

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.

U.S. Patent No. 10,799,745 to Bayerlein et al.

Case No.: IPR2023-00849

SECOND DECLARATION OF ROBERT GIACHETTI, Ph.D

TABLE OF CONTENTS

List of Exhibits	4
I. Introduction	7
II. Woodway’s Response – Disputed Claims	8
III. Construction of Terms in the Challenged Claims	8
A. “substantially prevent[.]”	9
B. “safety device”	9
C. “shaft”	9
D. “bearings” / “support” / “disposed . . . on”	10
IV. Level of Ordinary Skill in the Art	13
V. Patentability Analysis of the Challenged Claims	13
A. Ground 3 –Socwell discloses “ <i>a plurality of bearings</i> ” (Claims 1, 17, 18).....	13
B. Ground 3 – Socwell discloses “ <i>the plurality of bearings at least partially supporting the running belt</i> ” (Claim 17) and “ <i>disposing a running belt on the plurality of bearings</i> ” (Claim 18)	15
C. A POSA would have been motivated to combine Schonenberger with Socwell.....	16
1. For Ground 1, my first declaration relies on Schonenberger for disclosing the claimed “bearings and Socwell for the claimed “curved” running surface.	17
2. The Combination of Schonenberger and Socwell discloses rollers that define a “curved top profile.”	17
3. Modified Schonenberger has a curved running surface and is not merely Schonenberger flipped over.....	18
4. Schonenberger’s Slat-type Running Belt Could be Used with a Curved Running Surface	23
5. I did not rely on the embodiment shown in Figure 9 of Schonenberger in my analysis.....	24
6. Schonenberger does not teach away from combining with Socwell.	26
D. A POSA would have been motivated to combine Magid with Schonenberger and Socwell	28

1.	Magid does not teach away from its combination with Schonenberger or Socwell	33
E.	A POSA would have been motivated to substitute Sclater for Magid	34
1.	My obviousness arguments do not rely on hindsight.....	34
VI.	Conclusion.....	40

List of Exhibits

Exhibit #	Description
1001	U.S. Patent No. 10,799,745 (“the ‘745 Patent”)
1002	U.S. Patent No. 10,799,745 File History (“the ‘745 Patent File History”)
1003	Declaration of Robert Giachetti, Ph.D. P.E. (“Giachetti”)
1004	Robert Giachetti, Ph.D. P.E. Curriculum Vitae (“Giachetti CV”)
1005	Complaint, <i>Woodway USA, Inc., v. LifeCORE Fitness, Inc. d/b/a Assault Fitness</i> , Case No. 3:22-cv-00492-JO-BLM, Southern District of California, Filed April 11, 2022 (“Complaint”) (Ex. 1005 at 1-8) Waiver of Service (April 13, 2022) (Ex. 1005 at 9-10)
1006	Amended Complaint, <i>Woodway USA, Inc., v. LifeCORE Fitness, Inc. d/b/a Assault Fitness</i> , Case No. 3:22-cv-00492-JO-BLM, Southern District of California, Filed October 24, 2022 (“Amended Complaint”)
1007	Treadmills: Supplier Guide © 2010. Trade Practices (Consumer Product Safety Standard) (Treadmills) Regulations 2009 (“ACCC Product Safety Supplier Guide”)
1008	U.S. Patent No. 641,424 to Ziebell (“Ziebell”)
1009	U.S. Patent No. 1,211,765 to Schmidt (“Schmidt”)
1010	U.S. Patent No. 4,614,337 to Schonenberger (“Schoenberger”)
1011	U.S. Patent No. 5,897,461 to Socwell (“Socwell”)
1012	U.S. Patent No. 5,538,489 to Magid (“Magid”)
1013	U.S. Patent No. 3,637,206 to Chickering (“Chickering”)
1014	U.S. Patent No. 3,642,279 to Cutter (“Cutter”)
1015	U.S. Patent No. 6,042,514 to Abelbeck (“Abelbeck”)
1016	Power Transmission Handbook, (Power Transmission Distributors Association 1993) (“PT Handbook”) (available at https://cod.on.worldcat.org/oclc/49571648)
1017	Neil Sclater and Nicholas P. Chironis, Mechanisms & Mechanical Devices Sourcebook, Third Ed., (McGraw-Hill 2001) (“Sclater”) (available at https://catalog.loc.gov/vwebv/holdingsInfo?searchId=26&recCount=25&recPointer=0&bibId=12308523)
1018	Mechanical Clutches and Torque Overload Devices, (Emerson Industrial Automation, 2001) (“Emerson”)

Exhibit #	Description
1019	Standard Specification for Motorized Treadmills, (ASTM, 2005) (“ASTM Standard”)
1020	Stationary Training Equipment – Part 6: Treadmills, additional specific safety requirements and test methods. (ISO, 2005) (“ISO Standard”)
1021	U.S. Patent No. 8,986,169 File History (“the ‘169 Patent File History”)
1022	Responsive Claim Constructions, <i>Woodway USA, Inc., v. LifeCORE Fitness, Inc. d/b/a Assault Fitness</i> , Case No. 3:22-cv-00492-JO-BLM, Southern District of California, Filed January 5, 2022
1023	United States District Courts – National Judicial Caseload Profile, December 2022
1024	Inhabitat, “HUMAN-POWERED GYMS in Hong Kong” (March 8, 2007) (available at https://inhabitat.com/human-powered-gyms-in-hong-kong/)
1025	Minute Order, <i>Woodway USA, Inc., v. LifeCORE Fitness, Inc. d/b/a Assault Fitness</i> , Case No. 3:22-cv-00492-JO-BLM, Southern District of California, March 30, 2023.
1026	U.S. Patent No. 10,561,884 File History (“the ‘884 File History”)
1027	Claim Construction Brief, <i>Woodway USA, Inc., v. LifeCORE Fitness, Inc. d/b/a Assault Fitness</i> , Case No. 3:22-cv-00492-JO-BLM, Southern District of California, March 1, 2023
1028	Responsive Claim Construction Brief, <i>Woodway USA, Inc., v. LifeCORE Fitness, Inc. d/b/a Assault Fitness</i> , Case No. 3:22-cv-00492-JO-BLM, Southern District of California, March 14, 2023
1029	U.S. Patent No. 4,635,771 to Shoji (“Shoji”)
1030	U.S. Patent No. 6,923,746 to Skowronski (“Skowronski”)
1031	<i>Intentionally blank</i>
1032	<i>Intentionally blank</i>
1033	Claim Construction Order <i>Woodway USA, Inc., v. LifeCORE Fitness, Inc. d/b/a Assault Fitness</i> No. 3:22-cv-00492-JO-BLM, Dkt. No. 59, Southern District of California, November 14, 2023
1034	<i>Intentionally blank</i>
1035	<i>Intentionally blank</i>
1036	Second Declaration of Robert Giachetti, Ph.D. P.E. (“Giachetti”)
1038	Transcript of Deposition of Dr. Kim. B. Blair taken on April 8, 2024 <i>LifeCore Fitness, Inc., d/b/a Assault Fitness v. Woodway USA, Inc.</i> , IPR2023-00836

