion 1530, which extends upward from the front end of the base 1522, and a rearward stanchion 1540, which extends upward from the rear end of the base 1522.

A flywheel 1560 is rotatably mounted on the rearward stanchion 1540 and rotatable about a crank axis. A roller 1570 is rotatably mounted on the flywheel 1560 at a location radially displaced from the crank axis and cooperates with the flywheel 1560 to define a crank. The roller 1570 rotates about a roller axis relative to the flywheel 1560 and rotates with the flywheel 1560 about the crank axis. Rather than gear teeth, the roller 1570 simply has a first bearing surface or interface, disposed at a relatively greater diameter about the roller 1570, which engages a flat bearing surface 1587 on the force receiving

member 1580, and a second bearing surface or interface, disposed at a relatively smaller diameter about the roller 1570, which engages a flat bearing surface 1617 on a support member 1600.

A rearward end of the support member 1610 is rotatably connected to a rearward end of a rail 1600. A helical coil spring 1619 is disposed between the base 1522 and an opposite, forward end of the support member 1610. The spring 1619 biases the bearing surface 1617 upward against the roller 1570. An opposite, forward end of the rail 1600 is rotatably connected to the forward stanchion 1530. The force receiving member 1580 is movably mounted on the rail 1600 intermediate the forward end and the rearward end. The rearward end of the rail 1600 is supported by the force receiving member 1580 which, in turn, is supported by the roller 1570.

Id. at 6:36–67.

Figure 11 is reproduced below:

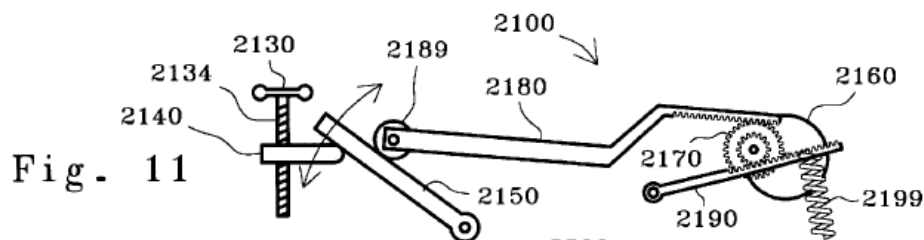


Figure 11 of Maresh-II shows a “first alternative arrangement for movably and adjustably connecting the force receiving member to the frame.” *Id.* at 2:49–51. Maresh-II explains:

In the embodiment 2100 of FIG. 11, the roller 2189 rolls or bears against a flat or linear bearing surface on a ramp 2150. A relatively lower and rearward end of the ramp 2150 is rotatably connected to the frame, and a relatively higher and forward end of the ramp 2150 is supported by a flange or ledge 2140. A threaded hole is formed through the flange 2140 to accommodate a lead screw 2134 having a lower end rotatably connected relative to the frame. A knob 2130 on the lead screw 2134 is rotated to move the flange 2140 up or down along the lead screw 2134 and relative to the frame and thereby adjust the

inclination of the ramp 2150 relative to the frame and the floor surface.

Id. at 8:51–62.

Figure 23 is reproduced below:

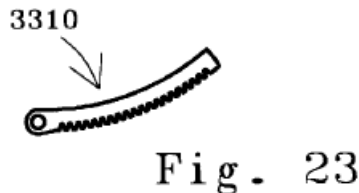


Figure 23 of Maresh-II shows a side view of an alternative rack arrangement. *Id.* at 3:14–15. Maresh-II explains:

[A]lternative support member 3310 is shown as a possible substitute for the “overlying” rack and/or force receiving member provided on any of the foregoing embodiments shown in FIGS. 1–16. The support member 3310 may be described as having a rack of gear teeth disposed along an [sic] downwardly convex surface.

Id. at 10:16–21.

