

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LIFECORE FITNESS, INC. d/b/a ASSAULT FITNESS,
Petitioner,

v.

WOODWAY USA, INC.,
Patent Owner.

IPR2023-00836
Patent 9,039,580 B1

Before MEREDITH C. PETRAVICK, NEIL T. POWELL, and
AMEE A. SHAH, *Administrative Patent Judges*.

PETRAVICK, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. Background and Summary

LifeCore Fitness, Inc. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–12, 14, 15, 18, and 25 of U.S. Patent No. 9,039,580 B1 (Ex. 1001, “the ’580 patent”). Paper 2 (“Pet.”). Woodway

USA, Inc. (“Patent Owner”) file a Preliminary Response. Paper 5 (“Prelim. Resp.”).

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the petition “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.”

After considering the Petition, the Preliminary Response, and the evidence of record, we determine the information presented shows a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of at least one of challenged claims 1–12, 14, 15, 18, and 25 of the ’580 patent. We institute an *inter partes* review of all challenged claims of the ’580 patent on the grounds asserted in the Petition.

B. Real Parties in Interest

Petitioner identifies LifeCore Fitness, Inc. as the real party in interest. Pet. vi. Patent Owner identifies Woodway USA, Inc. as the real party in interest. Paper 4, 2.

C. Related Matters

The parties identify the following related court proceedings:

Woodway USA, Inc., v. LifeCore Fitness, Inc. d/b/a Assault Fitness, Case No. 3:22-cv-00492 (S.D. Cal.) (“the District Court Litigation”),

Woodway USA, Inc. v. Samsara Fitness, LLC et al., Case No. 2:15-cv-00956 (DWI), and

Chapco, Inc. et al v. Woodway USA, Inc., Case No. 3:15-cv-01665 (DCT) (“the Chapco Litigation”).

Pet. vi; Paper 4, 2.

This proceeding is related to the following *inter partes* reviews:
IPR2023-00843 (U.S. Patent No. 10,561,884 B2) and IPR2023-00849 (U.S.
Patent No. 10,799,745 B2).

D. The '580 Patent

The '580 patent is titled “Manual Treadmill and Methods of Operating the Same” and issued on May 26, 2015. Ex. 1001, code (45), (54). The '580 patent depicts manual treadmill 10 in Figure 1, which is reproduced below.

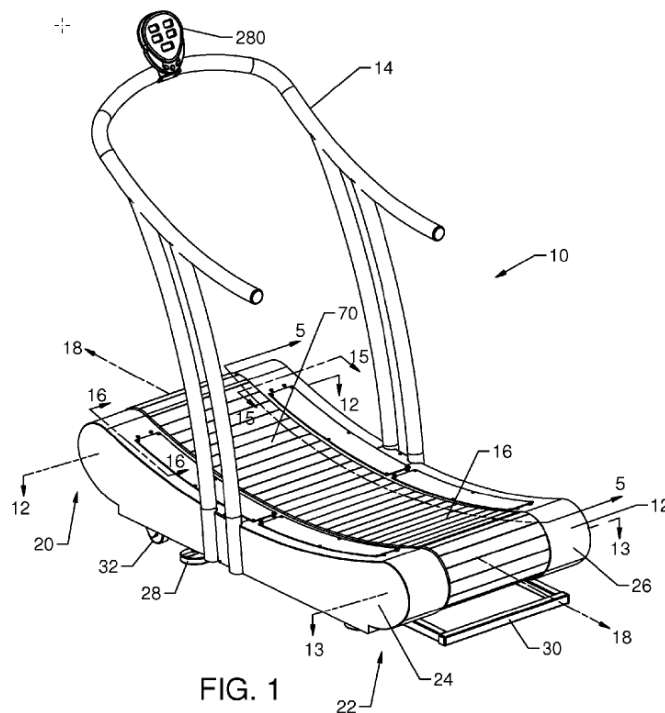


Figure 1 shows manual treadmill 10, having a handrail 14 mounted on a base 12, which supports running belt 16. *Id.* at 3:38–39, 5:20–24. Running belt 16 has a non-planar, curved running surface 70. *Id.* at 64–66. As the user runs, running belt 16 generally moves rearward or clockwise. *Id.* at 7:15–33, 28:65–66.

Figure 2 of the '580 patent is reproduced below.

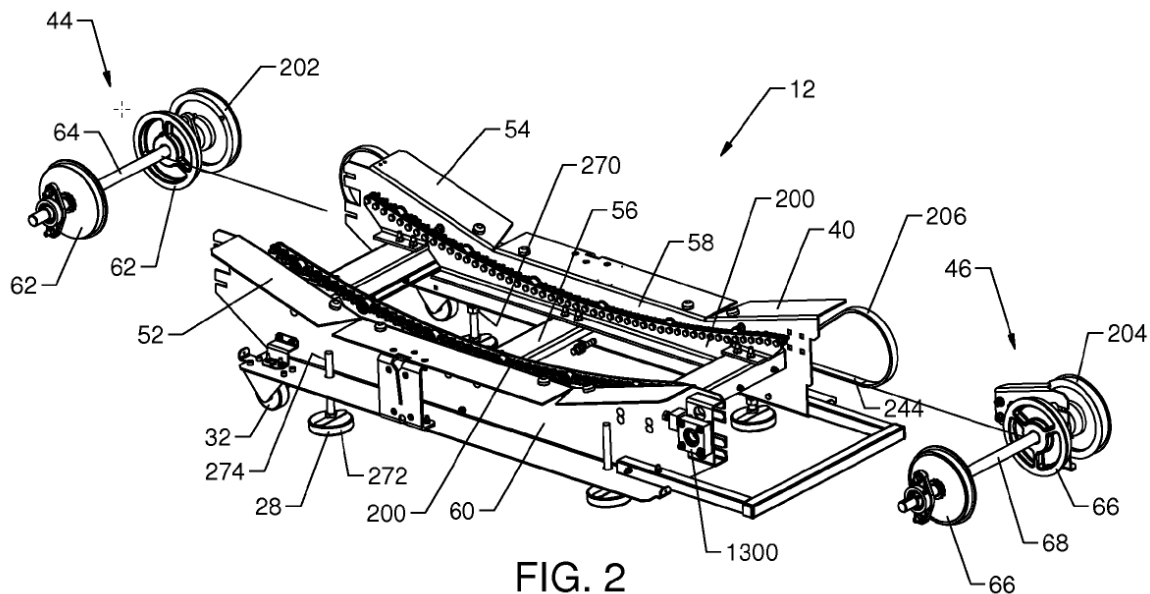


FIG. 2

Figure 2 depicts an embodiment of base 12, having a frame 40, front shaft assembly 44 and rear shaft assembly 46. *Id.* at 3:40–42, 5:48–52. Rear shaft assembly 46 has running belt pulleys 66 fixed to rear shaft 68. *Id.* at 8:4–6. Attached to frame 40 are bearing rails 200. *Id.*

Figure 9 of the '580 patent is reproduced below.

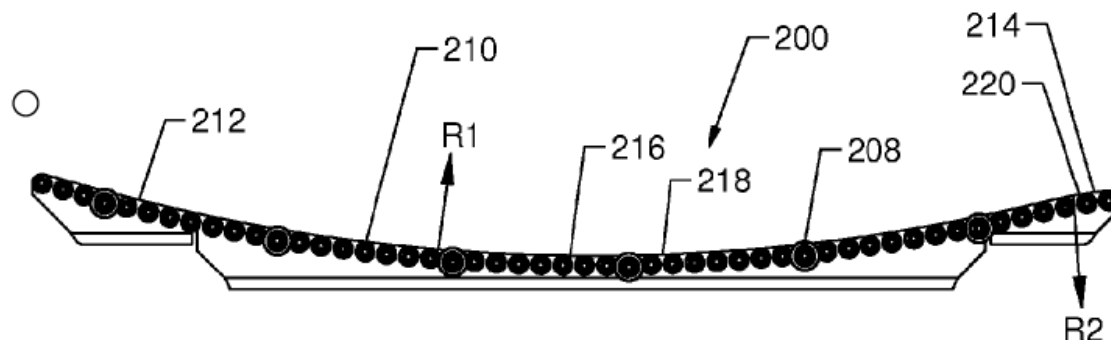


FIG. 9

Figure 9 depicts bearing rail 200. *Id.* at 3:64. Bearing rail 200 includes a plurality of bearings 208 and has top profile 201, which is shaped as a complex curve in this embodiment. *Id.* at 11:41–44, 12:12–32. However,

the shape of the top profile can have variations and may not have an entirely smooth contour. *Id.* at 12:32–44, Figs. 7a–7j.

Forward rotation of running belt 16 is undesirable because it could cause a user to lose their footing, resulting in injury. *Id.* at 26:65–27:11. Manual treadmill 10, thus, may include safety devices to prevent forward rotation. *Id.* at 27:7–9. One safety device is depicted in Figure 36 of the '580 patent, reproduced below.

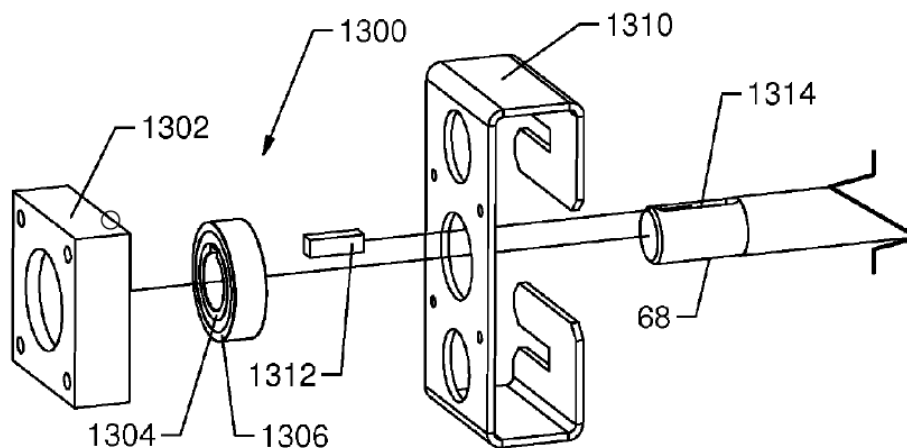


FIG. 36

Figure 36 depicts one embodiment of a one-way bearing assembly. *Id.* at 5:6–8. One-way bearing assembly 1300 restricts motion by permitting rotation of front and rear shaft assemblies 44, 46 in only one direction. *Id.* at 27:11–15. One-way bearing assembly 1300 has inner ring 1304 and an outer ring 1306. *Id.* at 27:18–21. Disposed between inner ring 1304 and outer ring 1306 are sprags (not shown) that are asymmetric and, thus, allow for motion in one direction and prevent rotation in the opposite direction. Outer ring 1306 is fixed to housing 1302, which is mounted to frame 40 so as to prevent movement of housing 1302 in response to rotation of rear shaft 68. *Id.* at 27:20–21, 27:25–29. Key 1312 is fixed to inner ring 1304 and

cooperates with keyway 1314 in rear shaft 68, and, thus, inner ring 1341 rotates with rear shaft 68. *Id.* at 27:39–41, 27:44–47.

If a force is applied by the user to the running belt 16 that urges the rear shaft 68 to rotate counterclockwise, the one-way bearing assembly 1300 provides a counter force, preventing the counterclockwise rotation of the rear shaft 68 and the forward rotation of the running belt 16. Specifically, as the rear shaft 68 begins to move counterclockwise, the interaction of the key 1312 and the keyway 1314 begins to drive the inner ring 1304 of the one-way bearing assembly 1300 rearward. The Sprags become wedged between the inner ring 1304 and the outer ring 1306, preventing the counterclockwise rotation of the inner ring and key 1312 disposed therein. The key 1312, by virtue of its inability to rotate, provides a counterforce to the keyway 1314 as the keyway continues to attempt to rotate counterclockwise. By preventing the keyway 1314 from moving counterclockwise, the one-way bearing assembly 1300 thus prevents the rear shaft 68, the rear running belt pulleys 66, and running belt 16 from rotating counterclockwise as seen in FIGS. 1 and 5.