Exhibit #	Description
1039	Transcript of Deposition of Dr. Kim. B. Blair taken on April 8, 2024 <i>LifeCore Fitness, Inc., d/b/a Assault Fitness v. Woodway USA, Inc.</i> , IPR2023-00843
1040	Transcript of Deposition of Dr. Kim. B. Blair taken on April 9, 2024 <i>LifeCore Fitness, Inc., d/b/a Assault Fitness v. Woodway USA, Inc.</i> , IPR2023-00849
1041	Woodway 4Front Owners Manual October 24, 2023 OM_EN_V2 (accessed March 31, 2024) (available at https://www.woodway.com/treadmills/4-front/)
1042	Woodway Homepage, (accessed March 31, 2024) (available at https://www.woodway.com/)
1043	Woodway Curve Specification (accessed March 31, 2024) (available at https://www.woodway.com/treadmills/curve/)
1044	Woodway Manual Treadmills Webpage (accessed March 31, 2024) (available at https://www.woodway.com/manual-treadmills/)
1045	Confidential Condensed Transcript of Deposition of Traci Bates taken on January 26, 2024 <i>Woodway USA, Inc., v. LifeCORE Fitness, Inc. d/b/a Assault Fitness</i> , Case No. 3:22-cv-00492-JO-BLM, Southern District of California
1046	Woodway Trueform Trainer Webpage dated August 12, 2020 (accessed April 4, 2024) available from Wayback at https://web.archive.org/web/20200812204597/https://www.woodway.com/product/trueform/trainer-powered-by-woodway/)
1047	Confidential Draft AirRunner Manual Treadmill Owner's Manual Assault Fitness Release v.01 (20.February,17)
1048	Correspondence with Patent Owner dated April 15, 2024

I. Introduction

I, Robert Giachetti, Ph.D., P.E., hereby declare as follows:

1. I provided my background, qualifications and opinions pertaining to a Petition for Inter Partes Review, Case No. IPR2023-00849, of certain claims of U.S. 10,799,745 (“the ’745 Patent,” Ex. 1001) in a Declaration that was filed on April 13, 2023. (Ex. 1003.)

2. I am making this Second Declaration (“Reply Decl.,” Ex. 1036) at the request of LifeCORE Fitness, LLC. (“LifeCORE”) in support of LifeCORE’s Reply to Patent Owner (PO) Woodway’s Response regarding certain factual issues raised in IPR2023-00849.

3. Specifically, for purposes of this Second Declaration, I have been asked to analyze the arguments made by Woodway in its Patent Owner Response (Public Redacted POR, Paper 17) along with the declaration of Woodway’s expert, Dr. Blair (“Blair Decl.,” Ex. 2018). I have also analyzed the Patent Trial and Appeal Board’s decision to institute (“DI,” IPR2023-00849, Paper 6) my deposition transcripts (Exs. 2022-2024), and Dr. Blair’s deposition transcripts (Exs. 1038-1040).

4. I have also reviewed my first declaration (Ex. 1003) and the exhibits cited in my first declaration.

5. In forming the opinions expressed below, I have considered:

- a. The documents listed above as well as additional patents and documents referenced herein;
- b. The relevant legal standards, including the standard for obviousness provided in *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007), and any additional documents cited in the body of this declaration; and
- c. My knowledge and experience based upon my work and study in this area as described below.

II. Woodway's Response – Disputed Claims

6. Woodway did not argue all claim limitations. For all claim limitations not analyzed in this declaration, I refer to the analysis in my First Declaration (Ex. 1003.)

III. Construction of Terms in the Challenged Claims

7. As discussed in my first declaration (Ex. 1003), I understand that the terms of the claims must first be construed before the claims can be properly evaluated. I also understand that, at the same time, absent some reason to the contrary, claim terms are typically given their ordinary and accustomed meaning as would be understood by one of ordinary skill in the art.

8. I applied alternate claim construction positions in Ground 2 for the terms: “substantially prevent”, “safety device”, and “shaft” in my first declaration.

However, I understand that the Board did not construe any terms to reach their institution decision. (DI, 24-25) The District Court issued its Markman Order (Ex. 1033) on November 14, 2023 and construed multiple terms. For purposes of this declaration, I am applying the following claim constructions based on the District Courts Constructions:

A. “substantially prevent[]”

9. The Court construed “*substantially prevent[]*” as “restricts rotation to allow for only one rotational direction of movement.” (Claim Construction, Ex. 1033, 16.) This construction will not affect my analysis in Grounds 1 and 3 of my first declaration.

B. “safety device”

10. The Court construed “*safety device*” as “a device that includes the elements recited and restricts rotation to allow for only one rotational direction of movement.” (Claim Construction, Ex. 1033, 22-23.) This construction will not affect my analysis in Grounds 1 and 3 of my first declaration.

C. “shaft”

11. The Court did not construe the term “*shaft*” and instead relied on its plain an ordinary meaning. (Claim Construction, Ex. 1033, 25-26.) If Board adopts the same construction, it will not affect my analysis in Grounds 1 and 3 of my first declaration.

D. “bearings” / “support” / “disposed . . . on”

12. Woodway/Dr. Blair do not expressly construe claim terms: “*bearings*”, “*support*”, and “*disposed . . . on*”, however, their arguments imply constructions. For example, Woodway/Dr. Blair argue that these terms require specific location and a weight-bearing relationship between the bearings and the running belt, i.e., “A POSA would therefore understand the ’745 specification to require a relative, weight-bearing relationship between the running belt and the plurality of bearings” and “the bearings 208 to be positioned below the running belt 16 . . . here.”) (POR, 7-14.)

13. During his deposition, Dr. Blair confirmed that: 1) the claims do not expressly require these additional location and weight-bearing limitations ; 2) Woodway/Dr. Blair is not proposing a construction to add these limitations ; and 3) the District Court did not provide such constructions (1040, 24:7-28:13 *see also* Dr. Blair Deposition, Ex.1038, 45:7-47:3, 47:20-48:9.) During his deposition for the related ’580 Patent, Dr. Blair argued that a POSA would understand that the claims require these additional limitations based on disclosure in the ’580 Patent:

Q. Okay. All right. So if we go back to your paragraph 104, if this positioning and weight-bearing relationship is not expressly in the plurality of bearings Claim limitation, and the District Court did not provide a construction, and you're not providing a construction, why would a POSA understand that: "The plurality of bearings must all be

positioned below and have some kind of weight-bearing relationship with the running belt"?

MS. JELENCHICK: Objection, form.

THE WITNESS: Because of the description of the specification of '580.