3. Analysis¹

Petitioner contends that Maresh-I teaches “right and left downward-facing surfaces (downward-facing surfaces of right and left slots 745).” Pet. 15 (citing Ex. 1003, 9:33–55). Petitioner asserts that “rollers 750 roll along the downward facing surfaces of the slots 745, and the slots 745 are illustrated as flat, straight, ‘elongate’ slots in Figure 13.” *Id.* at 16. Petitioner contends that Maresh-I generally states “that ‘the size, configuration, and/or arrangement of the components of the disclosed embodiments may be modified as a matter of design choice’” (*id.* (quoting

¹ We focus on elements 1d and 9c because consideration of those claim limitations is dispositive.

Ex. 1003, 10:12–14)), and Petitioner asserts that “[o]ne such design choice would be to adjust the shape of the slots 745” (*id.* (citing Ex. 1006 ¶¶ 17, 42–50)).

Petitioner turns to Maresh-II, contending that Figure 7 shows circular roller 1570 as a support for flat bearing surface 1587 of force receiving member 1580. *Id.* (citing Ex. 1004, 6:42–55, Fig. 7). Petitioner explains that Maresh-II teaches “that the shape of the roller or the shape of the force receiving member can be modified” and that some of the modifications provide a “cam effect.” *Id.* at 16–17 (citing Ex. 1004, 9:33–10:22, Figs. 17–23). In particular, Petitioner points to the teaching that a curved force receiving member (illustrated in Figure 23) can be employed in place of the flat force receiving member (illustrated in Figure 7). *Id.* at 17 (citing Ex. 1004, 10:16–19; Ex. 1006 ¶¶ 17, 42–50).

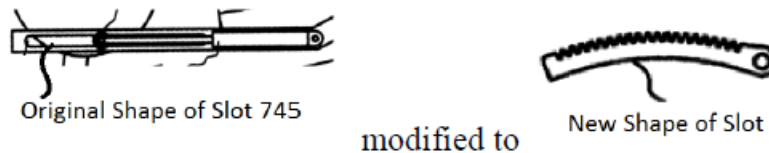
Petitioner contends that one of ordinary skill in the art would have been motivated to apply these teachings of Maresh-II to slot 745 of Maresh-I because it is “the simple substitution of one known element for another to obtain predictable results.” *Id.* at 17 (citing *KSR*, 127 S. Ct. at 1740). Specifically, Petitioner contends that Maresh-II teaches that a flat force receiving member can be modified into a curved surface and still produce elliptical motion. *Id.* Therefore, the “downward facing surface of the flat elongate slot 745 of *Maresh-I* could also be modified to have a curved shape and still provide elliptical motion and maintain the degree of freedom in forward/rearward travel in a predictable manner.” *Id.* (citing Ex. 1006 ¶¶ 17, 42–50).

Additionally, Petitioner asserts that combining the teachings of Maresh-I and Maresh-II “is combining a known technique to a known device

ready for improvement to yield predictable results.” *Id.* at 17 (citing *KSR*, 127 S. Ct. at 1740). Petitioner states that “the device of *Maresh-I* was ready for modifications to yield improvements, as taught by *Maresh-I* that adjustments could be made ‘as a matter of design choice’ and would yield a predictable result, namely, providing a modified shape of the elliptical path of exercise.” *Id.* at 18 (citing Ex. 1006 ¶¶ 17, 42–50).

In summary, Petitioner contends:

[A person of ordinary skill in the art] would have been motivated to combine the teachings of *Maresh-II* with those of *Maresh-I* to modify the downward facing surface of the flat elongate slot 745 of *Maresh-I* to include a curved shape, such as the curved shape from Figure 23 of *Maresh-II*, as illustrated in the rotated and labeled versions below (but with a smooth surface such as that illustrated in Figure 7 of *Maresh-II*):



Id. (citing Ex. 1006 ¶¶ 17, 42–50). Petitioner’s illustration shows the “Original Shape of Slot 745” from *Maresh-I* on the left, and states that it is “modified to” the “New Shape of Slot,” alternative support member 3310 from *Maresh-II*, shown on the right.

