

UNITED STATES PATENT AND TRADEMARK OFFICE

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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THERABODY, INC.,  
Petitioner

v.

HYPERICE IP SUBCO, LLC  
Patent Owner.

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Case No. PGR2025-00013  
U.S. Patent No. 11,938,082

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**PETITIONER'S NOTICE OF APPEAL**

Pursuant to 37 C.F.R. § 90.2(a) and 35 U.S.C. § 142, Therabody, Inc. (“Therabody” or “Petitioner”) hereby gives notice that it appeals the Patent Trial and Appeal Board’s (“Board’s”) Final Written Decision, entered on May 11, 2026 (Paper No. 40) in the above-captioned Post Grant review of United States Patent No. 11,938,082 (“the ’082 Patent”) to the United States Court of Appeals for the Federal Circuit, including all underlying orders, decisions, rulings, and opinions that are adverse to Petitioner.

For the limited purpose of providing the Director with the information request in 37 C.F.R. § 90.2(a)(3)(ii), Petitioner’s issues on appeal may include, but are not limited to: (1) the Board’s determinations and applications of any express or implied constructions for the claim terms at issue to the prior art of record; (2) the Board’s determination of patentability of claims 1-16 and 18 under 35 U.S.C. § 112(a); (3) the Board’s determination of patentability of claims 13-16 under 35 U.S.C. § 112(b); (4) the Board’s determination of patentability of claims 1, 7, 9-11, 13 and 18 of the ’082 Patent under 35 U.S.C. § 103 in view of Mabuchi and Colloca; (5) the Board’s determination of patentability of claims 2-4 of the ’082 Patent under 35 U.S.C. § 103 in view of Mabuchi, Colloca, and Harris; (6) the Board’s determination of patentability of claims 1, 7, 9-11, 13, and 18 of the ’082 Patent under 35 U.S.C. § 103 in view of Pivaroff and Clark; (7) the Board’s determination of patentability of claims

2-4 of the '082 Patent under 35 U.S.C. § 103 in view of Pivaroff, Clark, and Harris; and (8) the Board's legal errors in undertaking its obviousness analyses and application of the claim language to the prior art of record; (9) the Board's findings that conflict with the evidence of record and are not supported by substantial evidence, and (10) findings or determinations supporting or related to the aforementioned issues as well as all other issues decided adversely to Petitioner in any orders, decisions, rulings, phone conference decisions, and/or opinions.

Simultaneously with the submission, Petitioner is mailing a true and correct copy of this Notice of Appeal to the Director of the United States Patent and Trademark Office, and filing a true and correct copy of the same, along with the required docketing fee, with the Clerk of the United States Court of Appeals for the Federal Circuit.

Respectfully submitted,

/s/ Marc J. Pensabene  
Marc J. Pensabene (Reg. No. 37,416)

**CERTIFICATE OF SERVICE**

In accordance with 37 C.F.R. § 90.2(a)(1) and § 104.2, I hereby certify that on June 12, 2026, in addition to being filed electronically through the Board's P-TACTS System, a true and correct copy of the foregoing PETITIONER'S NOTICE OF APPEAL was served by express overnight mail on the Director of the United States Patent and Trademark office, at the following address:

Director of the United States Patent and Trademark Office  
c/o Office of the General Counsel  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

**CERTIFICATE OF SERVICE**

I hereby certify that on June 12, 2026, a true and correct copy of the foregoing PETITIONER'S NOTICE OF APPEAL, along with a copy of the Final Written Decision, was filed electronically with the Clerk's Office of the United States Court of Appeals for the Federal Circuit, at the following address:

United States Court of Appeals for the Federal Circuit  
717 Madison Place, N.W., Suite 401  
Washington DC 20005

## **CERTIFICATE OF SERVICE**

I hereby certify that on June 12, 2026, I caused a true and correct copy of the foregoing PETITIONER'S NOTICE OF APPEAL to be served electronically on counsel for Patent Owner at the following addresses:

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# **FINAL WRITTEN DECISION**

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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THERABODY, INC.,  
Petitioner,

v.

HYPERICE IP SUBCO, LLC,  
Patent Owner.

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PGR2025-00013  
Patent 11,938,082 B1

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Before JEFFREY N. FREDMAN, RICHARD H. MARSCHALL, and  
ALYSSA A. FINAMORE, *Administrative Patent Judges*.

FINAMORE, *Administrative Patent Judge*.

JUDGMENT  
Final Written Decision  
Determining No Challenged Claims Unpatentable  
*35 U.S.C. § 328(a)*

## I. INTRODUCTION

### *A. Background*

Therabody, Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) whereby Petitioner requests post-grant review of claims 1–18 of U.S. Patent No. 11,938,082 B1 (“the ’082 Patent”) (Ex. 1001). Pet. 1. We issued a Decision (Paper 8) in which we grant institution of post-grant review of claims 1–16 and 18<sup>1</sup> (“the challenged claims”).

During trial, Hyperice IP Subco, LLC (“Patent Owner”) filed a Patent Owner’s Response (Paper 22, “PO Resp.”). Petitioner filed a Reply (Paper 24, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 34, “Sur-reply”). An oral hearing took place February 4, 2026, and we entered the transcript (Paper 39, “Tr.”) into the record.

We issue this Final Written Decision pursuant to 35 U.S.C. § 328(a). For the reasons set forth below, we determine Petitioner has not proven, by a preponderance of the evidence, that any of the challenged claims of the ’082 Patent are unpatentable.

### *B. Real Parties in Interest*

Petitioner identifies itself as a real party in interest. Pet. 1. Patent Owner identifies itself and Hyper Ice, Inc. as real parties in interest. Paper 5, 1.

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<sup>1</sup> In view of the statutory disclaimer of claim 17 (Ex. 2004), we instituted post-grant review for only claims 1–16 and 18 that Petitioner challenges in the Petition. See 37 C.F.R. § 42.207(e) (2025) (“No post-grant review will be instituted based on disclaimed claims.”).

*C. Related Matters*

Patent Owner has asserted the '082 Patent against Petitioner in *Hyper Ice, Inc. v. Therabody, Inc.*, No. 8:24-cv-00390 (C.D. Cal.) (consolidated into *Hyper Ice, Inc. v. JOICOM Corp.*, No. 8:24-cv-00098). Pet. 1; Paper 5, 1. The parties also identify several other litigations in which the '082 Patent is at issue. Pet. 1–2; Paper 5, 1.

We identify PGR2024-00053 between Petitioner and Patent Owner as a related matter. The subject of PGR2024-00053 is U.S. Patent No. 11,857,482 B1 to which the '082 Patent claims priority as a continuation (Ex. 1001, code (63)).

*D. The '082 Patent (Ex. 1001)*

According to the '082 Patent, the invention relates “to a deep muscle-stimulating device used to increase muscle metabolism, increase the lactic acid cycle and relieve pain.” Ex. 1001, 1:26–28. Figure 1, reproduced below, depicts hand-held massaging device 100.

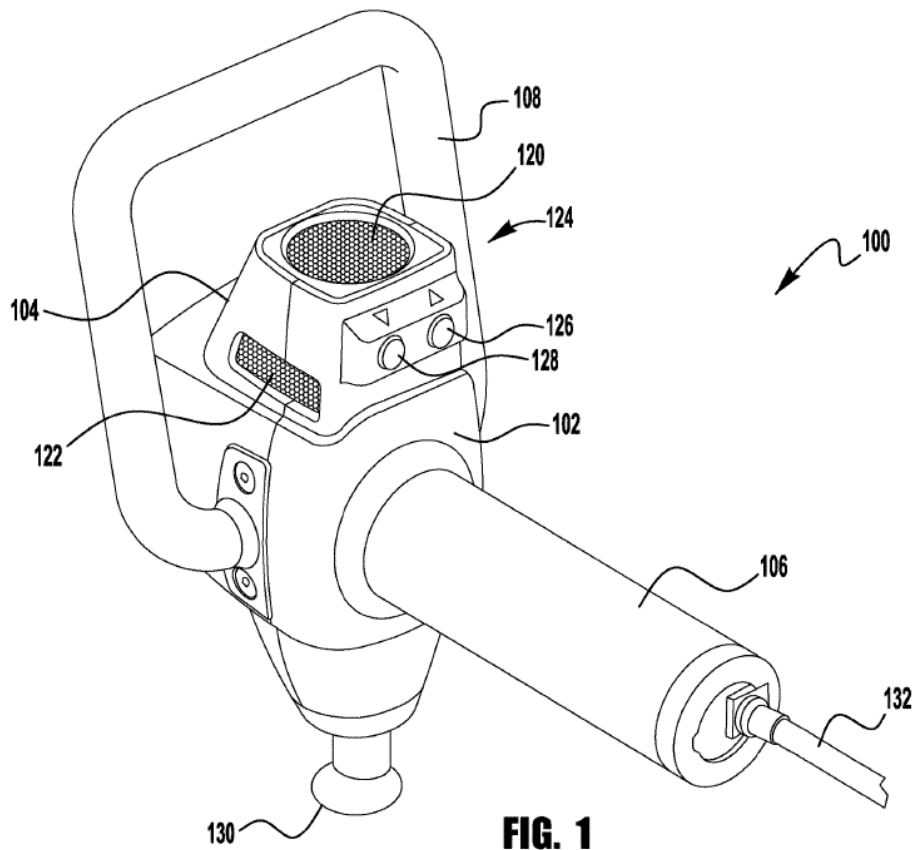


FIG. 1 is a perspective view of an exemplary embodiment of a hand-held massaging device 100. The exemplary massaging device 100 includes a main housing 102 that houses a motor and a drive unit and an upper housing 104 that includes a heat sink and a fan. In addition, massaging device 100 includes a first handle 106, and a second optional handle 108. Handle 106 has a longitudinal axis that extends away from the housing 102. The massaging device 100 also includes a massaging head 130. . . . [I]n some embodiments massaging head 130 includes a quick-release connection.