Id. at 27:48–65.

The '580 patent discloses another embodiment of a safety device having a one-way bearing assembly. *Id.* at 27:66–22, Fig. 38. Additionally, the '580 patent discloses other safety systems to prevent undesirable forward rotation of running belt 16, such as a cam locking system, taper locks, a user operated pin system, or a band brake system with a lever. *Id.* at 29:23–28.

E. Illustrative Claim

Petitioner challenges claims 1–12, 14, 15, 18, and 25 of the '580 patent. Claims 1, 11, and 25 are independent. Claims 2–10 depend directly or indirectly from claim 1, and claims 12, 14, 15, and 18 depend from claim 11. Claim 1 is illustrative and reproduced below.

1. A manually powered treadmill comprising:
 - a frame having a front end and a rear end positioned opposite the front end;
 - a front shaft rotatably coupled to the frame at the front end;
 - a rear shaft rotatably coupled to the frame at the rear end;
 - a first bearing rail having a plurality of bearings, the first bearing rail attached to a left side of the frame;
 - a second bearing rail having a plurality of bearings, the second bearing rail attached to a right side of the frame;
 - a running belt supported by the first bearing rail and the second bearing rail and disposed about the front shaft and the rear shaft, wherein the running belt follows a curved running surface; and
 - a safety device coupled to at least one of the front shaft and the rear shaft, wherein the safety device is structured to substantially prevent rotation of at least one of the front shaft and the rear shaft in a first rotational direction while permitting rotation of the at least one of the front shaft and the rear shaft in a second rotational direction opposite the first rotational direction.

Ex. 1001, 32:48–67.

F. Evidence and Asserted Grounds

Petitioner asserts that claims 1–12, 14, 15, 18, and 25 would have been unpatentable on the following grounds:

Ground	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1	1–5, 10, 11, 14, 18, 25	103	Chickering, ¹ Magid ²
2	6–9, 12	103	Chickering, Magid, Sclater ³
3	1–12, 14, 18	103	Chickering, Magid, Sclater
4	1–5, 10, 11, 14, 15, 18, 25	103	Socwell, ⁴ Magid

¹ U.S. Patent No. 3,637,206, issued Jan. 25, 1972 (Ex. 1013).

² U.S. Patent No. 5,538,489, issued July 23, 1996 (Ex. 1012).

³ Neil Sclater & Nicholas P. Chironis, *Mechanisms & Mechanical Devices Sourcebook*, Third Ed. (McGraw-Hill 2001) (Ex. 1017).

⁴ U.S. Patent No. 5,897,461, issued Apr. 27, 1999 (Ex. 1011).

Ground	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
5	6–9, 12	103	Socwell, Magid, Sclater
6	1–12, 14, 15, 18, 25	103	Socwell, Magid, Sclater

Petitioner relies upon the Declaration of Robert Giachetti, Ph.D. (Ex. 1003) to support its analysis.

II. ANALYSIS

A. 35 U.S.C. § 314(a)

Patent Owner argues that we should exercise our discretion under 35 U.S.C. § 314(a) to deny the Petition in light of the District Court Litigation. Prelim. Resp. 38–50. Section 314(a) states that

[t]he Director may not authorize an inter partes review to be instituted unless the Director determines that the information presented in the petition filed under section 311 and any response filed under section 313 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.

Under § 314(a), we have discretion to deny institution of an *inter partes* review. *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140 (2016). We consider several factors when determining whether to deny institution under § 314(a) based on a parallel district court proceeding, specifically

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;

5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board's exercise of discretion, including the merits.

Apple Inc. v. Fintiv, Inc., IPR2020-00019, Paper 11 at 5–6 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”). We also consider “several clarifications” made by the Director of the United States Patent and Trademark Office (“USPTO”). See USPTO Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation, 2 (June 21, 2022), *available at* https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf (“*Fintiv Memo*”).

1. Factor 1 – Whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted

Under the first *Fintiv* factor, we consider “whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted.” *Fintiv*, Paper 11 at 6.

No motion for stay has been filed in the District Court Litigation. Pet. 102; Prelim. Resp. 39.

Patent Owner, however, argues that “even if Petitioner were to seek a stay pending IPR, the Court would almost certainly deny such a request under the three-factor test used in the Southern District of California.” Prelim. Resp. 39; *see also id.* at 39–42 (arguing all three factors weigh against a stay).

Patent Owner's argument is based on mere speculation. We decline to speculate based on the record in this proceeding whether the District Court would grant a stay of the District Court Litigation. See *Apple Inc. v. Fintiv*,

Inc., IPR2020-00019, Paper 15 at 12 (PTAB May 13, 2020) (informative) (“*Fintiv II*”). As a result, we determine that the first *Fintiv* factor is neutral.

2. *Factor 2 – Proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision*

Under the second *Fintiv* factor, we consider the “proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision.” *Fintiv*, Paper 11 at 6.

No trial date has been set in the District Court Litigation. Pet. 103; Prelim. Resp. 42.

Parties may present evidence regarding the most recent statistics on median time-to-trial for civil actions in the district court in which the parallel litigation resides for the PTAB’s consideration. *Fintiv* Memo 8–9.

Applying a median time to trial of 45.4 months for the District Court,

Petitioner argues that trial would likely occur in early 2026. Pet. 103.

Patent Owner argues that 45.4 months is incorrect and that we should apply a median time to trial of 34.17 months or 31.92 months, depending on whether statistical outliers are excluded. Prelim. Resp. 42–43. Applying its median time to trial, Patent Owner argues that trial would likely occur in February 2025 or December 2024. *Id.* at 43. Regardless of which median time to trial we apply, our projected statutory deadline for a final written decision in this case is October 2024 and neither party argues that the District Court’s trial would occur before we issue our final written decision.

As a result, we determine that the second *Fintiv* factor weighs against discretionary denial of institution.

3. *Factor 3 – Investment in the parallel proceeding by the court and the parties*

Under the third *Fintiv* factor, we consider the “investment in the parallel proceeding by the court and the parties.” *Fintiv*, Paper 11 at 6. If, at the time of the institution decision, the district court has issued substantive orders related to the challenged patent, such as a claim construction order, this fact weighs in favor of denial. *See Fintiv*, Paper 11 at 9–10. On the other hand, if the district court has not issued such orders, this fact weighs against discretionary denial. *Id.* at 10.

Petitioner argues that neither the parties nor the District Court have invested significant resources because “[t]he [District Court] has not issued a scheduling order beyond the Markman Hearing, or any substantive rulings (e.g., claim construction, dispositive motion).” Pet. 103.

Patent Owner argues that the third factor favors denying institution because, in the District Court Litigation, the parties have 1) conducted substantial fact discovery, 2) exchanged initial infringement and invalidity contentions, 3) began expert discovery, and 4) conducted a Markman hearing. Prelim. Resp. 44–45.

The evidence of record indicates that the District Court and the parties have invested some resources in the District Court Litigation as to issues of unpatentability involving the ’580 patent, but that much work remains in the District Court Litigation as it relates to invalidity. *See Sand Revolution II, LLC v. Continental Intermodal Grp. – Trucking LLC*, IPR2019-01393, Paper 24 at 11 (PTAB June 16, 2020) (informative) (“[W]e recognize that much work remains in the district court case as it relates to invalidity: fact discovery is still ongoing, expert reports are not yet due, and substantive motion practice is yet to come.”). The District Court has not yet issued any

substantive orders as to the patentability of the challenged claims or a claim construction order. Pet. 103, Prelim. Resp. 44. Fact and expert discovery are ongoing, and the deadline for dispositive motions is not yet set. Ex. 2001. These facts do not favor denial.

Additionally, *Fintiv* directs us to consider whether “the petitioner filed the petition expeditiously.” *Fintiv*, Paper 11 at 11.

If the evidence shows that the petitioner filed the petition expeditiously, such as promptly after becoming aware of the claims being asserted, this fact has weighed against exercising the authority to deny institution under *NHK*.[□] If, however, the evidence shows that the petitioner did not file the petition expeditiously, such as at or around the same time that the patent owner responds to the petitioner's invalidity contentions, or even if the petitioner cannot explain the delay in filing its petition, these facts have favored denial.

Fintiv, Paper 11 at 11–12.

Patent Owner contends that Petitioner did not act expeditiously because Petitioner filed the Petition on April 11, 2023, more than seven months after receiving Patent Owner's preliminary infringement contentions on September 6, 2022. Prelim. Resp. 45 (citing Ex. 2014).

Petitioner was served with the complain in the District Court Litigation on April 13, 2022 and filed the Petition on April 11, 2023. *See* Pet. vi. Petitioner does not explain its failure to act expeditiously in filing the Petition. These facts favor denial.

Considering the facts as a whole, we determine that the third *Fintiv* factor weighs slightly against discretionary denial of institution.

4. *Factor 4 – Overlap between issues raised in the petition and in the parallel proceeding*

Under the fourth *Fintiv* factor, we consider the “overlap between issues raised in the petition and in the parallel proceeding.” *Fintiv*, Paper 11 at 6.

Petitioner stipulates that “if the Board institutes this Petition, Petitioner will not raise at trial in parallel litigation any Ground raised here.” Pet. 103. Patent Owner argues that Petitioner’s stipulation is not a *Sotera*-type stipulation, and thus “cannot short-circuit the *Fintiv* analysis and does not account for the significant risk of overlap between the asserted grounds and Petitioner’s invalidity positions in the [District Court Litigation].” Prelim. Resp. 46 (citing *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020) (precedential)).

The Petition challenges claims 1–12, 14, 15, 18, and 25 and relies on Chickering, Magid, Socwell, and Sclater. Pet. 4. Petitioner’s invalidity contentions in the District Court Litigation address the challenged claims and rely on the prior art asserted in this proceeding. *See* Ex. 2015, 2–3, 9–62. Nonetheless, Petitioner’s stipulation that it will not rely on the grounds asserted in the Petition in the District Court Litigation mitigates to at least some degree concerns of duplicative efforts and potentially conflicting decisions. *See Sand Revolution*, Paper 24 at 12. Thus, we determine that the fourth *Fintiv* factor weighs at least slightly against discretionary denial of institution.

5. *Factor 5 – Whether the petitioner and the defendant in the parallel proceeding are the same party*

Under the fifth *Fintiv* factor, we consider “whether the petitioner and the defendant in the parallel proceeding are the same party.” *Fintiv*,

Paper 11 at 6. Here, Petitioner is the defendant in the District Court Litigation. Prelim. Resp. 49. Under these circumstances, we determine that the fifth *Fintiv* factor slightly favors discretionary denial of institution.

6. *Factor 6 – Other circumstances that impact the Board’s exercise of discretion, including the merits*

Under the sixth *Fintiv* factor, we consider “other circumstances that impact the Board’s exercise of discretion, including the merits.” *Fintiv*, Paper 11 at 6. “[W]here the PTAB determines that the information presented at the institution stage presents a compelling unpatentability challenge, that determination alone demonstrates that the PTAB should not discretionarily deny institution under *Fintiv*.” *Fintiv* Memo 4–5.

Petitioner argues that “[t]he Petition’s merits are strong” and cites to pages 3 to 5 of the *Fintiv* Memo, which discuss compelling merits. Pet. 103. We, thus, construe Petitioner’s argument as raising a compelling merits argument. Patent Owner responds that Petitioner has not shown compelling merits because merely meeting the statutory likelihood of success threshold for institution is not enough. Prelim. Resp. 49–50.