Patent Owner contends that neither *Maresh-I* nor *Maresh-II* disclose the cam structure required by claims 1–4, 6, 8–11, 13, 15, and 16. Prelim. Resp. 6–7. In particular, Patent Owner asserts that Petitioner fails to show that “(1) it would have been obvious to modify the concave up support surface shown in *Maresh-II* to create a concave down surface” and “(2) it would have been obvious to then combine the newly created concave down surface with *Maresh-I*.” *Id.* at 7. Additionally, Patent Owner argues that

“there is no evidence that skilled artisans would have recognized a concave down surface as solving a known problem or being otherwise desirable.” *Id.* In sum, Patent Owner contends that reaching Petitioner’s proposed combination requires at least three unsupported, inventive leaps: (1) rotating Maresh-II’s alternative support member 180 degrees; (2) removing the gear teeth to create a “smooth surface”; (3) using “this modified, unslotted and curved force receiving member, which itself appears in no cited reference, as a basis for modifying the damped, straight slot shown in Fig. 13 of Maresh-I.” *Id.* at 10.

Petitioner has not established a reasonable likelihood that it would prevail in showing that one of ordinary skill in the art would have combined the teachings of Maresh-I and Maresh-II in the manner proposed *and* modified those teachings to meet the cam limitations of the claims. First, Petitioner has not shown a reasonable likelihood of establishing that the cam limitations result from “the simple substitution of one known element for another to obtain predictable results.” In particular, Petitioner does not propose substituting one slot for another, or even one surface for another. Rather, Petitioner proposes adjusting the shape of *one* particular inner surface of the slot shown in Maresh-I. The resulting structure (*see* Pet. 18), if it can even be referred to as a slot, is not disclosed in Maresh-II.² Thus, Petitioner has not established a reasonable likelihood of showing that the

² We recognize that Maresh-II teaches that its alternative support member 3310 can be used “as a possible substitute” for the overlying rack and/or force receiving member shown in its Figures 1–16. Ex. 1004, 10:16–19. That teaching, however, fails to support Petitioner’s argument that modifying a single surface of the slot shown in Maresh-I is a simple substitution of one known element for another.

cam limitations can be met by a simple substitution of elements between Maresh-I and Maresh-II.

Second, Petitioner has not demonstrated a reasonable likelihood of showing that the claimed cam limitations result from “combining a known technique to a known device ready for improvement to yield predictable results.” In particular, Petitioner does not explain and has not established any reason as to why one of ordinary skill in the art would have combined and modified the teachings as proposed. Pet. 17; *see also id.* at 14 (citing Ex. 1006 ¶¶ 35–39). Petitioner states that the known technique is modifying a flat surface to a curved surface and that the result is a modified shape of the elliptical path of exercise. *Id.* at 18. We acknowledge that Maresh-II teaches the option of using alternative support member 3310, which has a curved surface, as a substitute to its overlying rack and/or force receiving member, which has a flat surface (i.e., the surface without teeth), and that the result is likely a modified shape of elliptical path. Nonetheless, Petitioner has not explained why one of ordinary skill in the art, viewing Maresh-II’s teaching, would modify one particular surface of Maresh-I’s slot 745 to modify the elliptical path. Specifically, Petitioner has not provided a reason with rational underpinning for making the modification.

Mr. Ganaja’s testimony suffers from a similar deficiency. *See* Ex. 1006 ¶¶ 35–39; *see id.* ¶ 37 (citing Ex. 1003, 1:14–16, 1:34–39; Ex. 1004, 1:10–23, 1:35–52). Mr. Ganaja cites to the background and summary of the invention sections of Maresh-I and Maresh-II, which discuss some of the benefits of the inventions disclosed therein. The cited portions, however, fail to discuss any potential reason for combining and modifying the teachings of the references as proposed by Petitioner. Maresh-I states

the general proposition that “[m]any advantages and improvements of the present invention may become apparent from the more detailed description that follows” (Ex. 1003, 1:49–51), but that statement alone fails to provide sufficient support for the specific modifications proposed by Petitioner. Thus, Petitioner has not established a reasonable likelihood of showing that the modification to Maresh-I would have been a combination of a known technique to a known device ready for improvement to yield predictable results.³