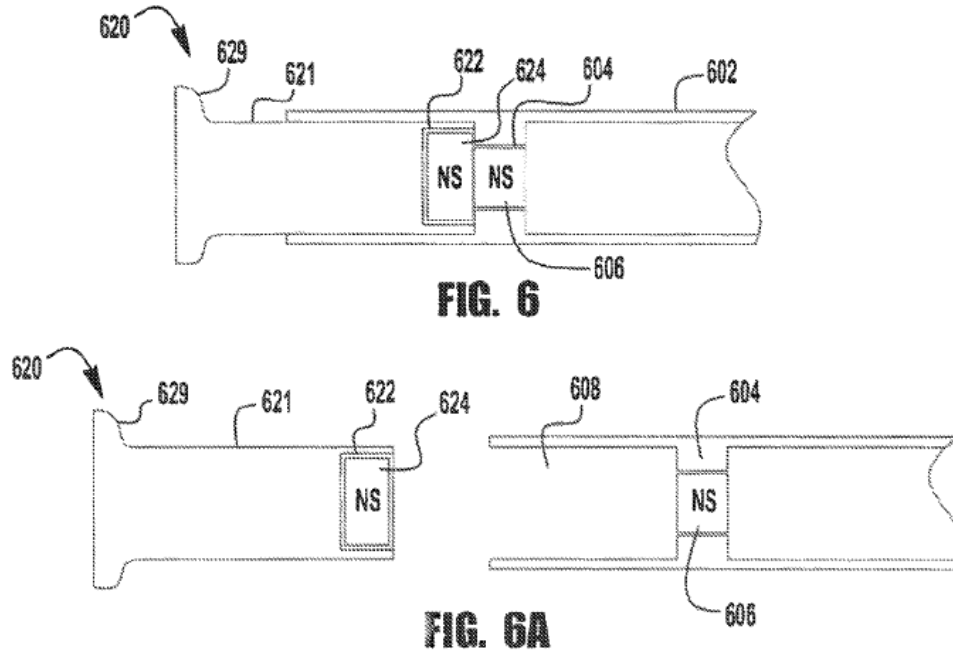
*Id.* at 3:35–45.

The '082 Patent explains:

When providing a deep tissue massage using a massaging device, such as, for example, massaging device 100, it may be desirable to switch massaging heads to work on different muscles or different portions of muscles during the massage. The exemplary quick-connect system 600 allows a user to quickly switch

massaging heads 620. Moreover, the exemplary quick-connect system 600 may be used without turning off the massaging device 100.

Ex. 1001, 6:49–56. Figures 6 and 6A, reproduced below, depict quick-connect system 600.



“F[igures] 6 and 6A illustrate an exemplary embodiment of a quick-connect system 600 for connecting a massaging head 620 to a piston 602.” *Id.* at 6:47–49.

Quick-connect system 600 includes a piston 602 that has a hollow-end bore 608 for receiving the shaft 621 of a massaging head 620. Located within the bore 608 of piston 602 is a cylindrical seat 604. Cylindrical seat 604 retains a magnet 606. Magnet 606 is illustrated with its north pole located flush with the seat and facing toward the opening in bore 608. Massaging head 620 includes a shaft 621 having a cylindrical pocket 622 at the distal end. Located within the cylindrical pocket 622 is a magnet 624. Magnet 624 is positioned so that its south pole is located at the distal end of shaft 621. Accordingly, when the shaft 621 of massaging head 620 is slid into opening in bore 608,

the magnets 606 and 624 are attracted to one another and magnetically hold massaging head 620 firmly in place.

*Id.* at 6:57–7:3. “To remove massaging head 620, a user need only apply a sufficient amount of force to separate the two magnets 606, 624.” *Id.* at 7:4–5. According to the ’082 Patent, “[t]he strength of the magnets 606, 624 are sized to prevent the massaging head 620 from separating from the piston 602 during normal use, and yet allow a user to quickly remove and replace the massaging head 620.” *Id.* at 7:6–9.

*E. Illustrative Claim*

Independent claim 1 is illustrative of the challenged claims and is reproduced below, adding Petitioner’s labels for the claim elements and emphasis to the claim element pertinent to the issues before us.

1. [pre] A percussive massager comprising:
  - [a] a housing;
  - [b] a piston in the housing having a proximal end and a distal end, the distal end of the piston having a bore;
  - [c] a motor operatively connected to the proximal end of the piston, wherein the motor is configured to cause the piston to reciprocate at a first speed;
  - [d] a drive mechanism that controls a predetermined stroke length of the piston; and
  - [e] *a quick-connect system comprising the distal end of the piston and a first massaging head, wherein the quick-connect system is configured to have a proximal end of the first massaging head inserted into or removed from the bore while the piston reciprocates the predetermined stroke length at the first speed.*

Ex. 1001, 9:64–10:12 (labeling and emphasis added). Claims 2–16 depend from independent claim 1. *Id.* at 10:13–67. Independent claim 18 recites a method of assembling a percussive massager and includes limitations similar to those of independent claim 1. *Id.* at 11:4–17.

*F. The Asserted Grounds of Unpatentability*

Petitioner asserts the challenged claims are unpatentable on the grounds listed in the table below. Pet. 4.

| <b>Claim(s) Challenged</b> | <b>35 U.S.C. §<sup>2</sup></b> | <b>References/Basis</b>                    |
|----------------------------|--------------------------------|--------------------------------------------|
| 1–16, 18                   | § 112(a)                       | Written Description                        |
| 13–16                      | § 112(b)                       | Indefiniteness                             |
| 1, 7, 9–11, 13, 18         | § 103                          | Mabuchi, <sup>3</sup> Colloca <sup>4</sup> |
| 2–4                        | § 103                          | Mabuchi, Colloca, Harris <sup>5</sup>      |
| 1, 7, 9–11, 13, 18         | § 103                          | Pivaroff, <sup>6</sup> Clark <sup>7</sup>  |
| 2–4                        | § 103                          | Pivaroff, Clark, Harris                    |

In support of these asserted grounds, Petitioner submits Declarations by John D. Pratt, Ph.D. (Ex. 1002; Ex. 1033). Patent Owner deposed and cross-examined Dr. Pratt and submits transcripts of Dr. Pratt’s depositions (Ex. 2033; Ex. 2034).<sup>8</sup>

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<sup>2</sup> The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. §§ 102 and 103 effective March 16, 2013. Based on Petitioner’s uncontested assertion that July 1, 2013 is the earliest possible priority date for the ’082 Patent (Pet. 13), we apply the AIA versions of §§ 102 and 103 in this Decision.

<sup>3</sup> Mabuchi, US 4,513,737, issued Apr. 30, 1985 (“Mabuchi”) (Ex. 1005).

<sup>4</sup> Colloca et al., US 2007/0150004 A1, published June 28, 2007 (“Colloca”) (Ex. 1009).

<sup>5</sup> Harris et al., US 6,432,072 B1, issued Aug. 13, 2002 (“Harris”) (Ex. 1006).

<sup>6</sup> Pivaroff, US 6,682,496 B1, issued Jan. 27, 2004 (“Pivaroff”) (Ex. 1007).

<sup>7</sup> Clark, US 3,007,504, issued Nov. 7, 1961 (“Clark”) (Ex. 1014).

<sup>8</sup> Consistent with Patent Owner’s citations, our citations to Exhibits 2033 and 2034 are to the page numbers of the exhibit, not the native pagination in the deposition transcripts.

In opposition, Patent Owner submits a Declaration of Nathan Morrill (Ex. 2005). Petitioner deposed and cross-examined Mr. Morrill and submits a transcript of Mr. Morrill's deposition (Ex. 1024).

## II. ANALYSIS

Petitioner bears the burden to demonstrate unpatentability by a preponderance of the evidence. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). That burden never shifts to Patent Owner, except in limited circumstances not present here. *Id.*

### A. *Level of Ordinary Skill in the Art*

The level of ordinary skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). The prior art may reflect the level of ordinary skill in the art. *Id.*

Petitioner contends:

A person of ordinary skill in the art at the relevant time (“POSITA”) would have had a bachelor's degree in mechanical engineering, or a related field, and two-to-three years of experience in the research, design, development, or testing of rotating or reciprocating mechanisms, with additional education substituting for experience and vice versa.

Pet. 13 (citing Ex. 1002 ¶ 37). Patent Owner argues:

A person of ordinary skill in the art (“POSITA”) as of the earliest effective filing date of the '082 Patent (July 1, 2013) would have a degree in mechanical engineering and/or industrial design, a working knowledge of consumer product design and human factors, and/or at least three to five years of experience in conceiving, designing, engineering, and/or modifying devices for human use and interaction.

PO Resp. 19 (citing Ex. 2005 ¶ 66).

The parties' proffered definitions for the level of ordinary skill in the art differ in the details of the experience a POSITA would possess. Petitioner's definition requires experience with rotating or reciprocating mechanisms, whereas Patent Owner's definition requires experience with devices for human use and interaction. These differences, however, do not affect our analysis of the issues in this case. For purposes of this Decision, we adopt Petitioner's definition of level of ordinary skill in the art.