On balance, we determine that *Fintiv* factors 1–5 do not favor discretionary denial of institution. In particular, we determine that factors 2–4 weigh against denial of institution and factor 5, which is the lone factor favoring denial of institution, does not outweigh factors 1–4. Factor 1 is neutral. As a result, we need not decide whether Petitioner presents a compelling unpatentability challenge. See *CommScope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 at 4–5 (PTAB Feb. 27, 2023) (decision on Director review) (precedential) (“[I]n circumstances where the Board determines that the other *Fintiv* factors 1–5 do not favor discretionary

denial, the Board shall decline to discretionarily deny under *Fintiv* without reaching the compelling merits analysis.”).

In addition, Petitioner asserts:

(1) the Board is best suited to address the technical issues raised here; (2) a decision on the merits at institution may aid the parties in resolving their dispute; and (3) determining patentability will benefit the public, providing a complete record and rationale absent from a jury verdict form.

Pet. 103–104. Patent Owner responds that Petitioner’s argument does nothing more than “proclaim[] in conclusory fashion that institution will result in some vague benefit to the [District Court] Litigation and the public.” Prelim. Resp. 50. We agree with Patent Owner. Petitioner’s assertion is conclusory and does not adequately specify the particular benefits to the proceeding here or to the District Court Litigation.

We determine that the sixth *Fintiv* factor is neutral.

7. Summary

Based on our holistic view of the *Fintiv* factors, we decline to exercise our discretion under § 314(a) to deny the Petition.

B. 35 U.S.C. § 325(d)

Patent Owner argues that the Petition should be denied under 35 U.S.C. § 325(d). Prelim. Resp. 52–54, 63–65. In determining whether to deny institution under § 325(d), we use

the following two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of [the] first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential).

The *Becton, Dickinson* factors provide useful insight into how to apply the framework under 35 U.S.C. § 325(d). *Id.* at 9 (referencing *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17–18 (PTAB Dec. 15, 2017) (precedential as to § III.C.5, first paragraph)).

Under § 325(d), the art and arguments must have been previously presented to the Office during proceedings, such as examination of the underlying patent application, pertaining to the challenged patent. *Advanced Bionics*, Paper 6 at 7. Previously presented art includes art made of record by the Examiner, and art provided to the Office by an applicant, such as on an Information Disclosure Statement (“IDS”), in the prosecution history of the challenged patent. *Id.* at 7–8.

1. *Whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office*

Under the first part of the *Advanced Bionics* framework, we consider “whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office.” *Id.* at 8. We evaluate *Becton, Dickinson* factors (a), (b), and (d) to determine whether Petitioner has demonstrated material error. *Id.* at 10. Those factors are:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination; and
- (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art.

Becton, Dickinson & Co. v. B. Braun Melsungen AG, IPR2017-01586, Paper 8 at 17–18 (PTAB Dec. 15, 2017) (precedential as to § III.C.5, first paragraph).

Previously presented art includes art made of record by the Examiner, and art provided to the Office by an applicant, such as on an Information Disclosure Statement (“IDS”), in the prosecution history of the challenged patent. *Id.* at 7–8. Here, it is not disputed that, Chickering, Socwell, and Magid, but not Sclater, were previously presented to the Office. *See* Pet. 104; Prelim. Resp. 26; Ex. 1001, code (56).

Additionally, Patent Owner argues the Petitioner relies upon “nearly identical arguments regarding the teachings of [Chickering, Socwell, and Magid]” because a Declaration of Dr. Giachetti from the Chapco Litigation was presented to the Office during the prosecution of U.S. Patent No. 10,799,745 B2 (Ex. 2003), which is a later-issued patent in the same patent family as the ’580 patent. *Id.* at 26.

However, “[u]nder § 325(d), the art and arguments must have been previously presented to the Office *during proceedings pertaining to the challenged patent.*” *Advanced Bionics*, Paper 6 at 7 (emphasis added). Patent Owner at most presents evidence that the Declaration of Dr. Giachetti from the Chapco Litigation previously was presented to the Office during proceedings pertaining to an application that claims priority to the ’580 patent. Prelim. Resp. 26–34. Patent Owner does not show that the Declaration of Dr. Giachetti from the Chapco Litigation previously was presented to the Office during proceedings *pertaining to the ’580 patent*. *See id.* It could not have been as the ’580 patent issued in 2015 and the Declaration of Dr. Giachetti from the Chapco Litigation is dated 2017. *See* Ex. 1001, code (45); Exs. 2008, 2009.

However, because Chickering, Socwell, and Magid were previously presented to the Office and form the basis for all of the grounds, we determine that the first part of the *Advanced Bionics* framework is satisfied. We turn to whether Petitioner demonstrates that the Office erred in a manner material to the patentability of the challenged claims when it considered Chickering, Socwell, and Magid.

2. *Whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims*

Under the second part of the *Advanced Bionics* framework, we consider “whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics*, Paper 6 at 8. “An example of a material error may include misapprehending or overlooking specific teachings of the relevant prior art where those teachings impact patentability of the challenged claims.” *Id.* at 8 n.9. We evaluate *Becton, Dickinson* factors (c), (e), and (f) to determine whether Petitioner has demonstrated material error. *Id.* at 10. Those factors are:

(c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection; . . . (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson, Paper 8 at 17–18.

Petitioner argues the Office made a material error by failing to appreciate the prior art discloses the claim limitations related to the bearing rails. Pet. 104–105. Patent Owner responds that the Petitioner fails to show

that the bearing rail limitations are relevant to patentability. Prelim. Resp. 35–37.

As Petitioner points out (Pet. 12, 14–15), the prosecution history of the '508 patent is sparse as the Examiner allowed the '508 patent without rejecting any of the claims. *See generally* Ex. 1002. The prosecution history indicates that the Examiner and applicant held an interview, discussing “Schmidt and Magid.” Ex. 1002, 191. A summary of the interview broadly indicates that the Examiner received permission to enter an amendment to put the application in condition for allowance: however, there is no other explanation as to the substance of the interview. *Id.*

After the interview, the Examiner issued a Notice of Allowance along with an Examiner’s Amendment. *Id.* at 187–189. The Examiner amended original independent claims 11 and 26, which recited limitations related to a safety device, to additionally recite limitations related to bearing rails. *See id.* at 83–88 (listing the original claims), 188–189 (amending the original claims). And, the Examiner’s Notice of Allowance states:

The prior art discloses a human-powered treadmill with a frame, a pair of shafts, and a curved running belt disposed on the shafts. *See, e.g.,* U.S. Patent 1, 211, 765 (Schmidt). However, the prior art lacks the same in combination with a pair of bearing rails, each bearing rail comprising a plurality of bearings, the bearing rails supporting the running belt, and a safety device associated with one of the shafts to prevent that shaft and the running belt from rotating one direction while allowing free rotation in the opposite direction.

Id. at 189. Thus, it is clear from the prosecution history that the Examiner considered the bearing rails limitations material to the patentability of the claims.

The Petition asserts that the bearing rail limitations are obvious based upon a combination of two embodiments of Chickering, as supported by the testimony of Dr. Giachetti. There is no evidence that the Examiner extensively evaluated Chickering and Chickering was not included in a rejection. As can be seen from our discussion of Chickering's teachings in our analysis of ground 1 below, we determine that Petitioner has sufficiently shown that the Examiner materially erred when allowing the claims of the '580 patent based on the bearing rail limitations.

Accordingly, we determine that Petitioner demonstrates that the Office erred in a manner material to the patentability of the challenged claims.

3. *Summary*

For the reasons discussed above, we decline to exercise our discretion under § 325(d) to deny the Petition.

C. Legal Standards

A claim is unpatentable under § 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). “[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.” *KSR*, 550 U.S. at 416 (citing *U.S. v. Adams*, 383 U.S. 39, 50–51 (1966)). 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) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Here, the record contains no evidence of objective indicia of non-obviousness.

D. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art would have had a bachelor’s degree in mechanical engineering and at least one year of machine design experience related to power transmission equipment and a demonstrated understanding of exercise biomechanics, including anthropometry (i.e., the study of human proportion).

Pet. 5 (citing Ex. 1003 ¶¶ 48, 44–49 (supporting testimony of Dr. Giachetti)) (emphasis omitted). Petitioner additionally states that “[t]his description is approximate and additional development experience could make up for less education and vice versa.” *Id.*

At this stage of the proceeding, Patent Owner does not dispute Petitioner’s proposed level of ordinary skill in the art and does not propose an alternative level. Prelim. Resp. 2.

On this record, we adopt Petitioner’s assessment of the level of ordinary skill in the art as it is consistent with the ’580 patent and the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

E. Claim Construction

We construe each claim “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b) (2019). Under this standard, claim terms are generally given

their plain and ordinary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). Only those terms in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Realtime Data LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019).

Petitioner states that claim terms should be construed according to their ordinary and customer meaning. Pet. 15. But, for grounds 3 and 6 only, Petitioner proposes constructions of the claim terms “substantially prevent,” “safety device,” and “shaft” because the construction of these terms is at issue in the District Court Litigation. *Id.*

At this stage of the proceeding, Patent Owner asserts that no claim construction is necessary and does not expressly construe any claim terms. Prelim. Resp. 3.

To the extent necessary, we discuss the meaning of a claim term (“supported by”) in our analysis below. We, however, need not construe explicitly any of the claim terms proposed by Petitioner to reach our decision about institution. *See Realtime Data*, 912 F.3d at 1375 (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

F. Ground 1: Unpatentability over Chickering and Magid

Petitioner asserts that claims 1–5, 10–11, 14, 18, and 25 are unpatentable over Chickering and Magid. Pet. 22–42.

1. Summary of Chickering

Chickering is a U.S. Patent titled “Endless Belt Exerciser with Accelerating and Decelerating Tread Surfaces” and issued on January 25, 1972. Ex. 1013, codes (45), (54).

Chickering’s Figure 1 is reproduced below.

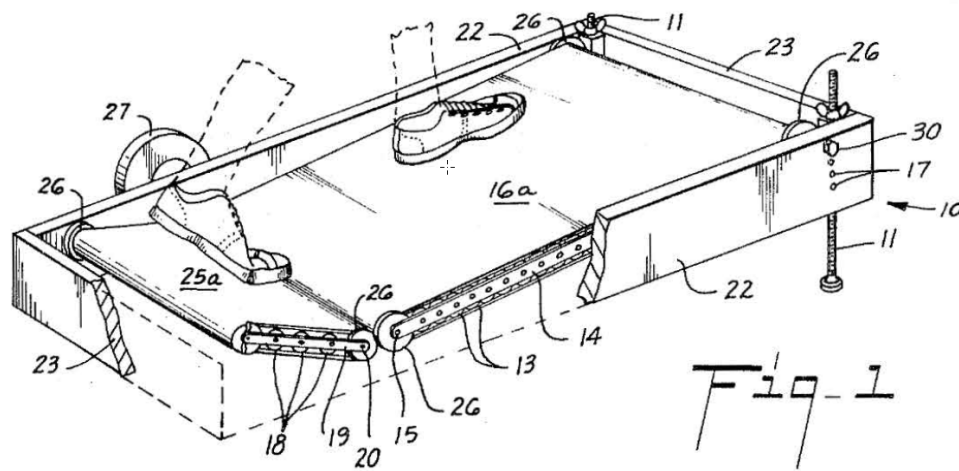


Figure 1 shows one embodiment of an exercise device having base 10 formed of two sidewalls 22 and two end walls 23. *Id.* at 1:65–68. “A first series of transverse parallel rollers 13 have their ends journaled in arms 14,” and “[a] second series of transverse parallel rollers 18 have their ends journaled in arms 19.” *Id.* at 2:14–15, 2:18–19. Endless belt 16 is disposed about rollers 13 and endless belt 25 is disposed about rollers 18. *Id.* at 2:15–17, 2:19–21. Arms 14 and 19 are pivotally connected to sidewalls 22, so that the inclination of first and second series of rollers 13 and 18 can be adjusted. *Id.* at 2:2–13, 2:27–31.