Third, Petitioner’s reliance upon design choice is not supported adequately. Petitioner relies heavily on the following statement in Maresh-I: “Furthermore, the size, configuration, and/or arrangement of the components of the disclosed embodiments may be modified as a matter of design choice.” Ex. 1003, 10:12–14. Petitioner, however, fails to connect anything specific, in Maresh-I, Maresh-II, or elsewhere, to this statement. In particular, there must be “a reason for why a person of ordinary skill in the art would have made the specific design choice.” *Cutsforth, Inc. v. MotivePower, Inc.*, 636 Fed. Appx. 575, 578 (Fed. Cir. 2016). Additionally, this is not a case of simply rearranging known parts, as is often encountered in circumstances that may be characterized as design choice. *See, e.g., In re Kuhle*, 526 F.2d 553, 555 (CCPA 1975) (affirming the Board’s finding of

³ We note that Petitioner repeatedly refers to the modification as an improvement (*see, e.g.*, Pet. 14, 17, 18), yet fails to provide any evidence regarding what, if any, improvement results therefrom or would have been recognized by one of ordinary skill in the art at the time of the invention. *See KSR*, 550 U.S. at 417 (“if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill”).

obviousness based on design choice where the rearrangement of parts did not produce a novel or unexpected result).

Fourth, Petitioner's summary of the proposed combination and modifications needed to meet the cam limitations reflects the hindsight-driven nature of Petitioner's analysis as well as highlights a significant unsupported modification. Petitioner begins with slot 745 shown in Figure 13 of Maresh-I. Petitioner modifies one inner surface of slot 745 (the downward facing surface), which is shown as flat in Figure 13. Specifically, Petitioner changes the flat surface of slot 745 to the curved surface of alternative support member 3310, shown in Figure 23 of Maresh-II. In so doing, Petitioner rotates the alternative support member 180 degrees. Petitioner, however, does not address adequately the shape of the other surfaces of alternative support member 3310, including the teeth shown on the upper surface (after rotation by Petitioner), stating simply that the upper surface would be "a smooth surface such as that illustrated in Figure 7 of Maresh-II." Pet. 18. Petitioner provides no reason as to why one of ordinary skill in the art would select a single surface of alternative support member 3310, ignore the other surfaces of that structure, and eliminate important structure on one of its surfaces (i.e., the teeth, which engage teeth on other structures shown in Maresh-II). In short, the twists and turns taken by Petitioner to meet the claimed cam limitations are not supported adequately by the arguments and evidence relied upon.⁴

⁴ Joseph D. Maresh is a named inventor on Maresh-I, Maresh-II, and Stearns. Ex. 1003, [76]; Ex. 1004, [76]; Ex. 1005, [76]. Petitioner contends that this fact supports its argument as to why one of ordinary skill in the art would have sought to combine the teachings therein. Pet. 14, 21–22. Even if a common inventor provided an additional reason as to why one reference

Accordingly, for these reasons, Petitioner has not provided articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Thus, Petitioner has not established a reasonable likelihood that it would prevail in showing the unpatentability of independent claims 1 and 9, and claims 2–4, 6, 8, 10, 11, 13, 15, and 16, which depend therefrom.

D. Obviousness over Maresh-I, Maresh-II, and Stearns

Petitioner contends that the combination of Maresh-I, Maresh-II, and Stearns would have rendered the subject matter of claims 5, 7, 12, and 14 obvious to one of ordinary skill in the art at the time of the invention. Pet. 21–25. Claims 5, 7, 12, and 14 depend, directly or indirectly, from claims 1 or 9. This ground relies upon the previous challenge—based upon the combination of Maresh-I and Maresh-II—meeting the elements of independent claims 1 and 9. *See id.* (omitting any discussion of claims 1 and 9 in addressing claims 5, 7, 12, and 14). Accordingly, for the same reasons, Petitioner has not established a reasonable likelihood that it would prevail in showing the unpatentability of claims 5, 7, 12, and 14.

would have commanded the attention of one of ordinary skill in the art when considering a second reference, that fact alone does not remedy the deficiencies suffered by Petitioner’s arguments regarding the specific combination and modifications needed to meet the claim limitations at issue. There is no debate that Maresh-I, Maresh-II, and Stearns are analogous art and that each would have commended itself to the attention of one of ordinary skill in the art of elliptical exercise machines at the time of the invention. But, as discussed above, this is not a case where a component of one reference is substituted with that of another reference. Rather, there are multiple unsupported leaps in Petitioner’s rationale that render it deficient.