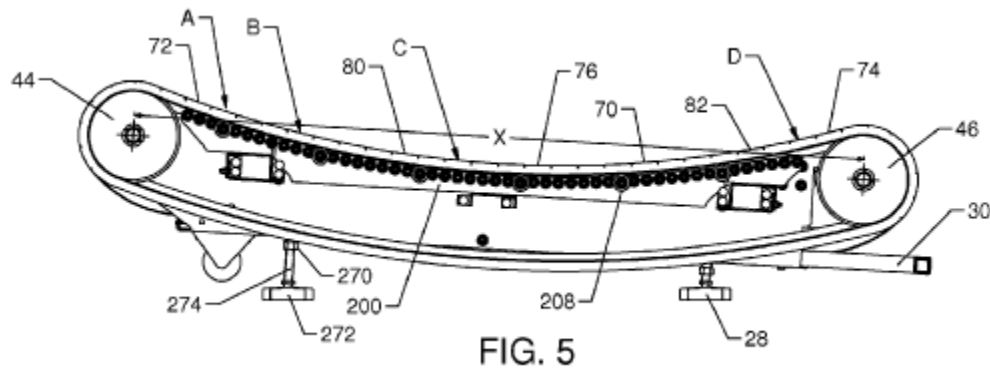
(Dr. Blair Deposition, Ex. 1038, 48:10-23.)

14. More specifically, Dr. Blair relies on the '745 Patent disclosure at col. 11, lines 11:39-43 for supporting this claim construction even though the passage does not expressly describe the position:

The running belt 16 contacts and ***is supported in part by the bearings 208*** of the bearing rails and bearing 208 are configured to rotate, thereby decreasing the friction experienced by the running belt 16 as the belt moves along the top profile 210.

(Dr. Blair Declaration, Ex. 2018, ¶79, quoting '745 Patent, Ex. 1001, 11:39-43 emphasis added by Woodway.)

15. Woodway states that “[i]n the '745 patent, the ‘plurality of bearings’ are only described and depicted as lying below and supporting the running belt 16” and that “[t]his requires the bearings 208 to be positioned below the running belt 16.” (POR, 7-8, citing '745 Patent, Ex. 1001.) Further, as illustrated below in Figure 5, the bearings 208 are below an upper portion of the running belt 16 and above a lower portion of the running belt 16.



'745 Patent, Ex. 1001, Fig. 5

16. The '745 Patent discloses that the “running belt 16 contacts and is supported **in part** by the bearings 208 of the bearing rails.” ('745 Patent, Ex. 1001, 11:39-40.) This disclosure of **partial** support by contact does not provide specific location and weight-bearing relationship. Further, the '745 Patent describes other bearings that do not provide a weight-bearing relationship with the belt. For example, as I explained in my first declaration, the '745 Patent describe a one-way bearing assembly with reference to Figures 2 and 36. (Ex. 1003, ¶¶94.) Dr. Blair admitted that the related “'580 Patent¹ does not describe the one-way bearing assembly as providing a weight-bearing relationship with the running belt.” (Dr. Blair Deposition, Ex. 1038, 52:19-22.) Since Woodway's/Dr. Blair's implied construction conflicts with the '745 Patent, the Board should reject PO's unsupported implied constructions. Furthermore, the '745 Patent uses the term

¹ The '745 and '580 Patent has a common specification.

“disposed on” to refer to an interior and lateral arrangement of the endless belts 226 relative to the slats 228 of the running belt 16: “The endless belts 226 are shown disposed on opposite sides of the running belt 16, generally interior to the outer, lateral edge of the slats 228.” (Ex.1001,13:60-61.)

IV. Level of Ordinary Skill in the Art

17. Woodway/Dr. Blair proposed a skill level that includes “a bachelor of science degree in mechanical engineering **or** at least two years of experience in the treadmill industry, including experience and knowledge of the design, construction, testing, and operation of manual treadmills.” (POR, 3-4.)

18. It is my opinion that the Woodway/Dr. Blair proposed skill level is insufficient. For example, their proposed skill level requires education or industry experience and both are important to understand the ’745 Patent. Further, the Woodway/Dr. Blair proposed skill level does not include any understanding of exercise biomechanics, or the proportions of people, which is important to understand the design of curved treadmills.

V. Patentability Analysis of the Challenged Claims

A. Ground 3 –Socwell discloses “*a plurality of bearings*” (Claims 1, 17, 18)

... ***[1.4] a plurality of bearings coupled to the frame;***

... ***[17.] The treadmill of claim 10, wherein the rotatable element comprises a plurality of bearings coupled to the frame, the plurality of bearings at least partially supporting the running belt.***

... ***[18.2][A] providing a plurality of bearings coupled to the frame,***

19. As I explained in my first declaration, Socwell discloses “a *plurality of bearings*” limitations of claims [1.4], [17], [18.2]. (Ex. 1003, ¶¶310-316, 396, 401-403.)

20. Woodway/Dr. Blair argue that Socwell does not disclose “a *plurality of bearings*” because the ’745 Patent “requires the bearings 208 to be positioned below the running belt 16.” (POR, 6-7.) PO further argues that “[a] POSA would therefore understand the ’745 specification to require a relative, weight-bearing relationship between the running belt and the plurality of bearings.” (*Id.*,8; Dr. Blair Declaration, Ex. 2018, ¶¶78-86.) Woodway/Dr. Blair thus imply construing the term “*bearing*” as requiring a position below the running belt to provide a weight-bearing relationship.

21. As I explained in my first declaration at ¶¶67-70 and 310-316, Socwell’s rollers 98 provide a “*plurality of bearings*” and Socwell’s deck provides a bottom bearing. (*Id.*)

22. Intentionally left blank.

B. Ground 3 – Socwell discloses “*the plurality of bearings at least partially supporting the running belt*” (Claim 17) and “*disposing a running belt on the plurality of bearings*” (Claim 18)

... [17.] The treadmill of claim 10, wherein the rotatable element comprises a plurality of bearings coupled to the frame, the plurality of bearings at least partially supporting the running belt.

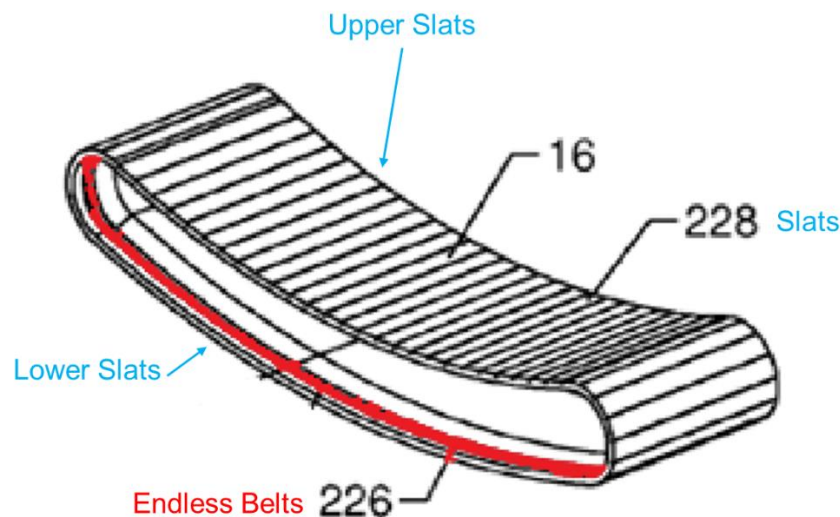
... [18.3] disposing a running belt on the plurality of bearings such that the curved top profile of the plurality of bearings define at least a portion of a curved running surface of the running belt;

23. As I explained in my first declaration, Socwell discloses the” limitations of claims [17], [18.3]. (Ex. 1003, ¶¶396, 404.)