Chickering's Figure 3 is reproduced below.

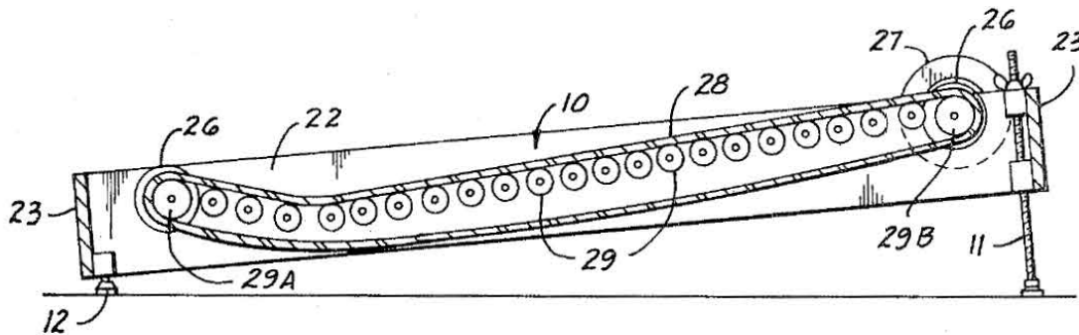


Fig-3

Figure 3 depicts an alternate embodiment having single endless belt 28. *Id.* at 2:73–75. In this embodiment, rollers 29 are journaled in sidewalls 22 of base 10. *Id.* at 3:1–2.

[T]he rollers are so disposed that the forward rollers lie approximately in a plane slanting downwardly from the front of the base, while the rear rollers lie approximately in a plane slanting upward toward the rear of the base 10. Thus, when the endless belt 28 is placed about the rollers, it follows their contour.

Id. at 3:2–8. “When a single belt is used, it may be necessary to use heavier belting material so that the belt will lie flat upon the rollers without being under tension.” *Id.* at 3:11–13.

2. Summary of Magid

Magid is a U.S. patent titled “Walker Apparatus with Left and Right Foot Belts” and issued on July 23, 1996. Ex. 1012, codes (45), (54).

Magid's Figure 2 is reproduced below.

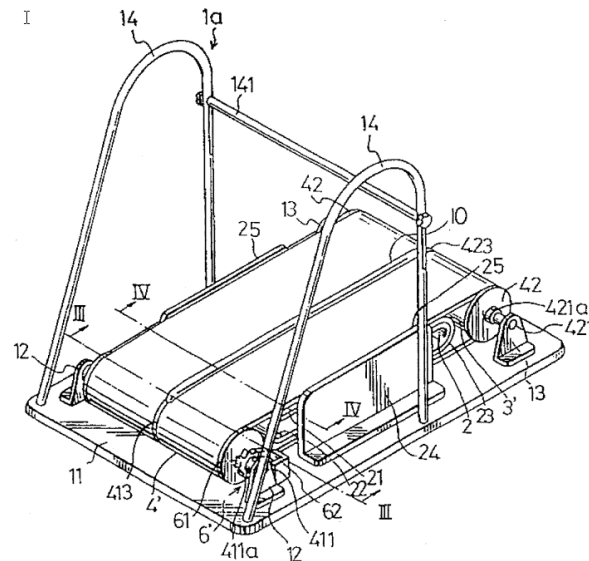


FIG. 2

Figure 2 depicts Magid’s preferred embodiment of a walker apparatus—an exercise walker. *Id.* at 3:41–44. The exercise walker comprises base 11, having two-foot belts 4, 4’, a pair of front rollers 41, and a pair of rear rollers 42. Figure 2 shows unidirectional control means 6, 6’, which permits only unidirectional movement of foot belts 4, 4’. *Id.* at 4:47–49. Magid states:

A unidirectional control means 6, 6' is installed to permit only unidirectional movement of the left and right foot belts 4, 4'. In this embodiment, the control means 6, 6' includes a pair of ratchet gears 61 attached to outer ends of the front rollers 41 and mounted rotatably on the first shaft 411, and a pair of pawls 62 secured to the base 11 and engaging one of the ratchet gears 61 to permit only unidirectional rotation of the front rollers 41, thereby preventing bidirectional movement of the foot belts 4, 4'. A releasable means (not shown) may be provided to release selectively the pawls 62 from the ratchet gears 61 in a known

manner to permit reciprocating movement of the foot belts 4, 4' when desired. Of course, the ratchet gears may be attached to the rear rollers 42 to achieve the same result.

Id. at 4:46–60.

3. *Analysis of Independent claim 1*

Petitioner contends that claim 1 is unpatentable over Chickering and Magid. Pet. 22–42.

a) *A manually powered treadmill comprising:*⁵

Petitioner contends, and Patent Owner does not dispute, that Chickering discloses a manually powered treadmill. Pet. 22 (citing Ex. 1013, 1:1–7, 2:43–48; Ex. 1003 ¶¶ 130–133, 196, 219); *see generally* Prelim. Resp.

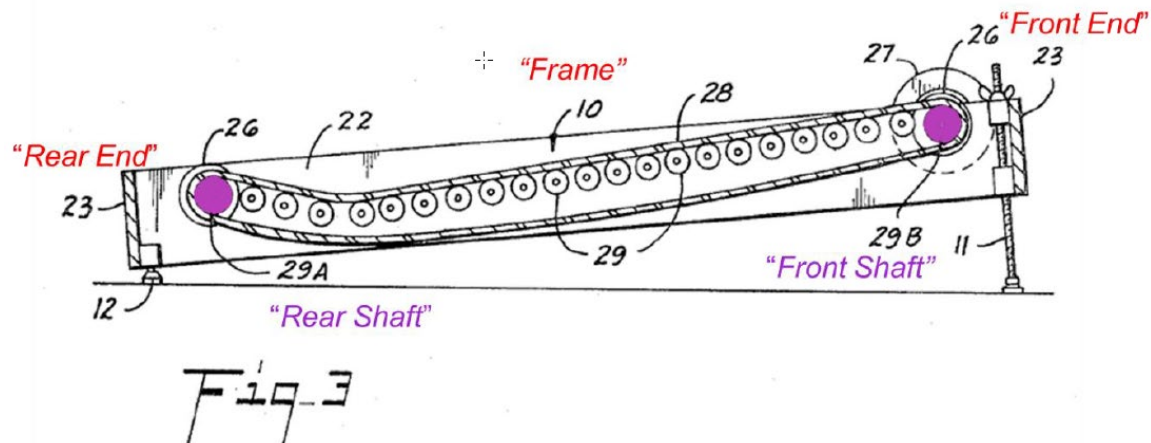
Based on the current record, we determine that Petitioner's analysis and evidence sufficiently shows that Chickering discloses a manually powered treadmill.

b) *a frame having a front end and a rear end positioned opposite the front end; a front shaft rotatably coupled to the frame at the front end; and a rear shaft rotatably coupled to the frame at the rear end;*

Petitioner contends, and Patent Owner does not dispute, that Chickering's single-belt embodiment discloses a frame having a front end and rear end, a front shaft coupled to the frame at the front end, and a rear shaft coupled to the frame at the rear end. Pet. 23–26 (citing Ex. 1013, 1:65–68, 2:2–10, 2:14–18, 2:75–3:2, 3:11–16; Ex. 1003 ¶¶ 134–139,

⁵ On this record, we do not need to determine whether the preamble is limiting as it is undisputed that Chickering discloses a manually powered treadmill.

140–142, 197–202, 219). Petitioner annotated Chickering’s Figure 3 to illustrate this mapping and, the annotated figure is reproduced below.



Ex.1013, Fig.3

Chickering Annotated Figure 3 shows base 10 labeled as “Frame” and front and rear end rollers 29B, 29A labeled as “Front Shaft” and “Rear Shaft” respectively. Pet. 25.

Based on the current record, we determine that Petitioner's analysis and evidence sufficiently shows that Chickering discloses a frame, a front shaft, and a rear shaft as arranged as recited in claim 1.

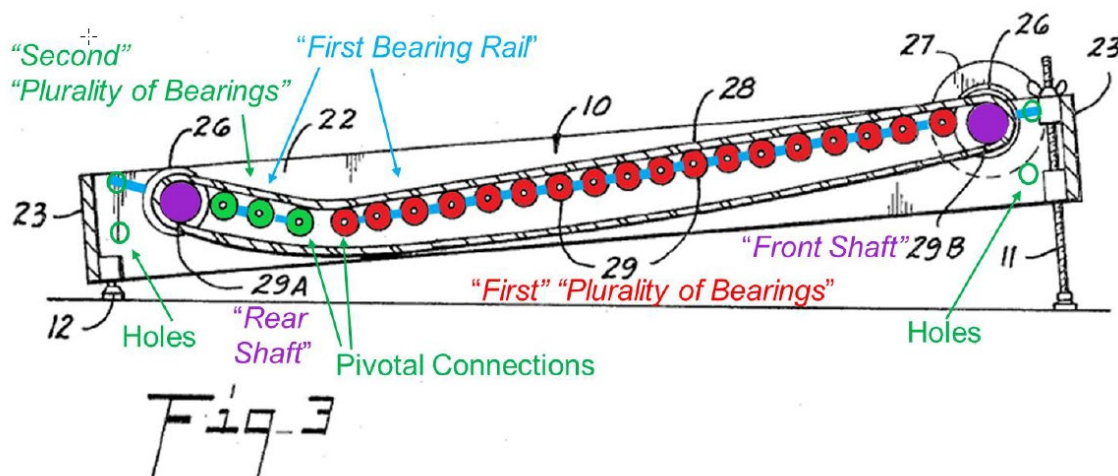
- c) a first bearing rail having a plurality of bearings, the first bearing rail attached to a left side of the frame and a second bearing rail having a plurality of bearings, the second bearing rail attached to a right side of the frame;*

Petitioner contends, and Patent Owner does not dispute, that a POSA would have modified Chickering's single-belt embodiment to include support arms 14, 19 (i.e., bearing rails) from Chickering's two-belt embodiment. Chickering's two-belt embodiment has support arms 14, 19 pivotally connected to base 10 at pivotal connections 15, 20 for adjusting the inclination of the belt. Ex. 1013, 1:74–2:4. The forward ends of front support arms 14 and the rearward ends of rear support arms 19 are connected

to the frame 10 by pins 30 that extend through holes 17, 24 at different adjustment positions. Ex. 1013, 2:4–2:12; 2:27–31.

According to Petitioner, a “POSA would have been motivated to modify Chickering’s single belt embodiment of Figure 3 to include support arms 14, 19 . . . to allow a user to adjust the tread surface inclination, as taught with reference to Figure 1.” Pet. 29–30 (citing Ex. 1003 ¶¶ 153, 156 203, 204). Adjusting the inclination is one way to adjust running speed on a manual treadmill. Ex. 1013, 2:44–49.

Petitioner annotated Chickering’s Figure 3, reproduced below, to illustrate the proposed modification.