E. Obviousness over Stearns and Maresh-II

Petitioner contends that the combination of Stearns and Maresh-II would have rendered the subject matter of claims 1–3, 5, 7–10, 12, and 14–16 obvious to one of ordinary skill in the art at the time of the invention. Pet. 25–34. With respect to claims 1 and 9, Petitioner relies upon Stearns as disclosing most of the elements of the claim, but relies upon Maresh-II as disclosing what Petitioner refers to as “element 1d”—“right and left downward-facing cams adjacent the respective first ends of the right and left elongate stride members, the right and left downward-facing cams riding on the right and left supports, respectively”—and “element 9c”—“right and left cams adjacent the respective first ends of the right and left elongate stride members, the right and left cams being variably movable across the respective right and left supports relative to the right and left crank arms rotating about the cranks axis.” (Pet. 27–32; Ex. 1007, 1 (element 1d), 3 (element 9c)).

1. Stearns

As with Maresh-I and Maresh-II, Stearns is directed to “exercise methods and apparatus and more particularly, to exercise equipment which facilitates exercise through a curved path of motion.” Ex. 1005, 1:16–18. Figure 34 is reproduced below:

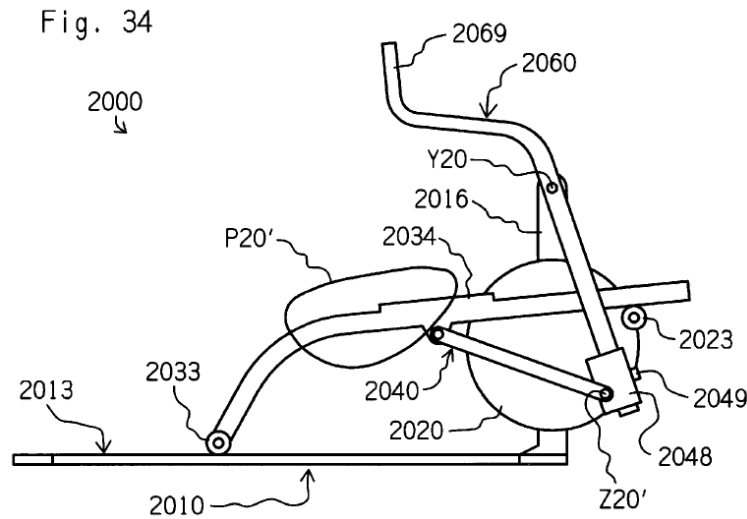


Figure 34 of Stearns is a side view of an embodiment of the exercise machine. *Id.* at 3:65–67.

Stearns explains:

[E]xercise apparatus 2000 ha[s] a frame 2010 which includes a base 2014 that extends between a forward end 2011 and a rearward end 2012 and is designed to rest upon a floor surface Left and right flywheels or cranks 2020 are rotatably mounted on the forward stanchion 2016 and rotate relative thereto about a common crank axis. Bearing surfaces 2013 are provided on the base 2014 proximate its rearward end 2012.

On each side of the apparatus 2000, a roller 2023 is rotatably connected to a radially displaced portion of a respective crank 1220. Right and left foot supporting links 2030 have forward portions which are supported by respective rollers 2023; intermediate portions 2034 which are sized and configured to support respective feet of a standing person; and rearward ends which are rotatably connected to respective rollers 2033 in contact with respective bearing surfaces 2013.

. . .

[T]he apparatus 2000 links rotation of the cranks 2020 to movement of the foot supports 2034 through generally elliptical paths of motion designated as P20'.

Id. at 18:37–19:13.