24. PO argues “disposed on” and “support[ed]” require that “the structure must be positioned below the running belt such that the structure supports and/or bears at least some of the weight of the running belt.” (POR,13, Ex. 2018, ¶102-103.) This implied claim construction is wrong. The running belt 16 is at least partially supported by, and disposed on, the rollers 98 and the deck 56 which are “bearings.” (Ex. 1003, ¶¶396,404) That is all the claims require.

25. The Woodway/Dr. Blair construction conflicts with the ’745 Patent disclosure. The ’745 Patent uses the phrase “disposed on” to refer to multiple arrangements, including arrangements that are not physically above. For example, the ’745 Patent uses the term “disposed on” to refer to an interior and lateral

arrangement of the endless belts 226 relative to the slats 228 of the running belt 16:
“The endless belts 226 are shown disposed on opposite sides of the running belt 16, generally interior to the outer, lateral edge of the slats 228.” (’745 Patent, Ex. 1001, 13:58-61, emphasis added.)



’745 Patent, Ex. 1001, Fig. 6 Excerpt (Annotated)

26. As illustrated in the above figure, the left endless belt 226 is disposed “interior” to the slats 228, and not on top of the running belt, i.e., above the lower slats and below the upper slats. This disclosure in the ’745 Patent contradicts Woodway’s position that disposed on means positioned above and in a weight-bearing relationship.

27. Intentionally left blank.

**C. A POSA would have been motivated to combine
Schonenberger with Socwell**

28. As I explained in my first declaration, it would have been obvious to a POSA to combine the flat manual treadmill topology of Schonenberger with the curved manual treadmill topology of Socwell to increase safety and reduce impact loading of the user's joints. (Ex. 1003, ¶148–1153.) Woodway/Dr. Blair did not challenge my actual reasons for combination and instead focused on issues I did not raise.

1. For Ground 1, my first declaration relies on Schonenberger for disclosing the claimed “bearings and Socwell for the claimed “curved” running surface.

29. Woodway/Dr. Blair argues “Petitioner mistakenly equates Socwell's disclosure with Schonenberger's (Claims 1, 10, 18, 21).” (POR, 14.) But, I did not rely on Socwell's bearings in my motivation-to-combine analysis. Instead, my opinion was that a POSA would have known how to *modify* placement of the plurality of roller bearings 12 of Schonenberger to be curvilinear, like the curved, plain linear bearing (deck 56) of Socwell, resulting in curved running surface to increase safety and reduce impact loading of the user's joints. (Ex. 1003, ¶148–153.).

2. The Combination of Schonenberger and Socwell discloses rollers that define a “curved top profile.”

30. In my first declaration, I explained the combination of Schonenberger and Socwell discloses “wherein the plurality of bearings define at least a portion of

a curved top profile.” (Ex. 1003, ¶246, Claim [18.2][B].) I further explained modified Schonenberger defined “a curved top profile” as claimed in claim 18.2.

As I discussed above in claim 1, modified Schonenberger has the rollers 12 (“*bearings*”) arranged curvilinearly, which defines “*at least a portion of a curved top profile.*” (See ¶¶ 134-138, 145-146, 154-159.) The movable surface 1 (“*running belt*”) follows the profile defined by the rollers 12 to provide the “*curved running surface.*”

(Ex. 1003, ¶246.)



Schonenberger, Ex. 1010, Fig. 12 (Modified)

31. Intentionally left blank.

3. **Modified Schonenberger has a curved running surface and is not merely Schonenberger flipped over.**

32. Woodway/Dr. Blair incorrectly allege that my modified Schonenberger is merely flipping the roller arrangement 12 up-side-down. (POR, 21; Dr. Blair Declaration, Ex. 2018, ¶¶123-144.) However, my position actually was that it would have been obvious to arrange the rollers 12 curvilinearly like the

curved deck 56 of Socwell:

It would have been obvious to a POSA to combine the flat manual treadmill topology of Schonenberger with the curved manual treadmill topology of Socwell to increase safety and reduce impact loading of the user's joints.

(Ex. 1003, ¶148.)

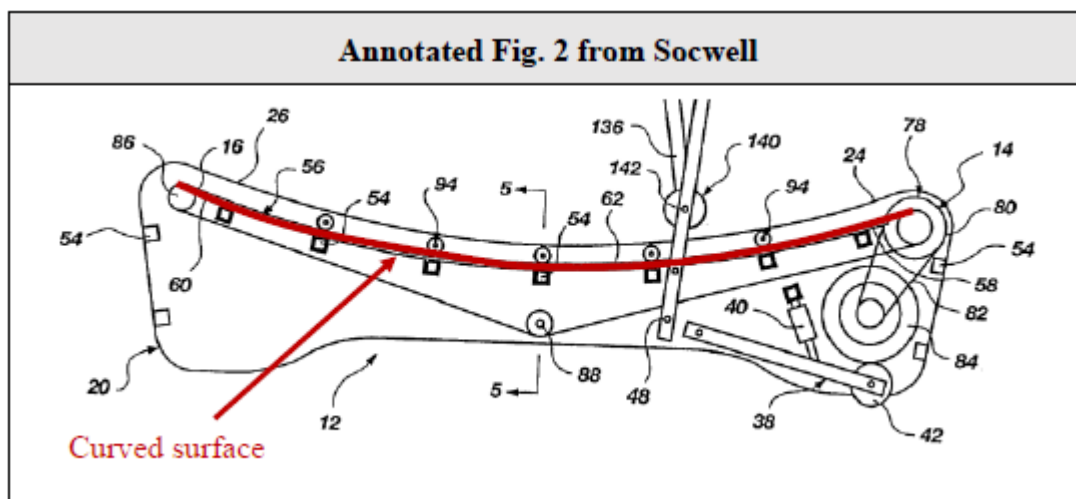
It was well within the ordinary skill in the art to modify the flat running surface of Schonenberger with the curved running surface of Socwell. In both Schonenberger and Socwell, the running surface is supported from underneath by bearings: rollers 12 in Schonenberger; and a linear bearing, curved deck 56, combined with rotary bearings, rollers 94 in Socwell. A POSA would have understood that by arranging the rollers 12 of Schonenberger in a curved alignment, similar to the curved deck 56 of Socwell, a curved running surface would result.

(Ex. 1003, ¶154.)

33. I only pointed to the curved arrangement of the rollers 12 in Schonenberger to show that Schonenberger already discloses the rollers 12 can be placed at different heights in further support of my proposed modification in which the rollers 12 are lowered to form a curved shape, like the deck 56 of Socwell. (Ex. 1003, ¶154.)