Ex.1013, Fig.3

Chickering’s Annotated Figure 3 shows the addition of a first bearing rail, in blue, and pivotal connections and holes, in green. Pet. 29. The first bearing rail is pivotally connected to base 10 at pivotal connections and holes allow for adjusting the inclination of the belt. *Id.* Pins 30 would extend through the different holes to adjust the inclination. *Id.*

Based on the current record, we determine that Petitioner sufficiently shows that modifying Chickering’s single belt embodiment of Figure 3 to

include support arms 14, 19 and pivotal connections and holes to allow a user to adjust the inclination of the belts, as taught by Chickering's two belt embodiment of Figure 1, would have been obvious to a POSA.

d) a running belt supported by the first bearing rail and the second bearing rail and disposed about the front shaft and the rear shaft, wherein the running belt follows a curved running surface

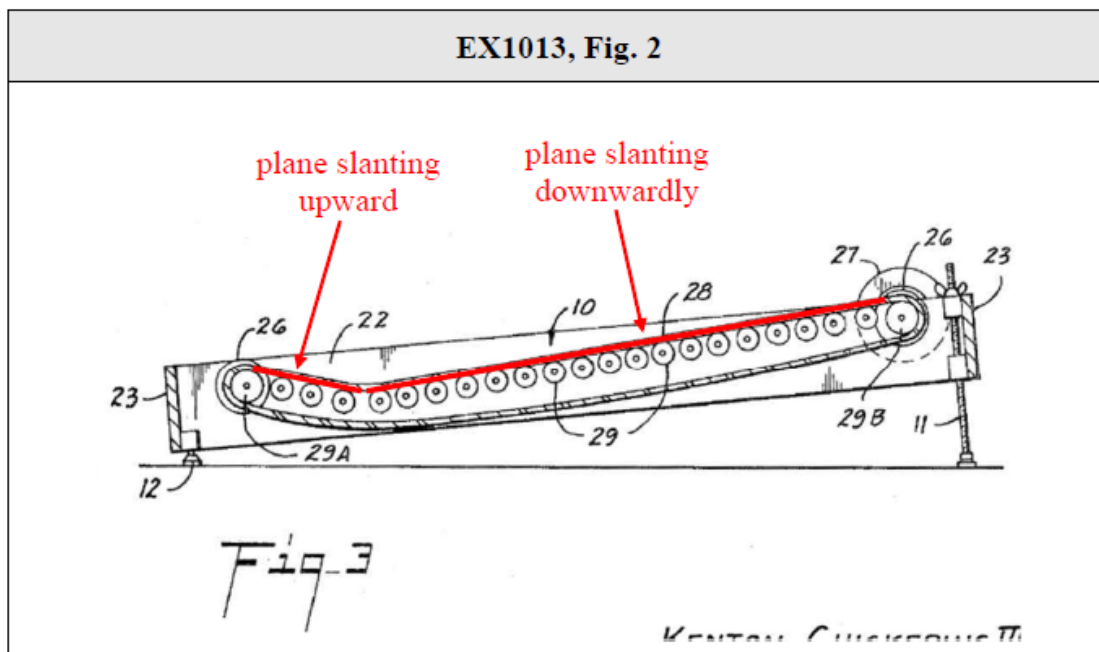
Petitioner maps the claimed running belt to Chickering's endless belt 28 and points to Chickering's depiction of its single-belt embodiment in Figure 3 to show a running belt following a curved running surface. Pet. 32. Dr. Giachetti testifies that Chickering discloses a curved running surface and points to the following paragraph of Chickering for support. Ex. 1003 ¶ 161.

An alternate form of the exercising device of the present invention is shown in FIG. 3, wherein a single endless belt 28 forms both the accelerating and decelerating areas. In the device shown in FIG. 3, a single series of rollers 29 are provided journaled in the sidewalls 22 of base 10. However, the rollers are so disposed that the forward rollers lie approximately in a plane slanting downwardly from the front of the base, while the rear rollers lie approximately in a plane slanting upward toward the rear of the base 10. Thus, when the endless belt 28 is placed about the rollers, it follows their contour and provides a forward accelerating area and a rear decelerating area which are inclined from the horizontal with each being lowest at their point of nearest proximity.

Ex. 1013, 2:73–3:10.

Patent Owner disputes that Chickering's single-belt embodiment discloses a running belt following a curved running surface. Prelim. Resp. 16–18. Like Petitioner, Patent Owner points to Chickering's disclosure that “the rollers are so disposed that the forward rollers lie approximately in a plane slanting downwardly from the front of the base, while the rear rollers lie approximately in a plane slanting upward toward the rear of the base 10”

(Ex. 1013, 3:2–6, (emphasis omitted)) and argues that “[b]ecause the single endless belt 28 ‘follows’ the planes of these rollers when it is ‘placed about the rollers’ (*id.*, 3:6-8), a POSA would further understand that Chickering’s alternative, single-belt embodiment also discloses a multi-planar running surface rather than a curved running surface.” Prelim. Resp. 17–18. Patent Owner annotates Chickering’s Figure 3 to illustrate this point and Patent Owner’s annotated Figure 3 is reproduced below. Prelim. Resp. 18.



Patent Owner annotated Chickering’s Figure 3⁶ to include a line along the top of rear rollers 29 to show a plane slanting upward and a line along the top of forward rollers 29 to show a plane slanting downwardly along forward rollers 29. *Id.*

At this stage of the proceeding, we determine that Petitioner has sufficiently shown that Chickering’s endless belt 28 has a curved running

⁶ Patent Owner’s label “Ex. 1013, Fig. 2” is in error as the figure depicts Exhibit 1013’s Figure 3.

surface. Chickering describes belt 28 as following the contour of the rollers with areas that are inclined from the horizontal and meet at their lowest point. Ex. 1013, 2:73–3:10. As can be seen in Patent Owner’s Annotated Figure 3, reproduced above, there appears to be a curve in belt 28 at the area where the downwardly slanting plane of the forward rollers meets the upwardly slanting plane of the rear rollers.

Further, Petitioner’s assertion that endless belt 28 has a curved running surface is supported by the testimony of Dr. Giachetti. Pet. 32–33 (citing Ex. 1033 ¶ 161). At this stage of the proceeding, Patent Owner has not provided sufficient evidence to support its assertion as to what a POSA would understand from Chickering’s disclosure and Figure 3. And, mere attorney argument is entitled to little weight. *See Elbit Sys. of Am., LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1359 (Fed. Cir. 2018) (rejecting attorney argument as to the alleged understanding of one of skill in the art on an issue when no evidence was presented); *see also Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017) (“Attorney argument is not evidence.”).

Based on the current record, we determine that Petitioner’s analysis and evidence sufficiently shows that Chickering discloses a running belt supported by the first bearing rail and the second bearing rail and disposed about the front shaft and the rear shaft, wherein the running belt follows a curved running surface

- e) a safety device coupled to at least one of the front shaft and the rear shaft, wherein the safety device is structured to substantially prevent rotation of at least one of the front shaft and the rear shaft in a first rotational direction while permitting rotation of the at least one of the front shaft and the rear shaft in a second rotational direction opposite the first rotational direction*

Petitioner relies upon Magid's unidirectional control means 6, 6' to teach the claim safety device. Pet. 34 (citing Ex. 1012, 4:46–59). In one embodiment, unidirectional control means 6, 6' is a ratchet and pawl mechanism attached to either the front or rear rollers. Ex. 1012, 4:46–59, Figs. 2, 5; Ex. 1003 ¶ 166.

Petitioner contends that “[i]t would have been obvious to a POSA to combine the manual curved treadmill disclosed in Chickering with the known technique of a one-way clutch to prevent belt motion in a forward direction as disclosed in Magid.” *Id.* at 38 (citing Ex. 1003 ¶¶ 230–243). Petitioner argues that a POSA would have made such a combination to prevent a user from falling off the treadmill while mounting or dismounting. *Id.* at 38–39. According to Petitioner,

[a] POSA would have been motivated to modify Chickering to include Magid's control means 6, 6' mounted to the front roller or the rear roller . . . , to permit only unidirectional belt movement to reduce the risk of a user stepping onto the belt and losing their balance when the belt moves forward.

Pet. 41 (citing Ex. 1003 ¶¶ 239–240 (supporting testimony of Dr. Giachetti)).

Based on the current record, we determine that Petitioner's analysis and evidence sufficiently shows that a POSA would have modified

Chickering to include a safety device as taught by Magid in order to reduce the risk of a user falling.

Patent Owner argues that a POSA would not combine Chickering and Magid because Magid teaches away from the combination. Prelim. Resp. 11–14. Patent Owner argues that because Magid is focused on a two-belt therapeutic walker device, a POSA would not have looked to Magid and combined its teachings with a single-belt treadmill for a user of ordinary abilities. *Id.* Patent Owner also argues that “a POSA would not be motivated to combine . . . the multi-planar inclined surface of Chickering with the flat, uniplanar walking device of Magid because the thus-modified piece of equipment would be unsuited for Magid’s intended purpose.” *Id.* at 13. Patent Owner asserts:

Rather, when dealing with a curved or multi-planar treadmill like that described in Socwell or Chickering, respectively, a POSA would examine the teachings of other treadmills having curved or multi-planar running surfaces, not a walker device with a flat or uniplanar surface, such as in Magid. This is because the design and engineering requirements of a treadmill having a curved running surface differ from those of a treadmill with a flat or uniplanar running surface. Design and engineering requirements urge a POSA to avoid combining the teachings of Socwell, Chickering, or other non-planar or multi-planar treadmills with Magid, particularly given the above, where Magid expressly teaches away from a single-belt treadmill.

Id. at 13–14.

On this record, Patent Owner’s arguments are unpersuasive because they are not focused on whether Petitioner’s proposed modification (i.e., modifying Chickering’s single-belt embodiment to include Magid’s unidirectional control mean 6, 6’ (Pet. 41)) would have been obvious to a POSA. Patent Owner does not sufficiently explain why differences in the

shape or number of belts would teach away from adding a unidirectional control means to Chickering's single-belt embodiment for safety. *See In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994) ("teaching away" requires a POSITA to be discouraged from pursuing the solution in question). Further, Patent Owner's arguments as to the design and engineering requirements of treadmills and as to what a POSA would have known or examined are unsupported by any declarant testimony and are mere attorney argument. Mere attorney argument is entitled to little weight. *See Elbit Sys. of Am.*, 881 F.3d at 1359; *see also Icon Health & Fitness*, 849 F.3d at 1043.

Based on the current record, we determine that Petitioner's analysis and evidence sufficiently shows that the combination of Chickering and Magid teaches a safety device coupled to at least one of the front shaft and the rear shaft, wherein the safety device is structured to substantially prevent rotation of at least one of the front shaft and the rear shaft in a first rotational direction while permitting rotation of the at least one of the front shaft and the rear shaft in a second rotational direction opposite the first rotational direction.

f) Conclusion as to claim 1

After considering Petitioner's evidence and analysis, and taking into account Patent Owner's arguments, based on the record before us at this stage of the proceeding, we determine that Petitioner has shown a reasonable likelihood that claim 1 is unpatentable over Chickering and Magid.

4. Independent claims 11 and 25

Petitioner relies upon a similar analysis to show that independent claims 11 and 25 are unpatentable as the analysis it relies upon to show claim 1 is unpatentable. *See* Pet. 22–42. We note that Petitioner provides

additional explanation for limitations of claims 11 and 25 that slightly differ from claim 1. *See id.*

Patent Owner relies upon the same arguments it made in connection with claim 1 for ground 1. *See generally* Prelim. Resp. (arguing claims 1, 11, and 25 together).

For similar reasons as discussed above, after considering Petitioner’s evidence and analysis, based on the record before us at this stage of the proceeding, we determine that Petitioner has shown a reasonable likelihood that claims 11 and 25 are unpatentable over Chickering and Magid.

5. Dependent claims 2–5, 10, 14, and 18

Petitioner contends that the additional limitations of dependent claims 2–5, 10, 14, and 18 are unpatentable over Chickering and Magid. Pet. 42–48. At this stage of the proceeding, Patent Owner does not dispute that the combination of Chickering and Magid disclose the additional limitations. After considering Petitioner’s evidence and analysis, based on the record before us at this stage of the proceeding, we determine that Petitioner has shown a reasonable likelihood that claims 2–5, 10, 14, and 18 are unpatentable over Chickering and Magid.