2. *Analysis*⁵

Petitioner contends that Stearns teaches “right and left downward-facing surfaces (bottom surface of the forward portions of the foot supporting links 2030) adjacent the respective first ends (forward portions of the right and left foot supporting links 2030).” Pet. 27 (citing Ex. 1005, 18:37–55, Figs. 33, 34). Petitioner asserts that “the right and left downward-facing surfaces (bottom surfaces of the forward portions of the foot supporting links 2030) rid[e] on the right and left supports (right and left rollers 2023), respectively.” *Id.* at 27–28 (citing Ex. 1005, 18:37–55, Figs. 33, 34).

Petitioner contends that Stearns illustrates the bottom surfaces as flat in Figures 33 and 34, but teaches that apparatus 2000 “may be modified in various ways to provide different features and/or exercise motions.” *Id.* at 28 (quoting Ex. 1005, 19:16–18). Petitioner argues that one such modification “would be to adjust the shape of the forward portion of the bottom surface of the foot supporting link 2030 to change the exercise motion.” *Id.* (citing Ex. 1006 ¶¶ 17, 75–83).

Petitioner turns to Maresh-II, contending that Figure 7 shows circular roller 1570 as a support for flat bearing surface 1587 of force receiving member 1580. *Id.* at 29 (citing Ex. 1004, 6:42–55, Fig. 7). Petitioner explains that Maresh-II teaches “that the shape of the roller or the shape of the force receiving member can be modified” and that some of the modifications provide a “cam effect.” *Id.* (citing Ex. 1004, 9:33–10:22, Figs. 17–23). In particular, Petitioner points to the teaching that a curved

⁵ Again, we focus on elements 1d and 9c because consideration of those claim limitations is dispositive.

force receiving member (illustrated in Figure 23) can be employed in place of the flat force receiving member (illustrated in Figure 7). *Id.* (citing Ex. 1004, 10:16–19; Ex. 1006 ¶¶ 17, 75–83).

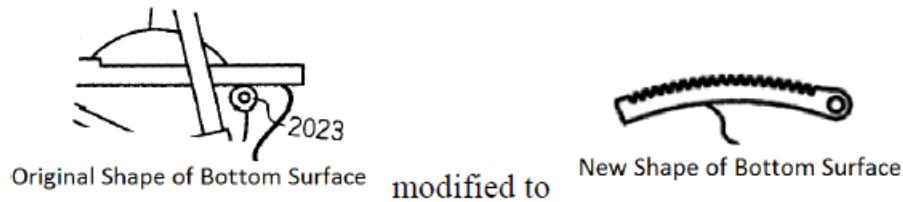
Petitioner contends that one of ordinary skill in the art would have been motivated to apply these teachings of *Maresh-II* to the bottom surface of the forward portion of the foot supporting link 2030 of *Stearns* because it is “the simple substitution of one known element for another to obtain predictable results.” *Id.* (citing *KSR*, 127 S. Ct. at 1740). Specifically, Petitioner contends that *Maresh-II* teaches that a flat force receiving member can be modified into a curved surface and still produce elliptical motion. *Id.* Therefore, the “flat bottom surface of the forward portion of the foot supporting link 2030 of *Stearns* could also be modified to have a curved shape and still provide elliptical motion.” *Id.* (citing Ex. 1006 ¶¶ 17, 75–83).

Additionally, Petitioner asserts that combining the teachings of *Maresh-II* and *Stearns* “is combining a known technique to a known device ready for improvement to yield predictable results.” *Id.* at 30 (citing *KSR*, 127 S. Ct. at 1740). Petitioner states that “the device of *Stearns* was ready for modifications to yield improvements, as taught by *Stearns* that modifications were expressly contemplated ‘to provide different features and/or exercise motions.’” *Id.* (quoting Ex. 1005, 19:16–18). Petitioner contends “such a modification would yield a predictable result, namely, providing a modified shape of the elliptical path of exercise.” *Id.* (citing Ex. 1006 ¶¶ 17, 75–83).