*B. Claim Construction*

In a post-grant review, we interpret a claim "using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." 37 C.F.R. § 42.200(b). Under this standard, we construe the 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." *Id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc). Furthermore, we expressly construe the claims only to the extent necessary to determine whether Petitioner has shown that the challenged claims are unpatentable. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) ("[W]e need only construe 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))).

In the Petition, Petitioner points to the parties' proposed constructions for certain terms, including claim element 1[e], in the related district court litigation. Pet. 14–15 (citing Ex. 1015, 5–6; Ex. 1016, 5–8). According to Petitioner, "[b]ecause the prior art applied herein renders the challenged

claims obvious (and/or indefinite) under either construction, Petitioner does not believe that construction of these terms is required for purposes of resolving this Petition.” *Id.* at 15 (footnote omitted). Patent Owner argues the preambles of the challenged claims are limiting and proposes constructions for the claim terms “percussive massager” and “massaging head.” PO Resp. 21–28; Sur-reply 8–16. In reply to Patent Owner’s claim construction arguments, Petitioner contends the preambles are not limiting and proposes its own constructions for these claim terms. Pet. Reply 2–9. In its Sur-reply, Patent Owner points to *Revvo Techs., Inc. v. Cerebrum Sensor Techs., Inc.*, IPR2025-00632, Paper 20 (PTAB Nov. 3, 2025) (precedential) and maintains that Petitioner fails to explain why it should be permitted to proceed under a broader construction of claim element 1[e] in this proceeding than its proffered construction for the claim element in the related district court litigation. Sur-reply 23–26.

To ascertain whether Petitioner has shown the challenged claims are unpatentable and resolve the controversy before us, we determine that only claim element 1[e] requires express construction. Claim element 1[e] recites

a quick-connect system comprising the distal end of the piston and a first massaging head, wherein the quick-connect system is configured to have a proximal end of the first massaging head inserted into or removed from the bore while the piston reciprocates the predetermined stroke length at the first speed.

Ex. 1001, 10:6–12.

According to Patent Owner, in this proceeding, Petitioner argues claim element 1[e] does not require construction, but, in the district court litigation, Petitioner argues the claim element should be construed as:

the structures *are specially designed and adapted to quickly and easily connect or disconnect* by the proximal end being inserted or removed from the bore regardless of rotational alignment while the piston reciprocates the predetermined stroke length at the first speed, not merely capable of doing so.

Sur-reply 23 (footnote omitted) (citing Pet. 13–14; Ex. 2013, 15).

During oral argument, Petitioner confirmed it would not object to the Board adopting the construction that Petitioner proposes in the district court litigation.

JUDGE MARSCHALL: I think the Petitioner wouldn't object if we adopted the construction that Petitioner proposed in the district court, especially the “designed to” construction, correct?

MR. BERG: No. We wouldn't object to that. And we think that our Petition is on all fours with that construction.

Tr. 81:12–16. As Petitioner does not object to adopting its construction from the district court litigation, we construe claim element 1[e] in accordance with Petitioner's construction from the district court litigation.

### *C. Written Description*

Petitioner argues the challenged claims are unpatentable under 35 U.S.C. § 112(a) based on lack of written description support. Pet. 15–20; Pet. Reply 10–11. In particular, Petitioner contends that there is no written description support the full scope of the “quick-connect system” recited in independent claims 1 and 18 and that the Specification fails to describe the “substantially cylindrical bore” recited in claim 13. Pet. 15–16 (citing Ex. 1002 ¶¶ 83–96). Patent Owner maintains there is written description support for these claim elements. PO Resp. 29–38; Sur-reply 1–5.

“A specification that ‘reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing

date’ has adequate written description of the claimed invention.” *Novartis Pharm. Corp. v. Accord Healthcare, Inc.*, 21 F.4th 1362, 1368 (Fed. Cir. 2022) (citing *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010)). “[T]he test requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art.” *Id.* at 1368–69.

In view of the test for written description, we analyze the parties’ arguments for the recited “quick-connect system” and “substantially cylindrical bore.”

*I. “quick-connect system”*

Petitioner asserts:

Claim 1 purports to broadly claim *any* species of “system” that is “a quick-connect system . . . configured to have a proximal end of the first massaging head inserted into or removed from the bore while the piston reciprocates the predetermined stroke length at the first speed.” Similarly, Claim 18 broadly claims providing *any* species of system that is “a quick-connect system . . . wherein a proximal end of the first massaging head is configured to be inserted into or removed from the bore while the piston reciprocates the predetermined stroke length at the first speed.”

Pet. 17 (alterations in original). Petitioner further asserts “[b]ut at most, the ’082 Patent discloses only a single working example: the ‘quick-connect system’ with corresponding magnets in the shaft of a massaging head and within the bore of the piston.” *Id.* (citing Ex. 1001, 6:47–7:19). According to Petitioner:

The narrow disclosure of a single purported “quick[-]connect system,” using magnets of certain sizes and strengths to secure and remove the massaging head, fails to provide sufficient written description to support the challenged claims’ broad

functional language claiming **any** “quick-connect system” that “is configured to have a proximal end of the first massaging head inserted into or removed from the bore while the piston reciprocates the predetermined stroke length at the first speed,” or that has “a proximal end of the first massaging head . . . configured to be inserted into or removed from the bore while the piston reciprocates the predetermined stroke length at the first speed.”

*Id.* at 18–19 (second alteration in original) (citing Ex. 1002 ¶¶ 83–88). Additionally, referencing Dr. Pratt’s list of connector types, Petitioner asserts: “Claim 1 requires the quick-[connect] system operate to secure the massage head while the piston reciprocates, which [Patent Owner] asserts indicates that no alignment is needed. But many of Dr. Pratt’s examples require alignment and would not satisfy the claim as [Patent Owner] understands it.” Pet. Reply 10 (citing Ex 1033 ¶¶ 26–29).

Patent Owner argues that “Petitioner exclusively relies on cases and PTAB decisions addressing the written description requirement in the context of the pharmaceutical arts, but the ’082 Patent is in the mechanical arts” and that “[t]his distinction is critical because ‘the level of detail required to satisfy the written description requirement varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology.’” PO Resp. 31–32 (quoting *Ariad*, 598 F.3d at 1351). Patent Owner also argues “[d]isclosure of one example embodiment of the recited ‘quick-connect system’ is not *per se* deficient as Petitioner suggests.” *Id.* at 33. Patent Owner further argues “a quick-connect system would be known to a POSITA to include a number of different mechanical configurations, and Petitioner’s expert agrees.” *Id.* at 34 (citing Ex. 1002 ¶¶ 54–65; Ex. 2005 ¶ 93). We find Patent Owner’s arguments have merit.

The invention, a reciprocating massage device, is in a predictable field, namely the electro-mechanical arts. Also, there is no evidence that the recited quick-connect system is complex, even considering Patent Owner's alleged understanding of it. Rather, Dr. Pratt testifies that many different types of connectors, whether they require alignment or not, were known. Ex. 1002 ¶¶ 54–58.

Given the predictability of the electro-mechanical arts and lack of complexity of the recited quick-connect system, a low level of detail is required to satisfy the written description requirement. *See RAI Strategic Holdings, Inc. v. Philip Morris Prods. S.A.*, 92 F.4th 1085, 1090 (Fed. Cir. 2024) (“Given the predictability of electro-mechanical inventions such as the one at issue here, and the lack of complexity of the particular claim limitation at issue—*i.e.*, reciting the length of a heating member—a lower level of detail is required to satisfy the written description requirement than for unpredictable arts.” (quoting *Hologic, Inc. v. Smith & Nephew, Inc.*, 884 F.3d 1357, 1361 (Fed. Cir. 2018))). In view of the low level of detail required to satisfy the written description requirement, Petitioner has not persuaded us that the Specification's example of a quick-connect system configured to secure the massaging head as the piston reciprocates fails to provide sufficient written description support for the “quick-connect system” recited in independent claims 1 and 18.

2. “*substantially cylindrical bore*”

Petitioner asserts the '082 Patent “does not explicitly describe the shape of bore 608 at all.” Pet. 19 (citing Ex. 1001, 6:57–7:3). Petitioner further asserts “in the context of the [S]pecification, the claims, and the prosecution history, a POSITA would understand that the bore would be

cylindrical (not “*substantially* cylindrical”) so as to receive the proximal end of the attachment ‘while the piston reciprocates,’ *without the need for alignment.*” *Id.* (citing Ex. 1002 ¶¶ 91–94); *see also* Pet. Reply 11 (“That premise requires a pocket geometry precise enough to retain the magnet under misalignment and reciprocating loads; a mismatched pocket-magnet interface would not.” (citing Ex. 1033 ¶¶ 30–31)).

Patent Owner argues:

Claim 13’s recitation of a “substantially cylindrical bore” merely allows for minor variations in the cylindrical shape while still performing its intended function of having the proximal end of the first massaging head inserted into or removed therefrom and need not be mathematically defined. In practice, this variance is called cylindricity or runout.

PO Resp. 36–37 (citing Ex. 2017). Patent Owner also argues “[a]t his deposition, Petitioner’s declarant, Dr. Pratt, explained that cylindrical parts are commonly designed with a tolerance allowing for some variance in their overall cylindrical shape while still fitting together or performing their required function.” *Id.* at 37 (citing Ex. 2033, 25:3–26:21); *see also* Sur-reply 3 (“Dr. Pratt confirmed that tolerancing cylindrical parts is within the skill in the art.” (citing Ex. 2033, 25:13–20)<sup>9</sup>).