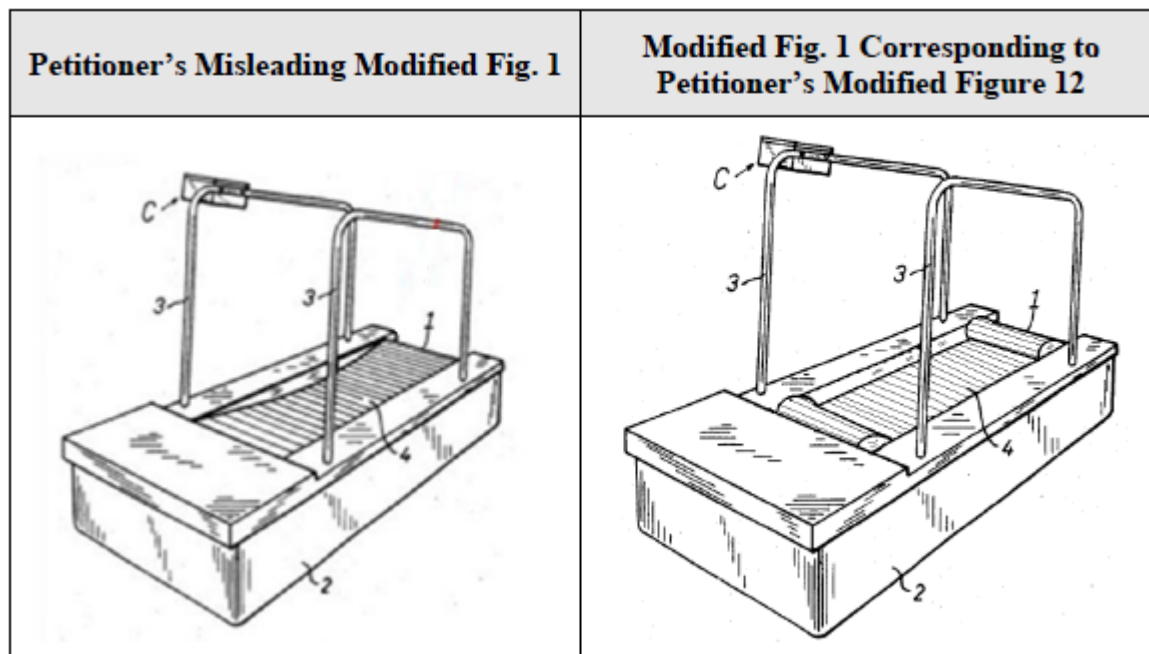
34. Woodway/Dr. Blair argue my modified Schonenberger is flat in the middle and not “a curved running surface.” (POR, 29.) This position is based their

incorrect characterization—that modified Schonenberger is merely Schonenberger flipped upside down and their reliance on my modifications to Schonenberger’s Figure 12 being to scale—instead of a conceptual demonstrative as intended. (POR, 21.) But, that is not the proposed modification. As discussed above, I previously opined it would have been obvious to modify the positions of the rollers 12 to be curved like the curved deck 56 of Socwell. (Ex. 1003, ¶148.) Dr. Blair agrees with me that Socwell discloses a curved running surface, as indicated by his annotations to annotated Socwell Figure 2 as reproduced below:



Socwell, Ex. 1010, Fig. 2 (Annotated by Dr. Blair Ex. 2018, ¶132.)

35. Dr. Blair further agrees that my proposed modifications to Schonenberger Figure 1 results in a “surface . . . [that] is actually similar in shape to the Socwell reference.” (Ex. 1040, 44:8-13.)



Dr. Blair Declaration, Ex. 2018, ¶154

Q. Okay. So I'm referring to the -- the figure on the top left portion of page 77, and it's a figure that you have labeled as "Petitioner's misleading modified Figure 1." **So for that figure, do you agree that it illustrates a curved running surface?**

A. That's certainly what the Petitioner put forth, yes.

Q. Okay. Now, does the shape of that curved running surface correspond to the shape of the running surface in the Socwell patent?

* * *

A. Well, again, I don't think that that is the -- the modification wouldn't result in that surface, the modification as proposed would not result in that surface. **However, that surface on the left figure at the top of page 77 is actually similar in shape to the Socwell reference.**

* * *

Q. Okay. Now, does the image on the top right that's labeled as modified Fig 1 corresponding to Petitioner's modified Figure 12, does the shape of the running surface in that image correspond to the shape of the running surface in Figure 1 of the Socwell patent?

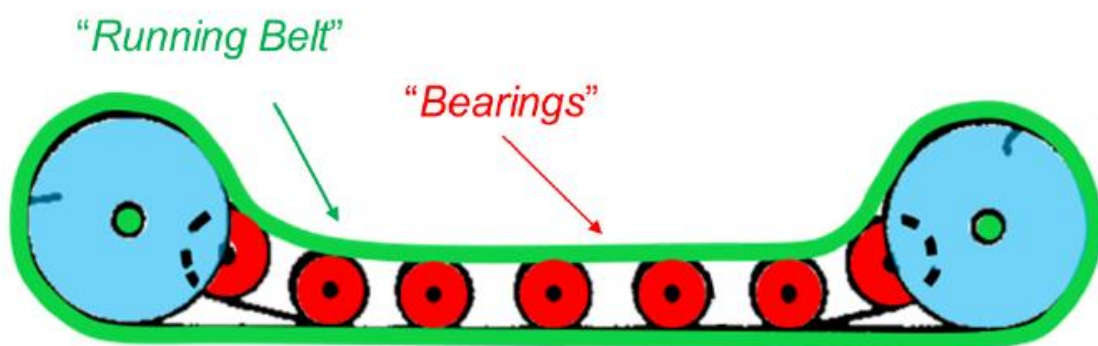
A. No, the running surface on the right side of where it is flat, as indicated in my declaration.

Q. So then it wouldn't correspond to the shape of the Socwell treadmill; is that correct?

A. That's correct.

(Dr. Blair Deposition, Ex. 1040, 43:21-44:25; see also, Dr. Blair Deposition, Ex. 1039, 32:20-38:8.)

36. Woodway/Dr. Blair also mischaracterizes my use of the below annotated figure.



Ex.1010, Fig.12

Petition, 42 (Annotated)

37. Woodway/Dr. Blair allege modified Schonenberger is only illustrated

in Figure 12, which they argue does not correspond to Petitioner's modified Schonenberger Figure 1—i.e., merely to invert Schonenberger's rollers. (POR, 24.) But this is not accurate. First, as discussed above, the text of the petition and my original declaration explains that Petitioner's modified Schonenberger is the rollers 12 arranged like the curved deck 56 of Socwell. (Petition, 33-35; Ex. 1003, ¶148-159). Second, the text of my first declaration makes clear that the above annotated figure is merely a conceptual visual aid to show how Schonenberger's running belt 1 would sag to conform with the profile defined by the rollers 12. (Ex. 1003, ¶155.)

38. Woodway/Dr. Blair are attacking this visual aid as if it were a blueprint for building a curved treadmill. That was not my intent of the image. I used and annotated the available figures from the prior art as visual aids to highlight that it would have been obvious to modify placement Schonenberger's rollers 12 to define a curved profile as taught by Socwell. The text of my declaration thoroughly explained this. The accompanying visual aids were not intended as blueprints for building a curved treadmill.

4. Schonenberger's Slat-type Running Belt Could be Used with a Curved Running Surface

39. Woodway/Dr. Blair argue that I failed to account for the slat-style belt of Schonenberger. (POR, 28-29, Dr. Blair Declaration, Ex. 2018, ¶137.) I disagree.