In summary, Petitioner contends:

[A person of ordinary skill in the art] would have been motivated to combine the teachings of *Maresh-II* with those of *Stearns* to modify the flat bottom surface of the forward portion of the foot

supporting link 2030 of Figures 33 and 34 of *Stearns* to include a curved shape, such as the curved shape from Figure 23 of *Maresh-II*, as illustrated in the rotated and labeled versions below (but with a smooth surface such as that illustrated in Figure 7)



Id. (citing Ex. 1006 ¶¶ 17, 75–83). Petitioner’s illustration shows the “Original Shape of Bottom Surface” from *Stearns* on the left, and states that it is “modified to” the “New Shape of Bottom Surface,” alternative support member 3310 from *Maresh-II*, shown on the right.

Patent Owner contends that neither *Stearns* nor *Maresh-II* disclose the cam structure required by claims 1–3, 5, 7–10, 12, and 14–16. Prelim. Resp. 20. Additionally, Patent Owner asserts that Petitioner fails to show that “(1) it would have been obvious to modify the concave up support surface shown in *Maresh-II* to create a concave down surface” and “(2) it would have been obvious to then combine the newly created concave down surface with *Stearns*.” *Id.* at 20–21. Further, Patent Owner argues that “there is no evidence that skilled artisans would have recognized a concave down surface as solving a known problem or being otherwise desirable.” *Id.* at 21. In sum, Patent Owner contends that reaching Petitioner’s proposed combination requires at least three unsupported, inventive leaps: (1) rotating *Maresh-II*’s alternative support member 180 degrees; (2) removing the gear teeth to create a “smooth surface”; (3) using “this modified, unslotted and curved force receiving member, which itself appears in no cited reference, as

a basis for modifying the flat foot supporting link shown in Figs. 33–34 of Stearns.” *Id.* at 23–24.

Petitioner has not established a reasonable likelihood that it would prevail in showing that one of ordinary skill in the art would have combined the teachings of Stearns and Maresh-II in the manner proposed *and* modified those teachings to meet the cam limitations of the claims. First, Petitioner has not shown a reasonable likelihood of establishing that the cam limitations result from “the simple substitution of one known element for another to obtain predictable results.” In particular, Petitioner does not propose substituting one element for another. Rather, Petitioner proposes modifying the bottom surface of Stearns based solely on Maresh-II’s teaching of a curved surface somewhere⁶ in the exercise apparatus. Pet. 29–30. Thus, Petitioner has not established a reasonable likelihood of showing that the claim limitations can be met by a simple substitution of elements between Stearns and Maresh-II.

Second, Petitioner has not demonstrated a reasonable likelihood of showing that the claimed cam limitations result from “combining a known technique to a known device ready for improvement to yield predictable results.” In particular, Petitioner does not explain and has not established any reason as to why one of ordinary skill in the art would have combined

⁶ The forward portion of the bottom surface of Stearns’ foot supporting link 2030 is at the forward or front end of the exercise apparatus (*see* Ex. 1005, Fig. 34), whereas the alternative support member 3310, and particularly the curved surface, is located at the rearward or rear end of the exercise apparatus (*see* Ex. 1004, Figs. 11, 23). In other words, the surfaces proposed for alleged substitution are not similarly situated in each exercise apparatus.

and modified and the teachings as proposed. Pet. 30 (citing Ex. 1006 ¶¶ 17, 75–83). Petitioner states that the known technique is modifying a flat surface to a curved surface and that the result is a modified shape of the elliptical path of exercise. *Id.* We acknowledge that Maresh-II teaches the option of using alternative support member 3310, which has a curved surface, as a substitute to its overlying rack and/or force receiving member, which has a flat surface (i.e., the surface without teeth), and that the result is likely a modified shape of elliptical path. Nonetheless, Petitioner has not explained why one of ordinary skill in the art, viewing Maresh-II’s teaching, would modify the bottom surface of the *forward portion* of Stearns’ foot supporting link to change the elliptical path. Specifically, Petitioner has not provided a reason with rational underpinning for making the modification, especially in light of the difference in location of the curved surface in Maresh-II, i.e., at the rearward or rear end of the exercise apparatus, as compared to the location of Petitioner’s proposed modification to Stearns, i.e., at the forward or front end of the apparatus.