Petitioner responds that Patent Owner’s reliance on Dr. Pratt’s testimony is misplaced. Pet. Reply 11. Specifically, Petitioner asserts:

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<sup>9</sup> Patent Owner cites to Exhibit 2033, 24:13–20 for the portion of Dr. Pratt’s deposition transcript reproduced on page 3 of the Sur-reply. However, the reproduced portion appears on page 25 of the exhibit, not page 24. Thus, we understand that Patent Owner’s citation to Exhibit 2033, 24:13–20 includes a typographical error in the page number and that Patent Owner intends to cite to Exhibit 2033, 25:13–20.

He did not testify that all cylindrical parts commonly allow shape variance. Rather, he said only that there “may be” tolerances on cylindrical parts in developing fasteners. The existence of tolerances in some contexts does not show that variance is acceptable here, where any misfit risks detachment during piston reciprocation.

*Id.* (citations omitted) (citing Ex 1033 ¶ 32).

Although we appreciate Dr. Pratt’s acknowledgement of cylindrical tolerances is not categorical, there is no evidence that avoiding detachment during piston reciprocation requires a perfect fit. Furthermore, Dr. Pratt admits that runout is a known variance.

Q. When you developed fasteners for your previous employers, was a relevant concern how cylindrical the fastener needed to be?

A. In some cases it was important, yes.

Q. And would you assign the fastener a certain cylindrical tolerance in designing the fastener?

A. We would specify in terms of, for example, run out. There would be a diametrical tolerance. For example, on a precision bolt, say, .375 plus or minus .0001, ten thousands of an inch.

Q. That’s essentially a tolerance that allows the fastener in this case to still perform its function without being perfectly cylindrical; correct?

A. Correct.

Ex. 2033, 25:3–17.

In view of the evidence of record, a POSITA would understand the Specification’s depiction of bore 608 having a cylindrical shape (Ex. 1001, Fig. 6A) would include the variances known in the art that would allow bore 608 to function properly. Petitioner has not persuaded us that the “substantially cylindrical bore” recited in claim 13 lacks written description support.

### 3. *Conclusion for Written Description*

For the reasons set forth above in sections II.C.1–2, Petitioner has not persuaded us that the “quick-connect system” recited independent claims 1 and 18 or the “substantially cylindrical bore” recited in claim 13 lacks written description support. Petitioner has not proven, by a preponderance of the evidence, that these claims and the claims depending therefrom, namely all of the challenged claims 1–16 and 18, are unpatentable under 35 U.S.C. § 112(a).

#### *D. Indefiniteness*

Petitioner argues that claims 13–16 are unpatentable under 35 U.S.C. § 112(b) as indefinite. Pet. 23–25; Pet. Reply 11–12. Specifically, Petitioner asserts the “substantially cylindrical bore” recited in claim 13 and the “substantially cylindrical structure” within the bore recited in claims 14–16 render the claims indefinite. Pet. 23–25; Pet. Reply 11–12. Patent Owner argues the challenged claims inform, with reasonable certainty, those skilled in the art about the scope of the claimed invention. PO Resp. 38–42; Sur-reply 6–7. We address the parties’ arguments regarding the claim term “substantially cylindrical” below

Petitioner asserts the ’082 Patent provides no standard for ascertaining whether a bore or structure within a bore is “substantially cylindrical.” Pet. 24. According to Petitioner,

Presumably, there is some difference between “cylindrical” and “substantially cylindrical,” as [c]laim 15 uses both terms, with a “cylindrical” element being a more specific requirement than a “substantially cylindrical” element, i.e., a “***substantially cylindrical*** structure comprises a ***cylindrical*** seat.” Yet the [S]pecification never uses the phrase “substantially cylindrical,” instead describing both the seat 604 in the bore 608 of the piston

and the pocket 622 in the shaft 621 of the massaging head as “cylindrical.” There is no guidance in the claims, the [S]pecification, or the file history that would allow a POSITA to determine the difference between “cylindrical” and “substantially cylindrical,” or to determine what amount of deviation from a perfect cylinder is still “substantially cylindrical.”

*Id.* at 24–25 (citations omitted) (citing Ex. 1002 ¶ 108). Petitioner further asserts: “Here, the pocket’s purpose is to provide a secure attachment during reciprocation, and during prosecution, the Applicant emphasized that no alignment is required to distinguish the prior art. In this context, the claims must inform a POSITA, with reasonable certainty, of the exact shape or permissible variance that achieves a secure attachment.” Pet. Reply 12.

Patent Owner argues “a person of ordinary skill in the art would know when the bore in the piston is substantially cylindrical enough, *i.e.*, sufficiently cylindrical, to accomplish the function identified in the claims themselves: receiving or allowing removal of the proximal end of the first massaging head while the piston reciprocates.” PO Resp. 40 (footnote omitted) (citing Ex. 2005 ¶ 97). According to Patent Owner: “[S]ubstantially cylindrical’ is not indefinite because the intrinsic record provides a POSITA a standard for determining when the bore is substantially cylindrical, *i.e.*, sufficiently cylindrical to achieve its identified function of receiving or allowing removal of the first massaging head while the piston reciprocates.” Sur-reply 6 (alternation in original). Patent Owner’s arguments have merit.

A claim must “particularly point[] out and distinctly claim[]” the invention. 35 U.S.C. § 112(b). “A claim fails to satisfy this statutory requirement and is thus invalid for indefiniteness if its language, when read

in light of the specification and the prosecution history, ‘fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention.’” *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1369–70 (Fed. Cir. 2014) (alteration in original) (quoting *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014)). “Claim language employing terms of degree has long been found definite where it provided enough certainty to one of skill in the art when read in the context of the invention.” *Id.* at 1370. “When a word of approximation is used, however, the parameter’s range must be reasonably certain based on the ‘technological facts of the particular case.’” *Enviro Tech Chem. Servs., Inc. v. Safe Foods Corp.*, No. 2024-2160, slip op. 4–5 (Fed. Cir. May 4, 2026) (quoting *Ortho-McNeil Pharm., Inc. v. Caraco Pharm. Lab’ys, Ltd.*, 476 F.3d 1321, 1326 (Fed. Cir. 2007)).

Contrary to Petitioner’s assertion, the Specification provides guidance as to what amount of deviation from a perfect cylinder is still “substantially cylindrical.” The Specification describes:

Quick-connect system 600 includes a piston 602 that has a hollow-end bore 608 for receiving the shaft 621 of a massaging head 620. Located within the bore 608 of piston 602 is a cylindrical seat 604. Cylindrical seat 604 retains a magnet 606. Magnet 606 is illustrated with its north pole located flush with the seat and facing toward the opening in bore 608. Massaging head 620 includes a shaft 621 having a cylindrical pocket 622 at the distal end. Located within the cylindrical pocket 622 is a magnet 624. Magnet 624 is positioned so that its south pole is located at the distal end of shaft 621. Accordingly, when the shaft 621 of massaging head 620 is slid into opening in bore 608, the magnets 606 and 624 are attracted to one another and magnetically hold massaging head 620 firmly in place.

Ex. 1001, 6:57–7:3. In view of the description of quick-connect system 600, the Specification sets forth a standard for ascertaining whether the bore and the seat located within the bore are “substantially cylindrical.” To wit, the bore and the seat within the bore are “substantially cylindrical” when the massaging head and magnet are respectively received therein so that the magnet in the seat and the magnet in the pocket of the massaging head can magnetically hold the massaging head firmly in place.

Furthermore, Dr. Pratt testifies that “[m]agnetic connectors comprise a magnet on at least one of the two objects to be joined. These types of connectors are ubiquitous even today for driving threaded fasteners.”

Ex. 1002 ¶ 56. Dr. Pratt also testifies that a POSITA would understand how to take into account certain variances, like runout. Ex. 2033, 25:3–17.

Dr. Pratt’s testimony shows that magnetic connectors are well known and that a POSITA would be able to determine whether the bore and the seat within the bore were “substantially cylindrical” for a secure connection of the massaging head.

In view of the foregoing, Petitioner has not persuaded us that the claim term “substantially cylindrical” recited in claims 13–16 fails to inform, with reasonable certainty, the shapes of the bore and the structure within the bore. Petitioner has not proven, by a preponderance of the evidence, that any of claims 13–16 are unpatentable under 35 U.S.C. § 112(b) as indefinite.

#### *E. Obviousness*

Petitioner asserts the challenged claims are unpatentable under 35 U.S.C. § 103 as obvious. Pet. 34–75; Pet. Reply 12–28. Specifically, Petitioner asserts claims 1, 7, 9–11, 13, and 18 are obvious over Mabuchi and Colloca (Pet. 34–51; Pet. Reply 12–24), claims 2–4 are obvious over

Mabuchi, Colloca, and Harris (Pet. 51–55; Pet. Reply 24), claims 1, 7, 9–11, 13, and 18 are obvious over Pivaroff and Clark (Pet. 55–72; Pet. Reply 24–28), and claims 2–4 are obvious over Pivaroff, Clark, and Harris (Pet. 72–75; Pet. Reply 28). Patent Owner argues that Petitioner fails to show the challenged claims are obvious. PO Resp. 42–94; Sur-reply 16–33.