40. In the state-of-the-art section of my first declaration, I described

different types of treadmill running surfaces (e.g., Socwell's belt and Schonenberger's track) and corresponding bearing surfaces as understood by a POSA. (Ex. 1003, ¶¶58-60, 65-70.) For example, "[t]he belt style treadmill generally implements rollers, . . . or a bearing surface (i.e., a "deck" or slider bed) because the belt cannot resist the loads imparted to it from the operator so the belt relies on rollers or deck underneath the belt to provide rigidity to the running surface." (*Id.*, ¶66.) However, "small rolling element bearings are predominantly selected for the track style running surface because the transverse slats are strong enough to resist the operator's loads without anything directly underneath the slats where the operator's foot is." (*Id.*)

41. Further, I explained that the heavy slats 4 of Schonenberger would aid in creating the curved running surface:

The movable surface 1 of Schonenberger is comprised of individual slats 4 that are relatively heavy, relatively rigid, interconnected, and movable relative to each other. As such, the movable surface 1 ("running belt") would conform to the profile of the supporting rollers

12.

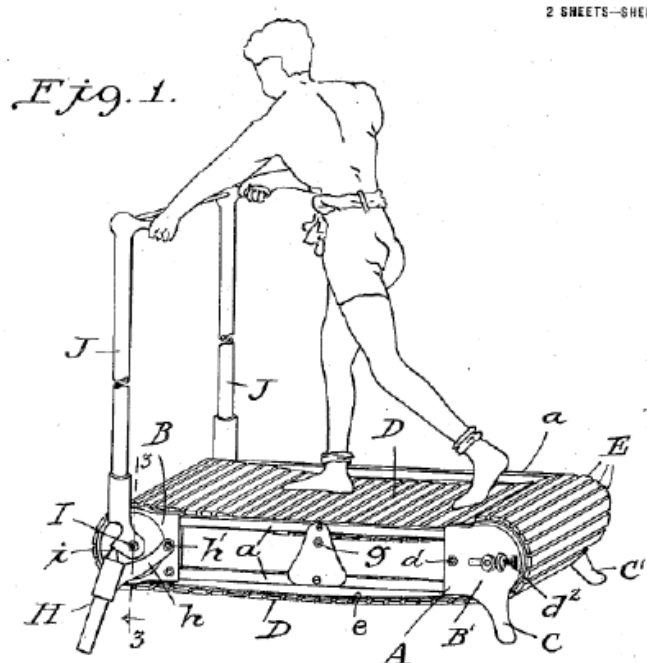
(Ex. 1003, ¶156; *see also*, Petition, 37.)

5. I did not rely on the embodiment shown in Figure 9 of Schonenberger in my analysis.

42. Citing to Figure 9 of Schonenberger, Woodway/Dr. Blair argue, "[t]he

treadmill surface of Schonenberger would require more engineering resources and effort to modify than Petitioner identifies[.]” (POR, 29-; Dr. Blair Declaration, Ex. 2018, ¶139.) But, I did not rely on this embodiment. Instead, I relied on the embodiment of Figure 10. (Ex. 1003, ¶¶157,219,224,239.) Furthermore, I previously opined that track style running surfaces were well known to a POSA. (Ex. 1003, ¶¶53,62.)

43. Woodway/Dr. Blair also allege the slats would overlap and pinch when curved. (POR, 31, Dr. Blair Declaration, Ex. 2018, ¶143-144.) I disagree. In the embodiments I relied on, the individual slats 4 are all interconnected to each other by rivets 9 and two common belts 5’ to form an endless belt 1. (Ex. 1003, ¶160; Schonenberger Ex. 1010, 4:38–41.) The belts 5’ maintain positioning of the slats 4 relative to each other and would prevent any overlapping of the slats 4. The slats 4 are also designed for relative movement. (*Id.*, 5:54–56.) For example, the slat-style belt is able to tightly curve at the drums 10, which is a much tighter radius than the curved running surface of my proposed modification. A POSA would have recognized the movable surface 1 of Schonenberger as being suitable for a curved running surface. (Ex.1003, ¶¶62, 156.) For example, Schmidt, which I described in my background section of my first declaration, disclosed a track-style curved belt like the Schonenberger embodiments I relied upon in my analysis. (Ex. 1003, ¶62; Schmidt, Ex. 1009, 1:50-59.)



Ex.1003,¶53

44. Intentionally left blank.

6. Schonenberger does not teach away from combining with Socwell.

45. It is my understanding of the law that a reference teaches away when a POSA would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken' in the claim. A reference that merely expresses a general preference for an alternative invention but does not criticize, discredit, or otherwise discourage investigation into the claimed invention does not teach away.

46. It is my opinion that Schonenberger does not teach away from curved

treadmills because nothing in Schonenberger criticizes, discredits, or otherwise discourages a curved treadmill. Indeed, many of Schonenberger objectives, e.g., “a pleasant yielding top surface to reduce stress on joints and ligaments” (Schronenberger, Ex. 1010, 4:58–66), are best accomplished through a curved running surface. *See, e.g.*, Socwell, Ex. 1011, 13:38-42.

47. Woodway/Dr. Blair ignore that curving the running surface 1 would actually both align and further Schonenberger’s objectives. Instead, they focus their teaching-away argument on a small detail—an alleged elimination of a 0.5 mm² gap between support belts 13/13’ and the rollers 12. (POR, 33.) But, I did not rely on the embodiments of Schonenberger having the belts 13/13’. Instead, I relied on Figure 10, which does not use the belts 13,13’. The embodiment in Figure 10 uses modified belts 5’ that are disposed directly on the rollers 12 (Schronenberger, Ex. 1010, 8:34-62; Ex. 1003, ¶¶137.) Accordingly, I understand the belts 13/13’ to be an optional component. (Schronenberger, Ex. 1010, 9:1–2.)

48. I did not explicitly discuss a gap between the rollers 12 and belts 5’ in my first declaration, but it is my opinion that a user would not perceive the presence or absence of a 0.5 mm gap, especially in my proposed curved arrangement of modified Schonenberger. The curved running surface lowers

² Woodway incorrectly alleges this to be a 0.5 cm gap.

impact forces, reducing stress on joints and ligaments. (Socwell, Ex. 1011, 13:38-42.) Moreover, Schonenberger discloses other cushioning features, such as the impacting-reducing cover 16, that are present in my proposed modification. (Schenkenberger, Ex. 1010, 4:57-63.) As such, modified Schonenberger would still provide “a pleasant, springy feel” regardless of the gap. (*Id.*, 1:63-67.) Therefore, I do not believe Schonenberger discourages against removal of a 0.5 mm gap.

49. Moreover, Woodway/Dr. Blair argue (without explanation) that modified Schonenberger cannot have the gap. This is incorrect. A POSA would understand that modified Schonenberger could be designed with a 0.5 mm gap between at least some of the rollers 12 and the belts 5'. A POSA would have understood that increasing the tension of the running belt 1—such as by adjusting the distance between the front and rear drums 10 or shortening the belt—would cause the belt to rise relative to the middle, lower rollers such that a miniscule gap of 0.5 mm could be easily formed, if desired. A POSA could also alter the arrangement/alignment of the rollers 12 with an equally high expectation of success.