Mr. Ganaja’s testimony suffers from a similar deficiency. Ex. 1006 ¶ 79 (citing Ex. 1005, 19:16–18). Mr. Ganaja cites to a statement in Stearns that “[a]s with all of the embodiments shown and/or described herein, the apparatus 2000 may be modified in various ways to provide different features and/or exercise motions.” Ex. 1005, 19:16–18. This statement, however, fails to discuss any potential reason for combining and modifying the teachings of the references as proposed by Petitioner. Thus, Petitioner has not established a reasonable likelihood of showing that the modification

to Stearns would have been a combination of a known technique to a known device ready for improvement to yield predictable results.⁷

Third, to the extent Petitioner relies upon design choice with respect to this ground, the position is not supported adequately. In particular, there must be “a reason for why a person of ordinary skill in the art would have made the specific design choice.” *Cutsforth, Inc.*, 636 Fed. Appx. at 578. Additionally, this is not a case of simply rearranging known parts, as is often encountered in circumstances that may be characterized as design choice. *See, e.g., In re Kuhle*, 526 F.2d at 555.

Fourth, Petitioner’s summary of the proposed combination and modifications needed to meet the cam limitations reflects the hindsight-driven nature of Petitioner’s analysis as well as highlights a significant unsupported modification. Pet. 30. Petitioner begins with the flat downward-facing surface of foot supporting links 2030 of Stearns, shown in Figures 33 and 34. Petitioner seeks to modify just that surface so that it is curved, like the downward facing surface of alternative support member 3310, shown in Figure 23 of Maresh-II, after the alternative support member is rotated 180 degrees. Petitioner, however, does not address adequately the shape of the other surfaces of alternative support member 3310, including the teeth shown on the upper surface (after rotation

⁷ We note that Petitioner repeatedly refers to the modification as an improvement (*see, e.g.*, Pet. 26, 30, 35, 36), yet fails to provide any evidence regarding what, if any, improvement results therefrom or would have been recognized by one of ordinary skill in the art at the time of the invention. *See KSR*, 550 U.S. at 417 (“if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill”).

by Petitioner), stating simply that the upper surface would be “a smooth surface such as that illustrated in Figure 7” of Maresh-II. *Id.* Petitioner provides no reason as to why one of ordinary skill in the art would select a single surface of alternative support member 3310, ignore the other surfaces of that structure, and eliminate important structure on one of its surfaces (i.e., the teeth, which engage teeth on other structures shown in Maresh-II). In short, the twists and turns taken by Petitioner to meet the claimed cam limitations are not supported adequately by the arguments and evidence relied upon.

Accordingly, for these reasons, Petitioner has not provided articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Thus, Petitioner has not established a reasonable likelihood that it would prevail in showing the unpatentability of independent claims 1 and 9, and claims 2, 3, 5, 7, 8, 10, 12, and 14–16, which depend therefrom.

F. Obviousness over Stearns, Maresh-II, and Maresh-I

Petitioner contends that the combination of Stearns, Maresh-II, and Maresh-I would have rendered the subject matter of claims 4, 6, 11, and 13 obvious to one of ordinary skill in the art at the time of the invention. Pet. 34–36. Claims 4, 6, 11, and 13 depend, directly or indirectly, from claims 1 or 9. This ground relies upon the previous challenge—based upon the combination of Stearns and Maresh-II—meeting the elements of independent claims 1 and 9. *See id.* (omitting any discussion of claims 1 and 9 in addressing claims 4, 6, 11, and 13). Accordingly, for the same reasons, Petitioner has not established a reasonable likelihood that it would prevail in showing the unpatentability of claims 4, 6, 11, and 13.

IV. CONCLUSION

Accordingly, Petitioner has not established a reasonable likelihood that it would prevail in showing the unpatentability of claims 1–16 of the '155 patent.

V. ORDER

Accordingly, it is:

ORDERED that the Petition is *denied* as to the challenged claims of the '155 patent; and

FURTHER ORDERED that no *inter partes* review is instituted.

IPR2017-00495
Patent 8,323,155 B2

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