The Supreme Court in *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007) reaffirmed the framework for determining obviousness set forth in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). In *KSR*, the Court summarized the four factual inquiries set forth in *Graham* that are applied in determining whether a claim is unpatentable as obvious under 35 U.S.C. § 103 as follows: (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims at issue; (3) resolving the level of ordinary skill in the art; and (4) considering objective evidence indicating obviousness or non-obviousness.<sup>10</sup> *KSR*, 550 U.S. at 406.

Petitioner’s asserted obviousness grounds fall into two groups—those including Mabuchi and those including Pivaroff and Clark. We analyze each group in turn below in view of the framework for determining obviousness.

### *I. Obviousness Including Mabuchi*

A dispositive issue for Petitioner’s asserted obviousness grounds including Mabuchi is whether Petitioner has shown that Mabuchi discloses claim element 1[e] and the corresponding element of independent claim 18,

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<sup>10</sup> In this proceeding, there is no asserted evidence pertaining to objective indicia of non-obviousness.

namely claim element 18[c]. Thus, we focus our analysis of these asserted obviousness grounds on this issue. Our analysis begins with an overview of Mabuchi, and we then turn to the parties' arguments regarding Mabuchi's disclosure of claim elements 1[e] and 18[c].

*a. Mabuchi (Ex. 1005)*

Mabuchi is a United States patent that discloses “a beauty treatment device having a space guide that permits an actuator to repeatedly reciprocate and controls the motion of the actuator wherein a patten repeatedly pats a skin surface being treated at a given rate.” Ex. 1005, 1:8–12. Figure 1, reproduced below, shows the beauty treatment device.

FIG. 1

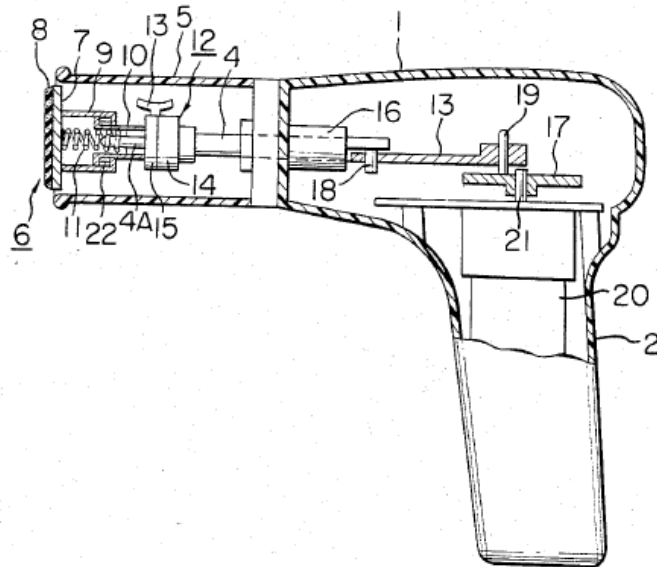


Figure 1 is a partially sectional side elevation of a beauty treatment device.  
*Id.* at 1:56–57.

A beauty treatment device of this invention has a handle 2 fitted to a device body to form the entire device into a pistol shape, as shown in F[igure] 1 illustrating an embodiment of this invention. In the handle 2, housed is a motor 20 which causes a

motor output shaft 21 to rotate via a reduction gear (not shown) fitted thereto as necessary. A rotating disc 17 is fixed to the motor output shaft 21, which in turn causes the rotating disc 17 to rotate. A rod 3 is fitted at an end thereof to a crankshaft 19 provided on the rotating disc 17, the other end thereof being connected to an actuator 4 via a rod shaft 18. Consequently, as the rotating disc 17 rotates, the actuator 4 is caused to reciprocate within an actuator bearing 16 via the rod 3.

In this Specification, a padder, or padder assembly 6 comprises a plate member 7, a cushion member 8, a padder body 9, a padder slide tube 10 etc. The padder, or padder assembly 6 is connected to the actuator 4 by means of a padder connecting mechanism 12 . . . . More specifically, as the actuator 4 is connected to the padder slide tube 10 via the padder connecting mechanism 12, the reciprocating motion of the actuator 4 is transmitted directly to the padder slide tube 10. The padder slide tube 10 is slidably fitted to the padder body 9. Inside the padder body 9, disposed is a resilient member 11, which depresses the plate member 7 fitted to the padder body 9 and an end face of an actuator head supporting tube 26 press-fitted into the padder slide tube 10 . . . . Consequently, the reciprocating motion of the padder slide tube 10 is also directly transmitted to the padder body 9 by resiliency of the resilient member 11. A cushion member 8 fitted to the plate member 7 hits the skin surface at the front surface thereof, giving an impact to the skin surface.

*Id.* at 2:40–3:5. According to Mabuchi:

[An] object of this invention [is] to provide a beauty treatment device having such a construction that a space guide is provided to maintain a distance between a device body and the skin surface being patted, and both a plate member and a cushion member comprising a padder assembly fitted to an actuator are adapted to protrude slightly from the end face of the space guide.

*Id.* at 1:35–42.

Mabuchi also discloses that an “object of this invention to provide a beauty treatment device having padders of different shapes which are interchangeably used in accordance with the skin portions being treated.”

Ex. 1005, 1:47–50. Figure 18, reproduced below, is a cross-sectional view of a particular patter connecting mechanism. *Id.* at 2:25–26.

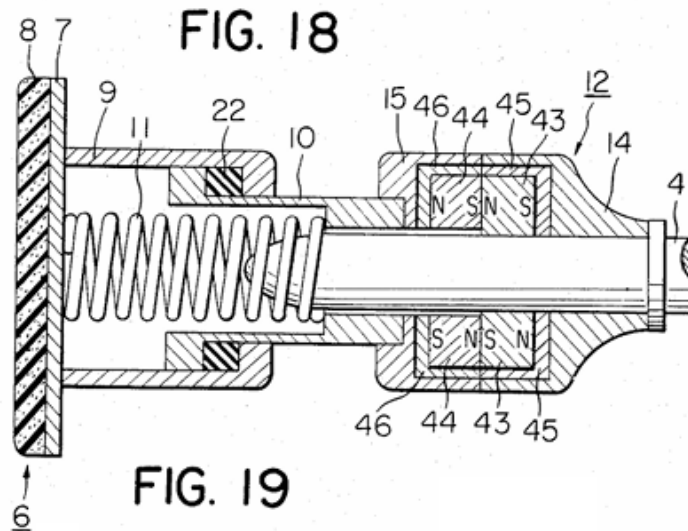


Figure 18 shows a patter connecting mechanism including magnets 43 and 44. *Id.* at 7:67–8:2. According to Mabuchi:

This connecting mechanism 12 utilizing the different pola[r]ities of the magnets 43 and 44 ensures positive connection of the actuator 4 and the patter assembly 6, both of which are subjected to vibrations caused by high-speed reciprocating motion. In addition, positive connection can be ensured without positioning the actuator 4 and the patter assembly 6.

The changing of the patter assembly 6 can be easily accomplished since the actuator 4 and the patter assembly 6 are automatically disconnected merely by turning each other.

*Id.* at 8:33–43.

*b. Claim Element 1[e]*

Petitioner relies on Mabuchi's patter connecting mechanism shown in Figures 18 and 19 to disclose the quick-connect system recited in claim element 1[e]. Pet. 40–44; Pet. Reply 19–24. Petitioner points to Mabuchi's patter assembly 6 and the distal end of actuator 4 and asserts "a POSITA would understand this mechanism is a quick-connection system: 'The

changing of the patter assembly 6 can be easily accomplished since the actuator 4 and the patter assembly 6 are automatically disconnected merely by turning each other.” Pet. 41 (quoting Ex. 1001, 8:40–43) (citing Ex. 1002 ¶ 129); *see also* Pet. Reply 20–22 (arguing Mabuchi discloses easy interchange of the patter assembly). Petitioner also asserts a POSITA would understand Mabuchi’s quick-connect system is configured to have a proximal end of the massaging head inserted into or removed from the bore while the piston reciprocates the predetermined stroke length at a first speed. Pet. 41 (citing Ex. 1002 ¶¶ 130–137). Specifically, Petitioner asserts Mabuchi discloses:

[T]his design prevents the patter assembly 6 from unintentionally separating from the actuator 4 during use, yet allows a user to quickly remove and replace the patter assembly 6: “This connecting mechanism 12 utilizing the different polarities of the magnets 43 and 44 ensures positive connection of the actuator 4 and the patter assembly 6, both of which are subjected to vibrations caused by high-speed reciprocating motion. In addition, positive connection can be ensured without positioning the actuator 4 and the patter assembly 6.”

*Id.* at 42 (quoting Ex. 1005, 8:33–39). Petitioner further asserts Mabuchi discloses that

the purpose of the patter connecting mechanism is to allow for “changing the shape or patting intensity of the patter assembly 6 . . . in accordance with the portion being treated or the purpose of treatment,” and thus patter assembly 6 must be “interchangeable” while also “securely connected to the actuator 4 to prevent unwanted disengagement,”

(*id.* at 42–43 (alteration in original) (citing Ex. 1005, 5:52–64)) and that “the device can be operated before the patter assembly 6 is connected” (*id.* at 43 (citing Ex. 1005, 8:15–18)).

Patent Owner contends Mabuchi's patter assembly 6 cannot be secured while actuator 4 reciprocates due to space guide 5. PO Resp. 67–69.