50. Intentionally left blank.

D. A POSA would have been motivated to combine Magid with Schonenberger and Socwell

51. As I explained in my first declaration, it would have been obvious to a

POSA to combine the curved manual treadmill of Schonenberger and Socwell with the known technique of a one-way clutch to prevent treadmill belt motion in a forward direction as disclosed in Magid. (Ex. 1003, ¶¶ 175-192.)

52. As I explained in my first declaration, Schonenberger, Socwell, and Magid are from the same field – Exercise Equipment, more specifically treadmills for home exercise use. (Ex. 1003, ¶¶ 188, 433)

53. Woodway/Dr. Blair argue that Magid is limited to therapeutic use whereas Socwell and Schonenberger are a non-therapeutic. (POR,35.)

54. However, Magid describes its walker apparatus being used for exercise and that its disclosure should be interpreted broadly:

Another objective of the present invention is to provide a walker apparatus which may be used with the functional supporting frame of an exercise walker, the latter having an adjustable hand bar for use by small children, physically handicapped people, old people and by those who feel more confident holding onto something while exercising.

(Magid, Ex. 1012, 1:53-59, emphasis added.)

Any one of the different embodiments of the walker apparatus of the present invention may further comprise the functional supporting frame of an exercise walker, a baby chair or a baby stroller. When used as an exercise walker, the walker apparatus is an ideal way of losing weight and keeping fit. When used as a baby chair or baby

stroller, the walker apparatus provides a safe and effective way for exercising a baby and for teaching the baby to stand and walk.

(Magid, Ex. 1012, 3:23-31, emphasis added.)

While the present invention has been described in connection with what is considered the most practical and preferred embodiments, it is understood that this invention is not limited to the disclosed embodiments but is intended to cover various arrangements included within the spirit and scope of the broadest interpretation so as to encompass all such modifications and equivalent arrangements.

(Magid, Ex. 1012, 7:61-67.)

55. Schonenberger discloses that its treadmill can be used for exercise and therapy:

The present invention relates to a movable surface apparatus, and more particularly to such an apparatus specifically useful for physical exercise and training, for ergonmetry and **walking therapy** for handicapped people.

(Schonenberger, Ex. 1010, 1:10-15.)

56. Socwell describes its treadmill as having “rehabilitative functionality” and being used for “rehabilitative exercises” which a POSA would have understood relates to therapeutic use:

Another meaningful disadvantage of prior art exercise treadmills is their general inability to reduce the physical impact to the joints and muscles of a user conducting general exercise routines in relation

thereto. In this regard, an exercise treadmill which is capable of reducing the physical impact on the knees and back of a user will resolve several barriers left unsolved by known prior art devices, especially in light of providing an operative role in **rehabilitative exercises**.

(Socwell, Ex. 1011, 3:1-9, emphasis added.)

Moreover, it is an object of the present invention to provide a curved deck treadmill which is capable of reducing the physical impact to the joints and muscles (e.g., the knees and back) of a user, thus providing an operative device having **rehabilitative functionality**.

(Socwell, Ex. 1011, 3:52-57, emphasis added.)

Similarly, the novel configuration of the present invention is capable of reducing the physical impact to the joints and muscles (e.g., the knees and back) of a user, thus providing an operative device having **rehabilitative functionality**. Moreover, the present invention provides a continuous, smooth **exercising** motion capable of providing meaningful exercise comfort, thereby facilitating an upper surface which supportably provides for a longer stride with more flexibility.

(Socwell, Ex. 1011, 13:38-47, emphasis added.)

57. I explained **how** a POSA would have combined Schonenberger and Socwell with Magid in my first declaration. (Ex. 1003, ¶¶184-186).

58. I also explained **why** a POSA would have been motivated to combine Schonenberger and Socwell with Magid in my first declaration. (Ex. 1003 ¶¶175-

186.) It would have been obvious to a POSA to combine Schonenberger's and Socwell's treadmill with Magid's control means to permit only unidirectional movement of the running belt to reduce the risk of a user stepping onto the running belt of the treadmill and losing their balance when the belt moves in the forward direction. (*Id.*)

59. Dr. Blair identified the same problem of unintended motion with Socwell:

The treadmill belt of Socwell is free to move in both a forward direction and a rearward direction. When a user steps onto the rear of the treadmill having a curved running surface, the user's weight may cause the treadmill belt to move in the unintended rotational direction, particularly if the user inadvertently mounts the device from or towards the rear.

(Dr. Blair Declaration, Ex. 2018, ¶175.)

60. Several professional organizations have produced standards to provide guidance to manufacturers regarding both exercise equipment safety in general and other standards specifically for treadmill safety. *See* ASTM Standard, Ex. 1019; ISO Standard, Ex. 1020; and ACCC Product Safety Supplier Guide, Ex. 1007. These standards establish requirements for foot rails and handrails on treadmills to address user stability. (ASTM Standard, Ex. 1019, 3-4; ISO Standard, Ex. 1020, 8.)

61. As I explained during my deposition, the ISO standard defines a

treadmill as “training equipment with a unidirectional moving surface on which a walking or running activity can take place, where the feet are free to leave the moving surface.” (ISO Standard, Ex. 1020, 4; Ex. 2024, 61:20-25.) Dr. Blair explained that a POSA would understand from this definition “that the [treadmill] is designed to be only walked on or run on in one direction.” (Dr. Blair Deposition, Ex. 1040, 58:18-20.) In view of this definition, a POSA would have been further motivated to modify Schonenberger and Socwell with Magid’s unidirectional control means to limit their moving surfaces to one direction.

1. Magid does not teach away from its combination with Schonenberger or Socwell

62. Woodway/Dr. Blair argue that Magid teaches away from its combination with Socwell and Schonenberger because of Magid focuses on a two-belt therapeutic walker device, whereas Socwell and Schonenberger have a single belt compared to So.” (POR, 37-38; Dr. Blair Declaration, Ex. 2018, ¶168.) Woodway/Dr. Blair also argue that “[d]esign and engineering requirements” would urge a POSA to avoid combining the teachings of Socwell and Schonenberger as modified by Petitioner, or other curved/non-planar treadmills with Magid.” (POR, 38-39.)

63. My proposed combinations with Magid does not rely on Magid’s two-belts or flat or uniplanar surface for satisfying any claim limitations. I use Magid’s

safety device. Therefore, Magid's disclosure regarding these features are not relevant to the proposed combinations. Moreover, Woodway/Dr. Blair fail to identify any of the references discouraging use of Magid's safety device in Schonenberger or Socwell or another single belt treadmill.

64. Woodway/Dr. Blair seem to further allege that Socwell's handle teaches away from adding Magid's safety device. (POR, 37-38) But, Magid has a handle too. Furthermore, industry safety standards require such features. (ASTM Standard, Ex. 1019; ISO Standard, Ex. 1020.)

65. Intentionally left blank.

E. A POSA would have been motivated to substitute Sclater for Magid

66. As I explained in my first declaration, a POSA would have been motivated to substitute Sclater's one-way sprag-type bearing assembly for Magid's ratchet-and-pawl one-way mechanism. (Ex. 1003, ¶¶187–194, 348-352.)