G. Ground 2: Unpatentability over Chickering, Magid, and Sclater

Petitioner contends that claims 6–9 and 12 are obvious over Chickering, Magid, and Sclater. Pet. 48–61.

1. Overview of Sclater

Sclater is titled “Mechanisms and Mechanical Devices Sourcebook, Third Edition.” Ex. 1017, cover. Chapter 9 of Sclater is titled “Coupling, Clutching, and Braking Devices” and describes basic mechanical clutches, including a cam and roller clutch. *Id.* at 302–303. A cam and roller clutch is

“an over-running clutch [that] is better suited for higher-speed free-wheeling than a pawl-and-ratchet clutch.” *Id.* at 303. For a cam and roller clutch,

[t]he inner driving member has cam surfaces on its outer rim that hold light springs that force the rollers to wedge between the cam surfaces and the inner cylindrical face of the driven member. While driving, friction rather than springs force the rollers to wedge tightly between the members to provide positive clockwise drive. The springs ensure fast clutching action. If the driven member should begin to run ahead of the driver, friction will force the rollers out of their tightly wedged positions and the clutch will slip.

Id.

Sclater also discusses spring-loaded pins and sprags in a one-way clutch and describes them as having “[s]prags combined with cylindrical rollers in a bearing assembly [that] can provide a simple, low-cost method for meeting the torque and bearing requirements of most machine applications” and can serve as a roller bearing, and with the clutch’s torque rating dependent on the number of sprags. Ex. 1017, 312.

Sclater further provides “details of overriding clutches” and explains a friction clutch is quieter than a ratchet and pawl. Ex. 1017, 316. In discussing ways to apply overrun clutches, Sclater explains that “[t]hese clutches allow freewheeling, indexing and backstopping,” and “they will solve many design problems.” *Id.* at 318.

Figure 1 from Sclater's page 318 is reproduced below.

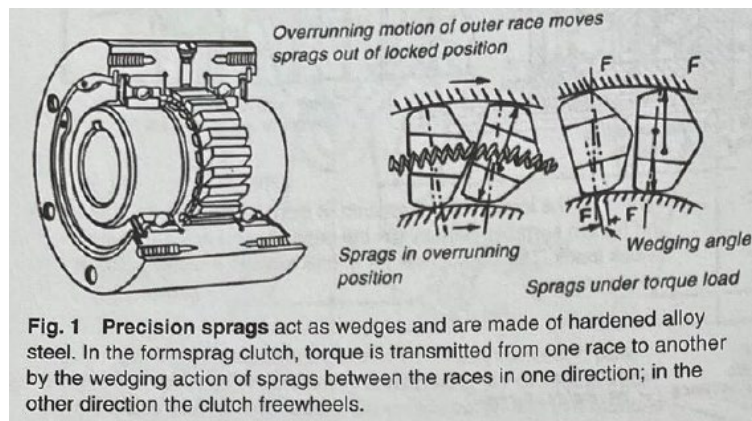


Figure 1 illustrates “precision sprags” which are an example of an overrunning clutch. *Id.* at 318. This clutch transmits torque from one race to another by the wedging actions of sprags between the races in one direction and, in the other direction, the races freewheel. *Id.*

Sclater states that application for sprag-type clutches “include overrunning, backstopping, and indexing” and the selection of an overrunning sprag clutch “requires a review of the torque to be transmitted, overrunning speed, type of lubrication, mounting characteristics, environment conditions, and shock conditions that might be encountered.” Ex. 1017, 320.

Figure 2 from Sclater's page 320 is reproduced below.

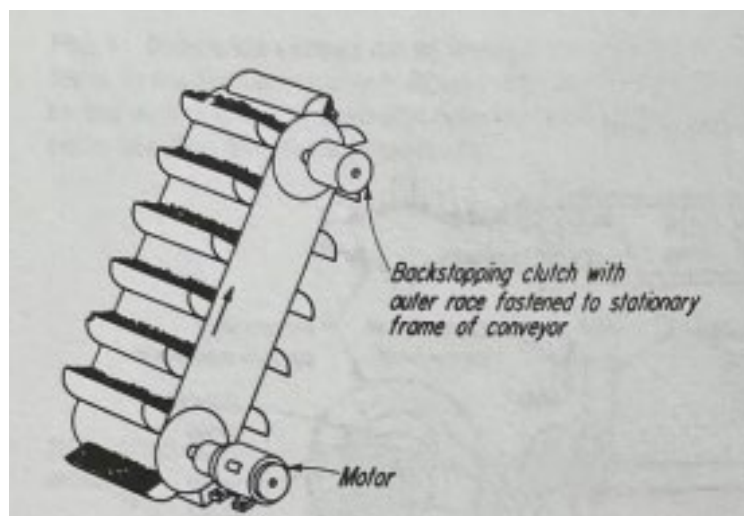


Figure 2 depicts an example application of backstopping. *Id.* at 320. A vertical conveyor carrying buckets and having a motor and a backstopping clutch with an outrace fastened to the stationary frame of the conveyor.

2. *Analysis of Claims 6–9 and 12*

Petitioner asserts that claims 6–9 and 12 are unpatentable over Chickering, Magid, and Sclater. Pet. 48–61. Claims 6–9 depend ultimately from claim 1 and recite the following:

6. The manually powered treadmill of claim 1, wherein the safety device includes a one-way bearing.

7. The manually powered treadmill of claim 6, wherein the one-way bearing includes an inner ring, an outer ring, and a plurality of sprags disposed between the inner ring and outer ring, wherein the plurality of sprags are asymmetric shaped to substantially prevent rotation of the inner ring in the first rotational direction while permitting rotation of the inner ring in the second rotational direction.

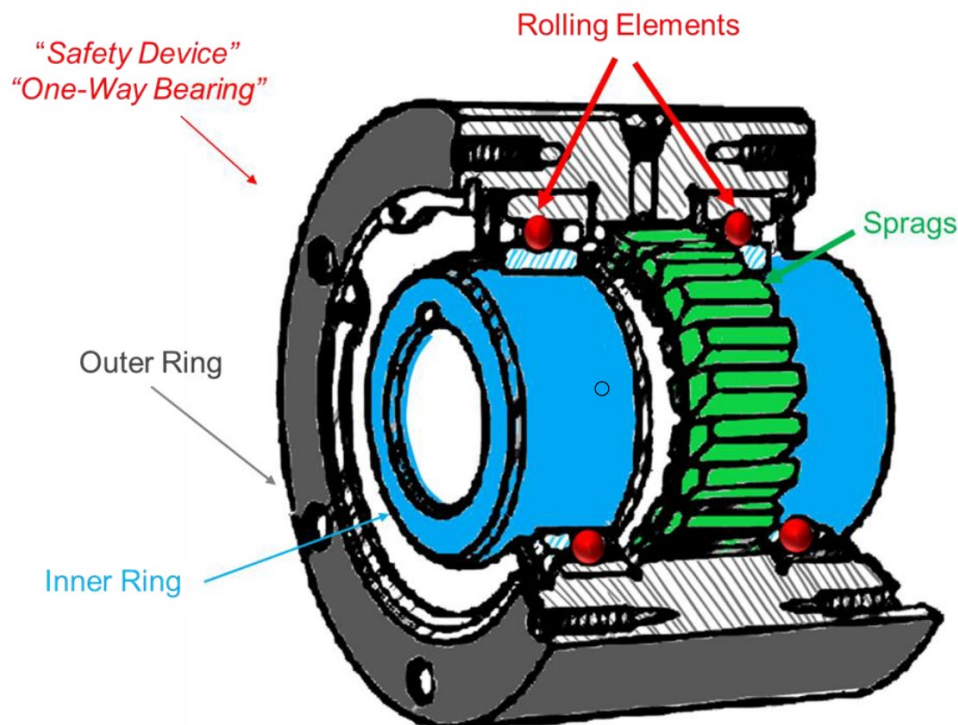
8. The manually powered treadmill of claim 7, further comprising a key that is fixed relative to the inner ring and a keyway formed in the rear shaft, wherein the key is configured to cooperate with the keyway to prevent rotation of the rear shaft in the first rotational direction while permitting rotation of the rear shaft in the second rotational direction.

9. The manually powered treadmill of claim 7, further comprising a key that is fixed relative to the inner ring and a keyway formed in the front shaft, wherein the key is configured to cooperate with the keyway to prevent rotation of the front shaft in the first rotational direction while permitting rotation of the front shaft in the second rotational direction.

Ex. 1001, 33:18–38. Claim 12 depends from claim 11 and recites the same additional limitation as claim 6. *Id.* at 34:1–2. The additional limitations focus on a safety device being a sprag type one-way bearing clutch, as disclosed in some embodiments of the '580 patent. *See* Ex. 1001,

27:7–28:25; Ex. 1003 ¶¶ 84–88 (describing the workings of a sprag type one-way bearing clutch, which has inner and outer races with sprags filling the space between).

Petitioner relies upon Sclater’s sprag type one-way bearing clutch as teaching the additional elements of claims 6–9 and 12. Pet. 48–56 (citing Ex. 1017, 318; Ex. 1003 ¶¶ 251–252). Reproduced below is Petitioner’s annotated version of a figure from page 318 of Sclater. Pet. 59.



Ex.1017 at 318

Petitioner annotated Sclater’s figure to highlight the claimed inner ring, outer ring, rolling elements, and sprags. *Id.* Petitioner contends that the inner ring would be secured to a front or rear roller, such as an axle, with a key/keyway interface. Pet. 59 (citing Ex. 1017, 420; Ex. 1003 ¶ 277).

Petitioner contends that a POSA would have substituted a one-way sprag type bearing clutch for Magid's ratchet and pawl one-way mechanism in order to reduce noise and improve durability. Pet. 56–61.

Patent Owner argues that Petitioner's motivations to combine are fraught with hindsight bias because "Petitioner does not adequately explain why a POSA would have been specifically motivated to select the mechanism Petitioner relies on, rather than one of the dozens of other options Sclater presents." Prelim. Resp. 6–7. In particular, Patent Owner argues that Sclater does not specifically disclose that the sprag type clutch relied upon by Petitioner reduces noise and improves durability. Prelim. Resp. 7–10.

The test for obviousness is not whether the claimed invention is expressly disclosed in the references, but whether the claimed subject matter would have been obvious to those of ordinary skill in the art in light of the *combined teachings* of those references. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). In an obviousness analysis, it is not necessary to find precise disclosure directed to the specific subject matter claimed because inferences and creative steps that a person of ordinary skill in the art would employ can be taken into account. *See KSR*, 550 U.S. at 418. In this regard, "[a] person of ordinary skill is also a person of ordinary creativity, not an automaton." *Id.* at 421. "[I]n many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle." *Id.* As the U.S. Supreme Court has stated, obviousness requires an "expansive and flexible" approach that asks whether the claimed improvement is more than a "predictable variation" of "prior art elements according to their established functions." *Id.* at 415, 417. "A factfinder should be aware, of course, of the distortion caused by hindsight bias and

must be cautious of arguments reliant upon *ex post* reasoning.” *Id.* at 421 (citing *Graham*, 383 U.S. at 36) “Rigid preventative rules that deny factfinders recourse to common sense, however, are neither necessary under our case law nor consistent with it.” *KSR*, 550 U.S. at 421.

Based on the record at this stage of the proceeding, Petitioner sufficiently shows that it would have been obvious to a POSA “to substitute Sclater’s one-way sprag-type bearing for Magid’s ratchet-and-pawl one-way mechanism to obtain predictable results, *e.g.*, reduced noise and improved durability.” Pet. 61; Ex. 1003 ¶ 271.