Patent Owner argues:

Petitioner fails to consider that replacing the patter assembly 6 would require removing the space guide 5 so that the patter assembly 6 could be inserted into or removed from the actuator 4 while it reciprocates. Indeed, attempting to insert or remove the patter assembly 6 without removing the space guide 5 while the actuator 4 reciprocates would cause the user's finger(s) to be pinched between the plate member 7 of the patter assembly 6 and the end of the space guide 5, and the user's view of the connection between the actuator 4 and the patter assembly 6 would be obscured, preventing the user from aligning the patter assembly 6 onto (or into) the actuator 4.

*Id.* at 69 (citation omitted) (citing Ex. 2005 ¶ 115–117).

Patent Owner also contends Mabuchi does not disclose that the device is operated before patter assembly 6 is connected. PO Resp. 69. According to Patent Owner:

Petitioner relies on Mabuchi's statement that “In this state, or *in the state where the actuator 4 is connected* to the patter assembly 6, the patter assembly 6 is operated . . . .” to support its allegation that “Mabuchi notes that the device can be operated before the patter assembly 6 is connected.” Pet., p.39 (quoting Ex. 1005, 8:15–18 (*emphasis* in original)). But this passage simply references the preceding sentence in Mabuchi, which explains how, in Figure 18, the magnets 43 and 44 in the coupling 14 and the flange 15 are attracted to connect the actuator 4 and the patter assembly 6.

*Id.* (alteration in original) (citing Ex. 1005, 8:11–15; Ex. 2005 ¶¶ 118–119).

Patent Owner additionally contends:

In its Reply, Petitioner does not clarify how its interpretation of Mabuchi (or Clark) squares with its district court construction of this limitation—“... the structures *are specially designed and adapted to quickly and easily connect or*

*disconnect* . . . regardless of rotational alignment while the piston reciprocates . . . [and] not merely capable of doing so.” Ex. 2013, p.15. Rather, on its face, Petitioner seems to rely on the “mere[] capab[ility] of” a user attaching the patten assembly to the actuator while the actuator reciprocation rather than any “structures that are specially designed and adapted” for such connection during reciprocation.

Sur-reply 25 (alternations in original)(footnote omitted). Per Patent Owner, “if Mabuchi was ‘specially designed and adapted’ for connection during reciprocation, it would be expected to describe as much, but Dr. Pratt agrees that Mabuchi has no such disclosure.” *Id.* at 25–26 (citing Ex. 2034, 69:24–7:14).

As set forth above in section II.B, we adopt Petitioner’s narrower construction from the related district court litigation. Thus, we construe claim element 1[e] as “the structures are specially designed and adapted to quickly and easily connect or disconnect by the proximal end being inserted or removed from the bore regardless of rotational alignment while the piston reciprocates the predetermined stroke length at the first speed, not merely capable of doing so.”

We agree with Patent Owner that Mabuchi does not explicitly disclose any structure that is specifically designed and adapted to quickly and easily connect or disconnect by the proximal end being inserted or removed from the bore while the piston reciprocates. Even Dr. Pratt acknowledges Mabuchi does not expressly disclose changing the patten assembly while the piston reciprocates.

Q. Do you agree that Mabuchi does not expressly describe the patten assembly being changed while the piston reciprocates -- sorry -- while the actuator reciprocates?

A. Yeah. Mabuchi does not describe attachment or removal of the massage head while it reciprocates.

Ex. 2034, 69:24–70:4.

Mabuchi discloses that “positive connection can be ensured without positioning the actuator 4 and the patter assembly 6” (Ex. 1005, 8:37–39) and that “[t]he changing of the patter assembly 6 can be easily accomplished” (*id.* at 8:40–43). Mabuchi also discloses that “the patter assembly 6 requires [sic] to be interchangeable.” *Id.* at 5:61–62. These disclosures, however, are silent as to changing the patter assembly while the piston reciprocates. Mabuchi also discloses “[t]his connecting mechanism 12 utilizing the different pola[r]ities of the magnets 43 and 44 ensures positive connection of the actuator 4 and the patter assembly 6, both of which are subjected to vibrations caused by high-speed reciprocating motion.” *Id.* at 8:33–37. Although this disclosure references “high-speed reciprocating motion,” it does with respect to ensuring a connection between patter assembly 6 and actuator 4, not the process of connecting or disconnecting them.

We also agree with Patent Owner that Mabuchi does not disclose operating the device before patter assembly 6 is connected, as Petitioner asserts. Mabuchi discloses:

As shown in F[igure] 18, the magnet 43 implanted in the coupling 14 and the magnet 44 implanted in the flange 15 are connected to each other by attracting force caused by different polarities on the two magnets 43 and 44. In this state, or in the state where the actuator 4 is connected to the patter assembly 6, the patter assembly 6 is operated, as described referring to F[igures] 1 through 5.

Ex. 1005, 8:11–18. Petitioner ostensibly maintains that the reference to “this state” in this disclosure regards a state where patter assembly 6 is not connected to actuator 4. Although the disclosure draws a distinction

between “this state” and “the state where the actuator 4 is connected to the pater assembly 6,” the distinction is not between actuator 4 being connected or not connected to pater assembly 6. Rather, in light of the disclosure’s reference to the magnetic connection, a POSITA would understand that the distinction regards the type of connection between actuator 4 and pater assembly 6, namely the magnetic connection shown in Figure 18 and the non-magnetic connection shown in Figures 1 through 5.

Similar to quick-connect system 600 described in the Specification of the ’082 Patent, Mabuchi discloses a pater connecting mechanism including two magnets. Ex. 1005, 2:25–29, 7:67–8:2, Figs. 18, 19. However, unlike the massaging device described in the Specification, Mabuchi’s beauty treatment device includes space guide 5. *Id.* at Figs. 1–7. Mabuchi discloses that the space guide ensures the pater assembly protrudes only slightly from the end face of the space guide. *Id.* at 1:35–42. According to Mabuchi, Figure 4 shows the furthest pater assembly 6 protrudes from the open end face of space guide 5. *Id.* at 4:18–25. Even assuming that space guide 5 would provide enough space for the user to secure pater assembly 6 to actuator 4 as the actuator reciprocates, we agree with Patent Owner that securing pater assembly 6 while actuator 4 reciprocates would reasonably be expected to pinch the user’s fingers between pater assembly 6 and space guide 5. The presence of space guide 5, therefore, undermines Petitioner’s assertion that Mabuchi’s assembly includes a structure that is specifically designed and adapted to quickly and easily secure the first massaging head to the piston while the piston reciprocates.

Petitioner responds that “managing finger clearance is a routine, predictable design choice (e.g., adding a small guard lip, extending the

flange beyond the guide, providing fingers tabs, using a soft face, or specifying hand positions).” Pet. Reply 21 (citing Ex. 1033 ¶ 63).

Petitioner, however, in its asserted obviousness grounds, is not proposing to modify Mabuchi’s device to change the finger clearance. *See* Tr. 26:8–12 (“JUDGE FINAMORE: Do you propose that in your Petition, to modify the patten head assembly? MR. BERG: You know, we don’t think that there’s a modification – I mean, we think that it’s – would be obvious to a person of skill in the art. We don’t think that there’s a particular modification.”).

In view of the foregoing, such as Mabuchi’s silence as to changing the patten assembly while the actuator reciprocates and the space guide jeopardizing the securement of the patten assembly during reciprocation, we are not persuaded that Mabuchi discloses “the structures are specially designed and adapted to quickly and easily connect or disconnect by the proximal end being inserted or removed from the bore regardless of rotational alignment while the piston reciprocates the predetermined stroke length at the first speed, not merely capable of doing so,” as claim element 1[e] requires under Petitioner’s construction from the district court litigation, which we adopt for this Decision. Petitioner has not persuaded us that Mabuchi discloses claim element 1[e].

*c. Claim Element 18[c]*

Similar to claim element 1[e], claim element 18[c] recites “providing a quick-connect system comprising the distal end of the piston and a first massaging head, wherein a proximal end of the first massaging head is configured to be inserted into or removed from the bore while the piston reciprocates the predetermined stroke length at the first speed.” Ex. 1001,

11:11–17. For claim element 18[c], Petitioner relies on its arguments with respect to claim element 1[e]. Pet. 51 (citing Ex. 1002 ¶¶ 149–150).

As we explain in section II.E.1.b., Petitioner has not persuaded us that Mabuchi discloses claim element 1[e]. For the same reasons set forth in that section, Petitioner has not persuaded us that Mabuchi discloses claim element 18[c].

*d. Conclusion for Obviousness Including Mabuchi*

Petitioner has not persuaded us that Mabuchi discloses claim elements 1[e] and 18[c]. Thus, Petitioner has not demonstrated that any of independent claims 1 and 18 and claims 2–4, 7, 9–11, and 13 depending from independent claim 1 are unpatentable under 35 U.S.C. § 103 pursuant to its asserted obviousness grounds including Mabuchi.

*2. Obviousness Including Pivaroff and Clark*

A dispositive issue for Petitioner’s asserted obviousness grounds including Pivaroff and Clark is whether the combined teachings of Pivaroff and Clark would have resulted in the quick-connect system recited in claim elements 1[e] and 18[c]. Another central issue for these asserted obviousness grounds is whether Clark is non-analogous art to the claimed invention. Thus, our analysis of the asserted obviousness grounds including Pivaroff and Clark focuses on these independent issues. Our analysis begins with overviews of Pivaroff and Clark, and we then turn to the parties’ arguments regarding these issues.

*a. Pivaroff (Ex. 1007)*

Pivaroff is a United States patent that discloses “a deep muscle stimulator device to increase muscle metabolism, increase the lactic acid

cycle and to relieve pain.” Ex. 1007, 1:8–10. Pivaroff’s device is shown in Figure 6, reproduced below.