67. I explained in my first declaration how a POSA would have replaced Magid's control means with Sclater's one-way bearing assembly that was commercially available. (Ex. 1003, ¶192,353.)

1. My obviousness arguments do not rely on hindsight

68. I explained in my first declaration why a POSA would have replaced Magid's control means with Sclater's one-way bearing assembly to obtain

predictable results, e.g., reduced noise and improved durability. (Ex. 1003, ¶¶187-192, 347-352.)

69. Woodway/Dr. Blair argue that “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.” (POR, 41.)

70. As I explained in my first declaration, a POSA would have been specifically motivated to select the sprag-type clutch disclosed in Sclater based on Sclater’s description of the sprag-type clutch for back stopping a conveyor belt, and based on the description of such sprag-type clutches as a commercially available option for exercise equipment in the Emerson bearing catalog from 2001. (Ex. 1003, ¶¶189-191, 350.)

71. Sclater further discloses that roller clutches are better suited for high speed freewheeling than pawl-and-ratchet clutches. This is 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. Additionally, because there are multiple sprags, they distribute the load over a larger surface area:

Fig. 9 Cam and Roller Clutch: This over-running clutch is better suited for higher-speed free-wheeling than a pawl-and-ratchet clutch.

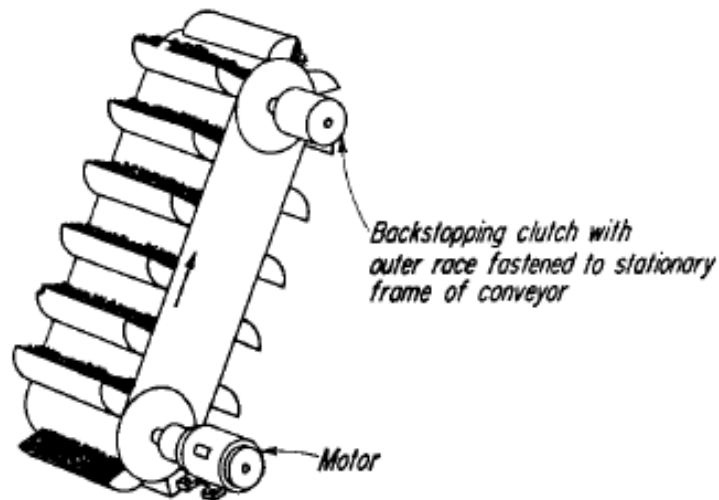
The inner driving member has cam surfaces on its outer rim that hold light springs that force the rollers to wedge between the cam surfaces and the inner cylindrical face of the driven member. While driving, friction rather than springs force the rollers to wedge tightly between the members to provide 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.

(Sclater, Ex. 1017, 303, emphasis added.)

Overrunning sprag clutches transmit torque in one direction and reduce speed, rest, hold, or free-wheel in the reverse direction. Applications include overrunning, back stopping and indexing. Their selection – similar to other mechanical devices – requires a review of the torque to be transmitted, overrunning speed, type of lubrication, mounting characteristics, environmental conditions, and shock conditions that might be encountered.

(Sclater, Ex. 1017, 320, emphasis added.)

72. Sclater illustrates a back stopping mode of operation for a conveyor belt using a “sprag-type clutch[]” in which the “outer race is fastened to [the] stationary frame of [the] conveyor”:



Sclater, Ex. 1017, 320

Fig. 2 Backstopping permits rotation in one direction only. The clutch serves as a counter-rotation holding device. An example is a clutch mounted on the headshaft of a conveyor. The outer race is restrained by torque-arming the stationary frame of the conveyor.

(Sclater, Ex. 1017, 320.)

73. A POSA would have understood that conveyers and treadmills operate the same. Accordingly, a POSA would have considered a sprag-type one-way clutch bearing for an exercise equipment application, such as a treadmill. For example, Emerson is a bearing catalog from 2001 that specifically describes its NSS Series sprag-type one-way clutch as an option for multiple “Field Applications,” including “Exercise equipment,” “Food processing equipment,” “Printing presses,” and “Roll conveyors.” (Emerson, Ex. 1018, 52-53; Ex. 1003, ¶¶90, 211, 447.)

74. Commercially available and inexpensive sprag-type clutches would be attractive since they require less design and qualification work to implement as well. For example, as explained by Dr. Blair, a user could identify a problem and a potential solution from a catalog, e.g., the Emerson catalog (Emerson, Ex. 1018) and then call the tech support line to confirm their clutch selection.:

Q. All right. So how would a person of ordinary skill in the art use a catalog like this?

A. Well, it depends on where they are in their process. Like, for example, on page 8, there's some general description about how these systems work. So they may use it to educate themselves on principles of operations on how they work. If they've identified a particular problem they're trying to solve, they would go into the more detailed sections, like in -- starting on pages 34 that has the specifications.

And use their calculations or their understanding of the problem they're trying to solve. And use this as a collection tool to go through and pick up potential -- pick out potential products in this catalog that might serve their purpose.

Oftentimes, in reality, what they do, they get that far and then they call up the tech support line at the company and have a detailed conversation with somebody on the company side that can really help them dial in their needs.

Q. Help them pick out the specific clutch or bearing for their application?

A. Yes.

(Dr. Blair Deposition, Ex. 1038, 89:12-90:12.)

Q. So based on the description on page 48 that this is serving the fitness industry and exercise equipment field applications, would a person of ordinary skill in the art have considered these one-way bearings for treadmills?

A. If they -- if the person of ordinary skill in the art had already identified the need that a one-way bearing fulfills, then they would potentially -- they'd be drawn to -- they would certainly be drawn to this -- or this particular product because it calls it out as an application for it.

(Dr. Blair Deposition, Ex. 1038, 92:4-14.)

75. Dr. Blair further confirmed that a POSA would have used the Emerson catalog to find a solution for “Preventing motion in the unintended direction” on “a curved manual treadmill”:

Q. In a different application, then, how the Morse KK clutch would be utilized in a curved manual treadmill?

A. It's the same physical principle, but it's a different application. You need different reasons you're putting it there.

* * *

Q. What's the reason for including the Morris KK clutch or something like the Morse KK clutch in a curved manual treadmill?

A. The direction. Preventing motion in the unintended direction.

(Dr. Blair Deposition, Ex. 1038, 104:21, 105:8-12).

76. Woodway argues that Petitioner's argument does not apply to ratchet gears that do not include teeth. (POR, 43-44.) However, as admitted by Dr. Blair, Magid does not describe any ratchet gears that do not have teeth. (Dr. Blair Deposition, Ex. 1038, 85:16-19.) Woodway's no teeth argument is not relevant to Petitioner's proposed substitution of Magid's toothed ratchet gear with Sclater's one-way bearing.

VI. Conclusion

77. In my opinion, all the elements of the Challenged Claims are disclosed by the references discussed above and in my first declaration and that the claims are unpatentable in view of these prior art references.

78. I reserve the right to supplement my opinions to address any information obtained, or positions taken, based on any new information that comes to light throughout this proceeding.

I declare under penalty of perjury that the foregoing is true and accurate to the best of my ability.

Executed on: April 24, 2024



Robert Giachetti, Ph.D.