Magid broadly describes its safety device as “[a] unidirectional control means 6, 6’” and describes the unidirectional control means 6, 6’ as being a ratchet and pawl mechanism in one embodiment. Ex. 1012, 4:47–55. This suggests that that the unidirectional control means 6 6’ could be a unidirectional control mechanism other than the ratchet and pawl described in one embodiment of Magid. *See also id.* at 7:61–67 (stating that Magid’s invention is not limited to the preferred embodiments).

Dr. Giachetti testifies that “[s]ome common mechanical clutches include ratchet clutches and cam type one-way clutches, such as sprag clutches.” Ex. 1003 ¶ 81. Dr. Giachetti testifies that “[r]atchet and pawl clutch mechanisms make noise during operation” because an audible “click” sound is made when the pawl collides with a gear tooth on the ratchet. Ex. 1003 ¶ 272; *see also id.* ¶ 81 (“A ratchet clutch having a pawl that contacts the gear during overrun is loud, as compared to other mechanical clutches.”). Similarly, Sclater teaches that a friction-type clutch is quieter than a ratchet and pawl mechanism. Ex. 1017, 316. Sclater states:

Sprags combined with cylindrical rollers in a bearing assembly can provide a simple, low-cost method for meeting the torque

and bearing requirements of most machine applications. Designed and built by Est. Nicot of Paris, this unit gives one-direction-only torque transmission in an overrunning clutch. In addition, it also serves as a roller bearing.

Ex. 1017, 312.

Dr. Giachetti also testifies that roller clutches are better suited for high-speed freewheeling than ratchet clutches because “the pawl may skip past a few teeth before backstopping the ratchet gear, whereas the sprags are always in contact with the rings and do not need to find a discrete gear tooth to stop” and “because there are multiple sprags, they distribute the load over a larger surface area.” Ex. 1003 ¶ 273 (citing Ex. 1017, 303, 320).

Finally, Dr. Giachetti testifies that “[a] POSA would have considered a sprag-type one-way clutch bearing [suitable] for an exercise equipment application, such as a treadmill.” Ex. 1003 ¶¶ 91, 275 (citing Ex. 1018, 52–53 (a catalogue describing a sprag type one-way clutch as an option for exercise equipment”).

Given the testimony of Dr. Giachetti as to the knowledge of a POSA and the supporting evidence, Petitioner has sufficiently shown for the purposes of institution that it would have been obvious to a POSA to substitute a one-way sprag type bearing clutch for Magid’s ratchet and pawl one-way mechanism in order to reduce noise and improve durability.

At this stage of the proceeding, Patent Owner’s arguments are unpersuasive because they are rigidly focused on the alleged lack of a sufficiently particular disclosure of motivation in Sclater, without taking full account of an ordinarily skilled artisan’s “knowledge, creativity, and common sense.” *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013). Patent Owner’s arguments as to what a POSA would have known are

unsupported by any declarant testimony and are mere attorney argument. Mere attorney argument is entitled to little weight.

Based on the current record, we determine that Petitioner has shown a reasonable likelihood that claims 6–9 and 12 are unpatentable over Chickering, Magid, and Sclater.

H. Ground 4: Unpatentability over Socwell and Magid

Petitioner asserts that claims 1–5, 10–11, 14, 15, 18 and 25 are unpatentable over Socwell and Magid. Pet. 65–93.

1. Summary of Socwell

Socwell is a U.S. patent titled “Exercise Treadmill” and issued on April 27, 1999. Ex. 1011, codes (45), (54). Socwell discloses “a novel curved deck treadmill which provides a structurally supported arcuate shaped, movable surface on which a user may exercise.” *Id.* at 3:26–29. In one embodiment, the curved deck treadmill does not have a motor. *Id.* at 11:54–60. Socwell’s Figure 1 is reproduced below.

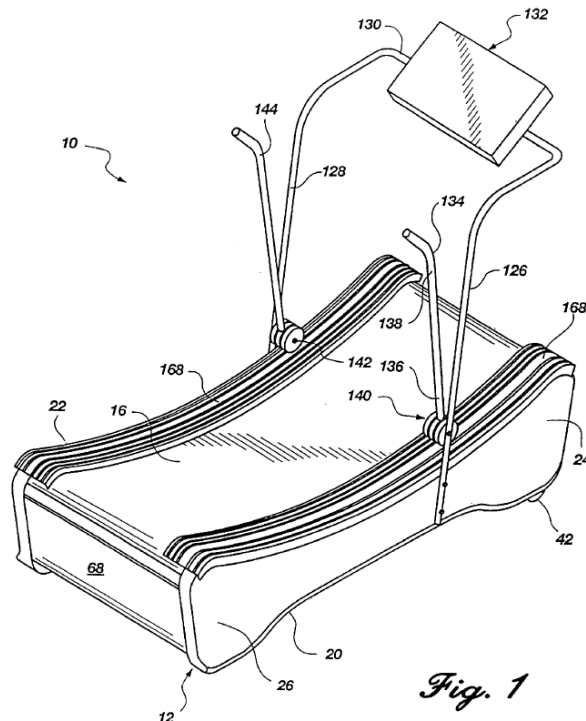


Figure 1 “is a perspective view of one presently preferred embodiment of a curved deck treadmill.” *Id.* at 4:35–36. Curved deck treadmill 10 comprises a support frame 12 having first side 20 and second side 22, with deck 56 between. *Id.* at 5:23–26.

Socwell’s Figure 2 is reproduced below.

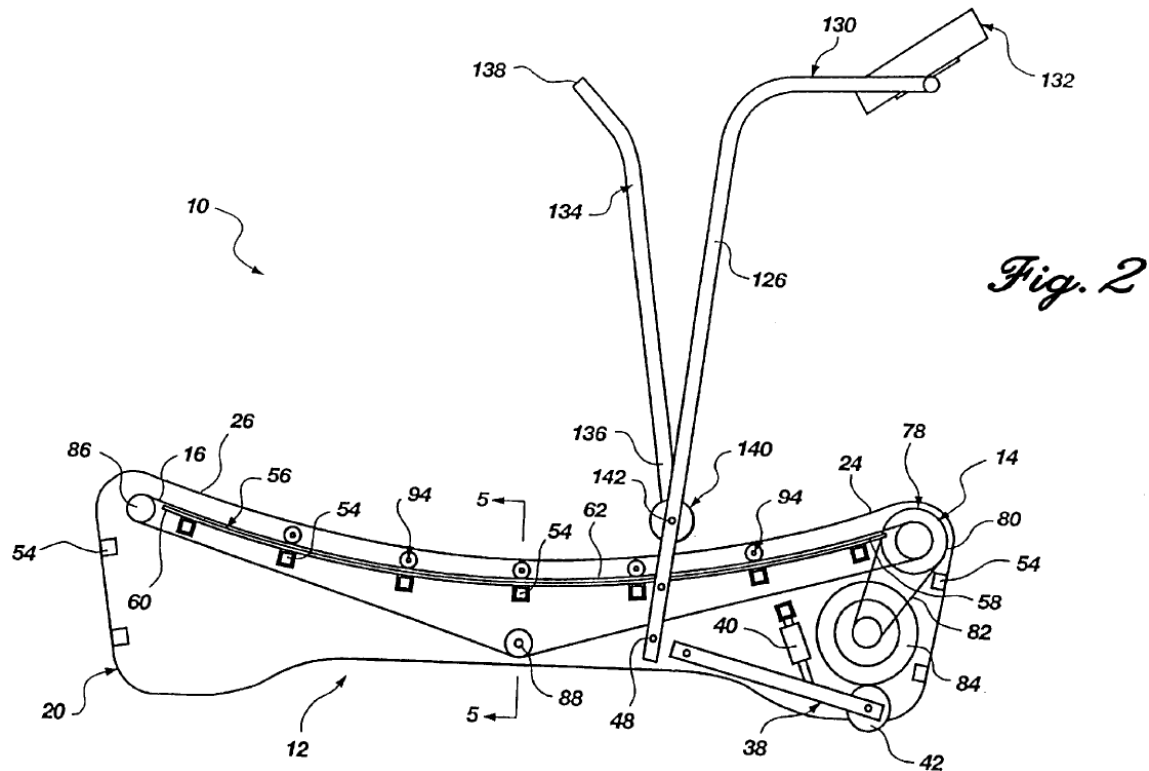


Figure 2 “is a side elevational view of the embodiment of [Figure 1] exposing one presently preferred arrangement of the internal components of the present invention.” *Id.* at 4:38–40. In one embodiment, deck 56 has first end 58, second end 60, and intermediate portion 62 between. *Id.* at 5:26–28. Roller assembly 14 is provided between first roller 78 and second roller 86. *Id.* at 5:33–38. Belt 16 is rotatably mounted on roller assembly 14 in relation to deck 56 and provides “a structurally supported arcuate shaped, movable surface on which a user may exercise.” *Id.* at 5:42–45.

Socwell's Figure 5 is reproduced below.

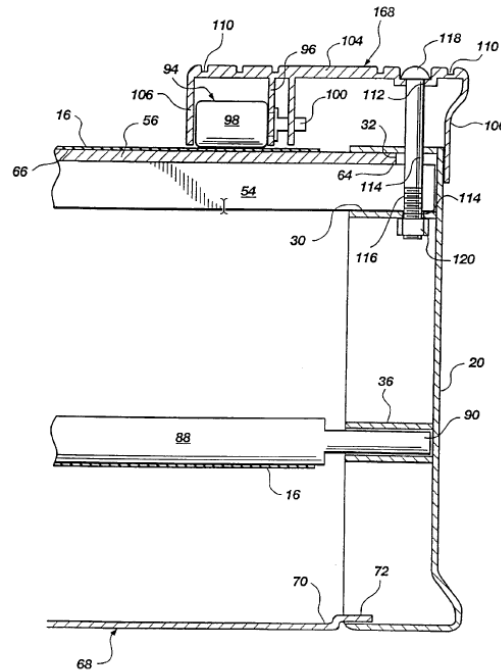


Fig. 5

Figure 5 depicts belt securing assembly 94. Belt securing assembly 94 retains endless belt 15 in a curvilinear configuration, substantially flush with deck 56. *Id.* at 10:5–9. Belt securing assembly 94 includes mounting bracket 96 which holds roller 98 so that roller 98 engages belt 16. *Id.* at 10:17–21.

2. Analysis of Claim 1

a) A manually powered treadmill comprising:⁷

Petitioner contends, and Patent Owner does not dispute, that Socwell discloses a manually powered treadmill. Pet. 65–66 (citing Ex. 1011, 11:34–38, 11:53–56). *See generally* Prelim. Resp. In one embodiment, Socwell's curved deck treadmill does not have a motor. *Id.* at 11:54–60.

⁷ On this record, we do not need to determine whether the preamble is limiting as it is undisputed that Socwell discloses a manually powered treadmill.

Based on the current record, we determine that Petitioner's analysis and evidence sufficiently shows that Socwell discloses a manually powered treadmill.

- b) a frame having a front end and a rear end positioned opposite the front end; a front shaft rotatably coupled to the frame at the front end; and a rear shaft rotatably coupled to the frame at the rear end;*

Petitioner contends, and Patent Owner does not dispute, that Socwell discloses a frame having a front end and rear end, a front shaft couples to the frame at the front end, and a rear shaft coupled to the frame at the rear end. Pet. 66–69. “[T]readmill 10 comprises a support frame 12 having a first side 20 and a second opposing side 22 and having a deck 56 supportably disposed therebetween.” Ex. 1011, 5:23–26, Fig.1. “[T]he first side 20 of the support frame 12 includes a first end 24 and a second opposing end 26.” *Id.* at 6:22–25. Socwell discloses a roller assembly 14 between the right side frame 20 and left side frame 22 that includes a first roller 78 (i.e., a front shaft) and a second roller 86 (i.e., a rear shaft). *Id.* at 5:35–41.