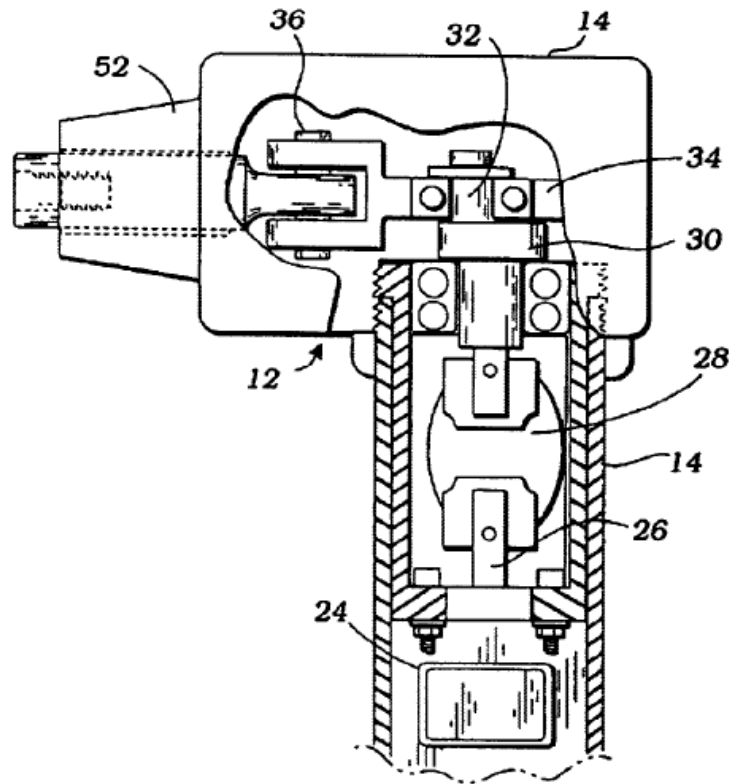


**Fig. 6**

Figure 6 is an enlarged partial cross-sectional view of Pivaroff’s device. *Id.* at 2:16–17.

[T]he deep muscle stimulation device 10 of the present invention includes a body 12 comprised of an elongated, substantially hollow handle 14, a top element or housing 16, and a hollow head 44. . . .

An electrical motor 24 is mounted within the elongated, hollow handle 14, and includes a central rotary arbor or shaft 26, driven by the motor. The rotary shaft 26 is coupled by any available or desired means, such as a coupling system 28 to an offset cam element or means 30, having an upwardly extending offset element or finger 32 connected to a reciprocating link 34.

The reciprocating link 34 is coupled to a connecting element or rod 38, as by means of a pin 36, held in one or more openings formed in a first or inner end of the connecting element or rod 38. The inner end of rod 38 or an outer end or reciprocating link 34 may be bifurcated. The other or outer end of the rod 38 includes a recessed opening 40 formed therein. The recessed opening 40 captures one end of a connecting means, such as a pin 42, as by having screw threads formed therein. The other or outer end of the pin 42 is screw threaded or otherwise captured in the hollow head 44.

*Id.* at 2:30–54. According to Pivaroff:

Preferably, the electric motor operates at a speed of between about 2000 to 3600 RPM, so as to rotate the shaft 26 and coupling system 28 at that speed. This rotational speed is transferred to a reciprocating motion . . . whereby the head 44 is quickly reciprocated back and forth to provide sufficient percussion and mechanical vibrations against a portion of a patient to which it is applied by a user, to provide the deep muscle tissue within the patient's body with kinetic forms of percussion and concussion vibration.

*Id.* at 3:45–54.

*b. Clark (Ex. 1014)*

Clark is a United States patent that discloses “tools adapted to magnetically hold and drive a multiplicity of different types of screws or the like.” Ex. 1014, 1:9–10. Clark's magnetic tool holder is shown in Figure 3, reproduced below.

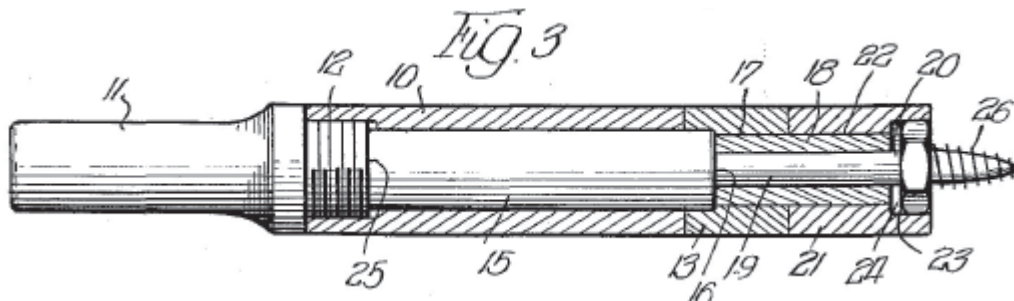


Figure 3 “is a side view partially in section of the magnetic tool holder.” *Id.* at 2:51–52. “As best shown in F[igure] 3, the bar magnet [15] abuts at one end on the shank 11 and terminates at the other end near the joint between the shell 10 and the cylindrical member 13.” *Id.* at 3:2–4. Clark teaches:

[T]he extended portion [20] of the magnetically permeable member 19 is substantially coplanar with the shoulder 24 of the workpiece holder 21. Thus, when the workpiece is placed in the chamber 23, it is in touching relationship with the extended portion 20. By this arrangement the magnetic forces which are transmitted through the magnetically permeable member 19 from the magnet 15 are utilized to hold the workpiece in driving position.

*Id.* at 3:40–48. Clark further teaches that “workpiece holder 21 may be easily removed from its assembled position and a workpiece holder having a different size or shape chamber 23 substituted therefor.” *Id.* at 4:1–3.

*c. Claim Element 1[e]*

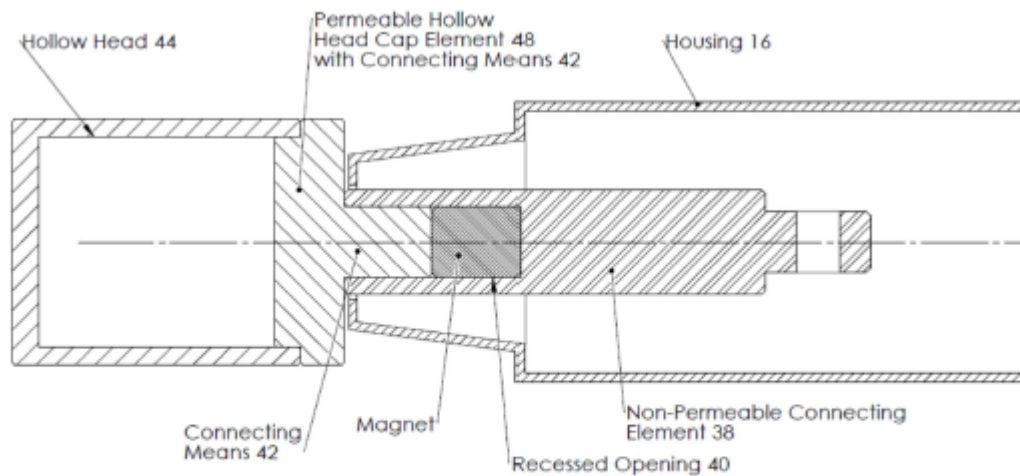
Petitioner asserts:

To the extent Pivaroff’s example of such a connecting means, threaded pin 42, and corresponding threaded recessed opening 40 does not expressly disclose a quick-connect system, Clark teaches a magnetic connecting means, where “magnetic forces . . . transmitted through the magnetically permeable membrane 19 from the magnet 15 are utilized to hold the workpiece in driving position.”

Pet. 63 (alteration in original) (quoting Ex. 1014, 3:45–48). According to Petitioner:

A POSITA would have been motivated to configure the recessed opening 40 to capture the connecting means (i.e., connecting means 42 on the proximal end of hollow body 44) by using a magnetic connection as taught by Clark to provide a quick-connect system so that the changing of the hollow body (the first massaging head) can be easily accomplished.

*Id.* (citing Ex. 1002 ¶ 184). To illustrate Petitioner’s proposed modification to Pivaroff’s connecting means based on Clark’s teachings, Petitioner provides the modified version of Pivaroff’s Figure 5 reproduced below. *Id.* at 64.



**Pivaroff Fig. 5 modified in view of Clark (Ex-1002 ¶184)**

Petitioner’s modified version of Pivaroff’s Figure 5 is top cross-sectional view depicting connecting means 42 including a magnet received in recessed opening 40 of rod 38.

Petitioner asserts “a POSITA would understand that Pivaroff, as modified with Clark’s teachings of a magnetic connecting means, would be configured to have a proximal end of the massaging head (i.e., connecting means 42) inserted into or removed from recessed opening 40 while rod 38 reciprocates the predetermined stroke length at a first speed.” *Id.* at 64 (citing Ex. 1002 ¶ 185). Specifically, Petitioner asserts Clark teaches that “the bar magnet allows for connected attachments to ‘be easily removed from its assembled position’ and with a separate attachment ‘having a different size or shape chamber 23 substituted therefor’” (*id.* (citing

Ex. 1014, 4:1–3)) and that “bore 17 in the cylindrical portion 13 ‘is particularly adapted to’ the configuration of the tool held therein” (*id.* (citing Ex. 1014, 3:11–14)).