Based on the current record, we determine that Petitioner's analysis and evidence sufficiently shows that Socwell discloses a frame, a front shaft, and a rear shaft, arranged as recited in claim 1.

- c) a first bearing rail having a plurality of bearings, the first bearing rail attached to a left side of the frame and a second bearing rail having a plurality of bearings, the second bearing rail attached to a right side of the frame; a running belt supported by the first bearing rail and the second bearing rail and disposed about the front shaft and the rear shaft, wherein the running belt follows a curved running surface*

Petitioner maps the claimed first and second bearing rails to Socwell's belt securing assemblies 94 and deck 56 and maps the claimed running belt to belt 16. Pet. 70, 73. To illustrate its mapping, Petitioner annotated

Socwell's Figure 5. Pet. 71. Socwell's Annotated Figure 5 is reproduced below.

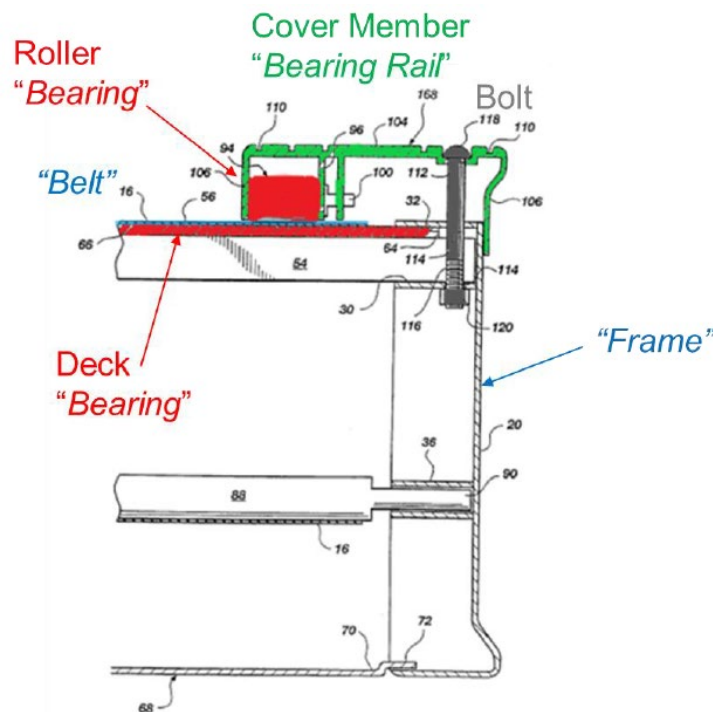


Fig. 5

Ex.1011, Fig.5

Annotated Figure 5 shows bearing assembly 94 having cover member 168 labeled as a bearing rail and roller 94 and deck 56 labeled as bearings.

Petitioner explains:

Each “belt securing assembly 94 comprises a roller 98 having an axle 100 which rotatably engages a mounting bracket 96 ... such that the roller 98 may engage the belt 16, thereby substantially retaining a side portion of the belt 16 substantially flush with the deck 56.” (Ex.1011, 10:17-26; Ex.1003, ¶¶347-348.) The rollers 98 and the deck 56 collectively provide a “*plurality of bearings*.” (Ex.1003, ¶349.)

Pet. 70–71. Petitioner asserts that “[t]he belt 16 is supported by the curved deck 56 and retained by rollers 98 (*‘plurality of bearings’*).” *Id.* at 75 (citing Ex. 1011, 10:17–26, Fig. 5).

Patent Owner argues:

Due to the position of roller 98, roller 98 does not support any of the weight of running belt 16 as the term “support” would be understood by a POSA These terms each indicate some type of relative, weight-bearing relationship, such that the belt is supported by the bearing either directly or indirectly and the bearing bears some or all of the weight of the belt.

Prelim. Resp. 21–22. Patent Owner further argues that “Petitioner’s attempt to rely on curved deck 56 as a ‘bearing’ cannot overcome these deficiencies” because “[a]lthough curved deck 56 sits below running belt 16 such that running belt 16 may at least be considered to be disposed ‘on’ or supported by curved deck 56, curved deck 56 is a singular element and cannot constitute a *plurality* of bearings.” *Id.* at 22.

Patent Owner’s argument is unpersuasive. Patent Owner’s assertion that a POSA would understand the term “support” to require some type of relative weight-bearing relationship is not supported by any evidence in the current record and is mere attorney argument. Mere attorney argument is entitled to little weight. *See Elbit Sys. of Am.*, 881 F.3d at 1359; *see also Icon Health & Fitness*, 849 F.3d at 1043.

Nonetheless, even assuming that a POSA would understand the claim term “supported by” to require some type of relative weight bearing relationship, Patent Owner’s argument is still unpersuasive because claim 1 does not require the running belt to be support by *all* of the plurality of bearings. Claim 1 requires the bearing rails to have a plurality of bearing (Ex. 1001, 32:53–56) and requires the running belt to be supported by the bearing rails (*id.* at 32:57–58), but claim 1 is silent as to how the running belt is supported by the bearing rails and does not require the running belt to be supported by *all* of the plurality of bearings. Claim 1, thus, does not

preclude the running belt from being supported by some bearings and not all bearings.

As can be seen from Annotated Figure 5 above, belt 16 is supported by deck 56. Pet. 71; *see also* Ex. 1003 ¶ 355 (supporting testimony of Dr. Giachetti). Based on the current record, we determine that Petitioner's analysis and evidence sufficiently shows that Socwell discloses a first bearing rail having a plurality of bearings, a second bearing rail having a plurality of bearings and a running belt supported by the first bearing rail and the second bearing rail arranged as recited in claim 1.

- d) a safety device coupled to at least one of the front shaft and the rear shaft, wherein the safety device is structured to substantially prevent rotation of at least one of the front shaft and the rear shaft in a first rotational direction while permitting rotation of the at least one of the front shaft and the rear shaft in a second rotational direction opposite the first rotational direction*

Petitioner relies upon Magid's unidirectional control means 6, 6' to teach the claimed safety device. Pet. 76–77 (citing Ex. 1012, 4:46–59). In one embodiment, unidirectional control means 6, 6' is a ratchet and pawl mechanism attached to either the front or rear rollers. Ex. 1012, 4:46–59, Figs. 2, 5; Ex. 1003 ¶¶ 365–366.

Petitioner contends that “[i]t would have been obvious to a POSA to combine Socwell's curved manual treadmill with the known technique of a one-way clutch to prevent treadmill belt forward motion as disclosed in Magid.” *Id.* at 80 (citing Ex. 1003 ¶¶ 425–437). Petitioner argues that a POSA would have made such a combination to prevent a user from falling off the treadmill while mounting or dismounting. *Id.* at 80–82. According to Petitioner,

[a] POSA would have been motivated to modify Socwell to include Magid's control means mounted to the front or rear roller to prevent the risk of a user stepping onto the belt and losing their balance when the belt unexpectedly moves forward.

Pet. 83 (citing Ex. 1003 ¶¶ 433–434 (supporting testimony of Dr. Giachetti)).

Based on the current record, we determine that Petitioner's analysis and evidence sufficiently shows that a POSA would have modified Chickering to include a safety device as taught by Magid in order to reduce the risk of a user losing their balance.

Patent Owner argues that a POSA would not combine Socwell and Magid for substantially the same reasons Patent Owner argues that a POSA would not combine Chickering and Magid. *See* Prelim. Resp. 11–14. For similar reasons as discussed above in connection with claim 1 for ground 1, which we will not repeat here, Patent Owner's arguments are unpersuasive.

Based on the current record, we determine that Petitioner's analysis and evidence sufficiently shows that the combination of Socwell and Magid teaches a safety device coupled to at least one of the front shaft and the rear shaft, wherein the safety device is structured to substantially prevent rotation of at least one of the front shaft and the rear shaft in a first rotational direction while permitting rotation of the at least one of the front shaft and the rear shaft in a second rotational direction opposite the first rotational direction.

e) Conclusion as to claim 1

After considering Petitioner's evidence and analysis, and taking into account Patent Owner's arguments, based on the record before us at this stage of the proceeding, we determine that Petitioner has shown a reasonable likelihood that claim 1 is unpatentable over Socwell and Magid.

3. *Independent claims 11 and 25*

Petitioner relies upon a similar analysis to show that independent claims 11 and 25 are unpatentable as the analysis it relies upon to show claim 1 is unpatentable. *See* Pet. 65–93. We note that Petitioner provides additional explanation for limitations of claims 11 and 25 that slightly differ from claim 1. *See e.g., id.* at 69–72.

Patent Owner relies upon the same arguments it made in connection with claim 1 for ground 1. *See generally* Prelim. Resp. (arguing claims 1, 11, and 25 together).

For similar reasons as discussed above, after considering Petitioner’s evidence and analysis, based on the record before us at this stage of the proceeding, we determine that Petitioner has shown a reasonable likelihood that claims 11 and 25 are unpatentable over Socwell and Magid.

4. *Dependent claims 2–5, 10, 14, and 18*

Petitioner contends that the additional limitations of dependent claims 2–5, 10, 14, and 18 are unpatentable over Chickering and Socwell. Pet. 42–48. At this stage of the proceeding, Patent Owner does not dispute that the combination of Chickering and Magid disclose the additional limitations. After considering Petitioner’s evidence and analysis, based on the record before us at this stage of the proceeding, we determine that Petitioner has shown a reasonable likelihood that claims 2–5, 10, 14, and 18 are unpatentable over Chickering and Magid.

I. *Ground 5*

Petitioner asserts that claims 6–9 and 12 are unpatentable over Socwell, Magid, and Sclater. Pet. 93–99. Like for ground 2, Petitioner proposed to modify the safety device of the combination of Socwell and Magid to be a sprag type one-way bearing clutch, disclosed in Sclater. *Id.*

Petitioner's rationale for the modification is substantially the same as the rationale for modifying the combination of Chickering and Magid with Sclater in ground 2. Pet. 99.

Likewise, Patent Owner's arguments against the combination of Socwell, Magid, and Sclater are substantially the same as those Patent Owner made against the combination of Chickering, Magid, and Sclater. *See* Prelim. Resp. 5–14.

For substantially the same reasons as discussed above in our analysis of ground 2, which we will not repeat here, we determine that Petitioner has shown that there is a reasonable likelihood that claims 6–9 and 12 are unpatentable over Socwell, Magid, and Sclater.

J. Grounds 3 and 6

Petitioner contends that claims 1–12, 14, and 18 are unpatentable over Chickering, Magid and Sclater (ground 3) and claims 1–12, 14, 15, 18 and 25 are unpatentable over Socwell, Magid, and Sclater (ground 6). Pet. 61–65, 99–102. These are the same combination of references presented for grounds 2 and 5. For grounds 3 and 6 only, Petitioner proposes alternate claim constructions from the District Court Litigation for the terms “shaft,” “safety device,” and “substantially prevent” and applies those constructions. Pet. 15, 61, 99. We, thus, consider these to be alternative grounds, which we do not need to reach.

III. CONCLUSION

After considering the evidence and arguments presented in the Petition and Preliminary Response, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail in establishing that at least one of claims 1–12, 14, 15, 18, and 25 are

unpatentable. Accordingly, we institute an *inter partes* review on all grounds of unpatentability in the Petition. At this stage of the proceeding, we have not made a final determination with respect to the patentability of any of the challenged claims.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted for claims 1–12, 14, 15, 18, and 25 of the '580 patent on the unpatentability grounds asserted in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which commences on the entry date of this decision.

IPR2023-00836
Patent 9,039,580 B1

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