Patent Owner argues Petitioner never applies its construction of claim element 1[e] from the district court litigation to Clark. PO Sur-reply 25. Patent Owner’s argument has merit.

Petitioner has not persuaded us that Pivaroff discloses “the structures are specially designed and adapted to quickly and easily connect or disconnect by the proximal end being inserted or removed from the bore regardless of rotational alignment while the piston reciprocates the predetermined stroke length at the first speed, not merely capable of doing so,” in accordance with Petitioner’s construction of claim element 1[e] from the related district court litigation. Petitioner asserts “Pivaroff discloses that the hollow head 44 is attached to reciprocating rod 38 using a connecting means (e.g., pin 42), one end of which is ‘capture[d]’ by the recessed opening 40 in the distal end of rod 38.” Pet. 63 (alteration in original) (citing Ex. 1007, 2:50–54). Petitioner, however, does not explain how Pivaroff’s connecting means is *specially designed and adapted to* quickly and easily connect or disconnect while the piston reciprocates. Pivaroff does not disclose replacing hollow head 44 with another head, much less connecting or disconnecting hollow head 44 from rod 38 while rod 38 reciprocates. Moreover, Pivaroff discloses: “The recessed opening 40 captures one end of a connecting means, such as a pin 42, as by having screw threads formed therein. The other or outer end of the pin 42 is screw threaded or otherwise captured in the hollow head 44.” Ex. 1007, 2:50–54. Consequently, to connect or disconnect hollow head 44 and rod 38, the user

would need to unscrew pin 42. Unscrewing the pin as the rod reciprocates would reasonably be expected to be difficult. For these reasons, we are not persuaded that Pivaroff discloses the quick-connect system recited in claim element 1[e].

In addition to Petitioner's reliance on Pivaroff alone, we also are not persuaded that Petitioner's proposed combination of the teachings of Pivaroff and Clark would have resulted in the recited quick-connect system of claim element 1[e]. Petitioner proposes to modify Pivaroff's connecting means to replace pin 42 with Clark's magnetic connection. Pet. 63–64. Petitioner, however, does not explain how such a device would include structures that are specially designed and adapted to quickly and easily connect or disconnect as the piston reciprocates, as opposed to being merely capable of doing so, in accordance with Petitioner's construction from the district court litigation. Pivaroff is silent regarding connecting or disconnecting hollow head 44 from rod 38 as rod 38 reciprocates, and Clark does not teach a reciprocating tool. Thus, Petitioner has not persuaded us that Pivaroff, as modified with Clark's teachings of a magnetic connecting means, would have resulted in the quick-connect system recited in claim element 1[e].

In view of the foregoing, we are not persuaded that the combined teachings of Pivaroff and Clark would have resulted in “the structures are specially designed and adapted to quickly and easily connect or disconnect by the proximal end being inserted or removed from the bore regardless of rotational alignment while the piston reciprocates the predetermined stroke length at the first speed, not merely capable of doing so,” in accordance with Petitioner's construction of claim element 1[e] from the district court

ligation, which we adopt in this Decision. Petitioner, therefore, has not persuaded us that the combined teachings of Pivaroff and Clark would have resulted in the quick-connect system recited in claim element 1[e].

*d. Claim Element 18[c]*

As we explain in section II.E.2.c., Petitioner has not persuaded us that the combined teachings of Pivaroff and Clark would have resulted in the quick-connect system recited in claim element 1[e]. For the same reasons set forth in that section, Petitioner has not persuaded us that the combined teachings of Pivaroff and Clark would have resulted in the similar quick-connect system recited in claim element 18[c].

*e. Clark is non-analogous art*

“Two separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor’s endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.” *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004). Petitioner bears the burden of showing a reference relied upon for obviousness is analogous art to the claimed invention. *Sanofi-Aventis Deutschland GmbH v. Mylan Pharms Inc.*, 66 F.4<sup>th</sup> 1373, 1378–80 (Fed. Cir. 2023).

Patent Owner argues “Clark is not in the same field of endeavor as the ’082 Patent.” PO Resp. 82 (citing Ex. 2005 ¶ 131). According to Patent Owner, “the ’082 Patent is directed to percussive massagers,” and “Clark is directed to a screwdriver.” *Id.* Patent Owner also argues “a POSITA would not have viewed problems associated directing a magnetic force to the end of a tool end to retain a screw in a screwdriver as reasonably pertinent to a

connection system between a massaging head and a percussive massager.” *Id.* at 84 (citing Ex. 2005 ¶¶ 132–134).

In reply, Petitioner does not contend that the ’082 Patent and Clark are in the same field of endeavor. Rather, Petitioner asserts “Clark qualifies as analogous art under at least the second test.” Pet. Reply 25. Petitioner argues that “the ’082 Patent concerns problems related to a quick-connect system configured to permit insertion/removal of the head’s proximal end while the piston reciprocates” and that “the engineering problems implicated are (i) secure retention under dynamic loading, (ii) alignment and guidance into a receiver, and (iii) fast, tool-free interchange.” *Id.* at 26 (citing Ex. 1001, 6:47–7:19; Ex. 1033 ¶ 74). Petitioner further argues “Clark addresses these problems by using a magnetized female receiver to retain different workpiece holders.” *Id.* (citing Ex. 1014, 1:1–25, 1:66–70, 4:1–3; Ex. 1033 ¶ 74). According to Petitioner, “Clark’s teachings directly address the coupling problem addressed by the ’082 Patent” and “[a] POSITA would view Clark as a blueprint for a magnetic, female-side receiver and would then dimension the magnet, seat, and geometry for the percussive load case using routine mechanical design.” *Id.* (citing Ex. 1033 ¶ 75).

In the Sur-reply, Patent Owner argues “Dr. Pratt, however, confirmed that the dynamic loading in the ’082 Patent is reciprocation but in Clark the dynamic loading is rotational.” Sur-reply 33 (citing Ex. 2034, 75:17–76:2). Patent Owner further argues that “Clark is simply not pertinent to the problem of ‘a quick-connect system configured to permit insertion/removal of the head’s proximal end while the piston reciprocates,’ as Petitioner now characterizes the ’082 Patent, because Clark is silent as to reciprocal motion.” *Id.*

We agree with Patent Owner. Petitioner asserts the problem the '082 Patent addresses is specific to reciprocating motion, namely “a quick-connect system configured to permit insertion/removal of the head’s proximal end while the piston reciprocates.” Pet. Reply 26 (citing Ex. 1001, 6:47–7:19). Yet, Clark’s magnetic tools do not reciprocate. Moreover, Dr. Pratt admits that a POSITA would need to modify Clark’s magnetic, female-side receiver for a percussive load. Ex. 1033 ¶ 75. Thus, we are not persuaded that Clark, which teaches a non-reciprocating magnetic tool, is reasonably pertinent to the problem of providing a quick-configured to permit insertion/removal of the head’s proximal end while the piston reciprocates.

In view of the foregoing, Petitioner has not persuaded us that Clark is from the same field of endeavor as the '082 Patent or that Clark is reasonably pertinent to the particular problem with which the inventors of the '082 Patent are involved. Petitioner, therefore, has not persuaded us that Clark is analogous art to the claimed invention of the '082 Patent.

*f. Conclusion for Obviousness Including Pivaroff and Clark*

Petitioner has not persuaded us that the combined teachings of Pivaroff and Clark would have resulted in claim elements 1[e] and 18[c]. Petitioner also has not persuaded us that Clark is analogous art to the claimed invention. Thus, Petitioner has not demonstrated that any of independent claims 1 and 18 and claims 2–4, 7, 9–11, and 13 depending from independent claim 1 are unpatentable under 35 U.S.C. § 103 pursuant to its asserted obviousness grounds including Pivaroff and Clark.

3. *Conclusion for Obviousness*

Petitioner has not proven, by a preponderance of the evidence, that any of claims 1, 7, 9–11, 13, and 18 are obvious over Mabuchi and Colloca or that claims 2–4 are obvious over Mabuchi, Colloca, and Harris. Petitioner also has not proven, by a preponderance of the evidence, that claims 1, 7, 9–11, 13, and 18 are obvious over Pivaroff and Clark or that claims 2–4 are obvious over Pivaroff, Clark, and Harris.

V. CONCLUSION

| <b>Claims<br/>Challenged</b> | <b>35<br/>U.S.C.<br/>§</b> | <b>References/Basis</b>     | <b>Claims<br/>Shown<br/>Unpatentable</b> | <b>Claims<br/>Not Shown<br/>Unpatentable</b> |
|------------------------------|----------------------------|-----------------------------|------------------------------------------|----------------------------------------------|
| 1–16, 18                     | 112(a)                     | Written<br>Description      |                                          | 1–16, 18                                     |
| 13–16                        | 112(b)                     | Indefiniteness              |                                          | 13–16                                        |
| 1, 7, 9–11,<br>13, 18        | 103                        | Mabuchi, Colloca            |                                          | 1, 7, 9–11, 13,<br>18                        |
| 2–4                          | 103                        | Mabuchi, Colloca,<br>Harris |                                          | 2–4                                          |
| 1, 7, 9–11,<br>13, 18        | 103                        | Pivaroff, Clark             |                                          | 1, 7, 9–11, 13,<br>18                        |
| 2–4                          | 103                        | Pivaroff, Clark,<br>Harris  |                                          | 2–4                                          |
| <b>Overall<br/>Outcome</b>   |                            |                             |                                          | 1–16, 18                                     |

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has not proven, by a preponderance of the evidence, that any of claims 1–16 and 18 of the '082 Patent are unpatentable; and

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

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