

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

THERABODY, INC.,
Petitioner

v.

HYPERICE IP SUBCO, LLC,
Patent Owner

Case No. PGR2024-00053
Patent No. 11,857,482

**DECLARATION OF JOHN D. PRATT, PH.D., IN SUPPORT OF
PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE TO
PETITION FOR POST GRANT REVIEW OF U.S. PATENT NO. 11,857,482**

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	CLAIM CONSTRUCTION	2
	A. Preamble (“percussive massager”).....	3
	B. “Massaging Head”	14
III.	THE CHALLENGED CLAIMS LACK WRITTEN DESCRIPTION	16
	A. Ground 1A: “first massaging head” having a “pocket to receive the quick release connector”	16
	B. Ground 1B: “substantially cylindrical pocket to receive the quick release connector”	21
	C. Ground 1C: “quick release connector”	22
IV.	THE CHALLENGED CLAIMS ARE INDEFINITE	23
	A. Ground 2: “substantially cylindrical pocket to receive the quick release connector”	23
V.	MABUCHI ALONE INVALIDATES CLAIMS 34, 35, AND 58-60 (GROUND 3).....	25
	A. Mabuchi discloses, teaches, or suggests all of the limitations.	25
VI.	MABUCHI IN VIEW OF HARRIS INVALIDATES CLAIMS 36-38, 40, 41, AND 43-46 (GROUND 4)	45
	A. Claim 38: “The percussive massager of claim 36, wherein the first speed and the second speed are each greater than or equal to 600 strokes per minute.”	45
VII.	MABUCHI IN VIEW OF HARRIS AND PIVAROFF INVALIDATES CLAIMS 37 AND 38 (GROUND 5).....	46
	A. Claim 38: “The percussive massager of claim 36, wherein the first speed and the second speed are each greater than or equal to 600 strokes per minute.”	46
VIII.	PIVAROFF IN VIEW OF MABUCHI INVALIDATES CLAIMS 34, 35, 37, 38, 58-60 (GROUND 6)	50
	A. A POSITA Would Have Been Motivated to Combine Pivaroff And Mabuchi	50

B.	Claim 34[c]: “a motor at least partially within the housing and operatively connected to the proximal end of the piston, wherein the motor is configured to cause the piston to reciprocate at a first speed”	51
C.	Claim 34[e]: “a quick release connector at the distal end of the piston, wherein the quick release connector is configured to secure a first massaging head while the piston reciprocates a predetermined stroke length at the first speed, wherein the first massaging head has a substantially cylindrical pocket to receive the quick release connector.”	54
IX.	PIVAROFF IN VIEW OF MABUCHI AND HARRIS INVALIDATES CLAIMS 36-38, 40, 41, 43-46 (GROUND 7).....	57
X.	CONCLUSION.....	57

I. INTRODUCTION

1. I am the same John D. Pratt that submitted a Declaration in this proceeding (Ex-1002). I submit this Reply Declaration on behalf of Therabody, Inc. (“Therabody” or “Petitioner”) in response to the Declaration of Nathan H. Morrill (Ex-2005) on behalf of Patent Owner Hypericec IP Subco, LLC (“Morrill Decl.”).

2. In preparation for this Reply Declaration, I have considered the materials discussed in my Declaration (Ex-1002) and this Reply Declaration, including, for example, U.S. Patent No. 11,857,482 (“the ’482 Patent”) (Ex-1001), the references cited by the ’482 Patent, the prosecution history of the ’482 Patent, various background articles and materials referenced in my Declaration (Ex-1002) and this Reply Declaration, the prior art references identified in my Declaration and this Reply Declaration, the Morrill Decl. including the references cited therein, and the transcript of the Deposition of Nathan H. Morrill (Ex-1024). In addition, my opinions are further based on my education, training, experience, and knowledge in the relevant field.

3. WIT Legal, LLC is being compensated at my usual and customary rate of \$850 per hour. My compensation is in no way contingent on the nature of my findings, the presentation of my findings in testimony, or the outcome of this or any other proceeding. I have no other financial interest in this proceeding.

4. I reiterate the Background and Qualifications, Relevant Legal Standards, Level of Ordinary Skill in the Art, and Technological Background sections of my Opening Declaration, as if fully set forth herein. Ex-1002, ¶¶ 5-16, 18-65.

5. For the following reasons, it remains my opinion that: (1) Claims 34-38, 40, 41, 43-46, and 58-60 lack written description support (Ground 1); (2) Claims 34-38, 40, 41, 43-46, and 58-60 are indefinite (Ground 2); (3) Claims 34, 35, and 58-60 are rendered obvious by U.S. Patent No. 4,513,737 (“Mabuchi”) (Ex-1005) (Ground 3); (4) Claims 36-38, 40, 41, and 43-46 are rendered obvious by Mabuchi in view of U.S. Patent No. 6,432,072 (“Harris”) (Ex-1006) (Ground 4); (5) Claims 37 and 38 are rendered obvious by Mabuchi in view of Harris, further in view of U.S. Patent No. 6,682,496 (“Pivaroff”) (Ex-1007) (Ground 5); (6) Claims 34, 35, and 58-60 are rendered obvious by Pivaroff in view of Mabuchi (Ground 6); and (7) Claims 36-38, 40, 41, and 43-46 are rendered obvious by Pivaroff in view of Mabuchi, further in view of Harris (Ground 7). I reiterate the corresponding sections of my Opening Declaration for Grounds 1-7.

II. CLAIM CONSTRUCTION

6. Patent Owner proposed limiting constructions for two terms, as described below. I understand that Mr. Morrill did not consider any alternative

constructions in opining that the prior art does not render obvious the challenged claims.

A. Preamble (“percussive massager”)

7. I understand that Petitioner disputes whether the preamble should be limiting. Although I do not address that legal question here, I offer my opinions as to the proper construction of “percussive massager,” under the assumption that the preamble is determined to be limiting. In my opinion, Patent Owner’s construction—“a device that provides a high-speed, long stroke action to massage deep muscle tissue”—should not be adopted.

8. **First**, Patent Owner and its expert’s support is almost exclusively derived from extrinsic evidence published around *ten years* after the priority date here. *See, e.g.*, Ex-2018 (published February 2022); Ex-2019 (published October 2023); Ex-2020 (published July 2021); Ex-2021 (published September 2024); Ex-2028 (undated but clearly published post-release of the Hypervolt 2 in 2022 based on the article’s images).

9. Neither Patent Owner nor its expert provide any explanation or justification for failing to cite any article, patent, or dictionary definition from around 2013 in crafting the proffered construction. I understand that Patent Owner’s expert, Mr. Morrill acknowledged his understanding was that he would “need to look at it as would a POSITA *from that time* to understand what a percussive massage[r]

would have.” Ex-1024, 42:21-23. He further acknowledged that dictionaries around 2013 would have been relevant:

Q. Do you think a dictionary that had a definition of percussive massager from around or before 2013 would be relevant to the understanding of a person of ordinary skill in the art at the time of the invention?

A. It could help to understand that, looking at what percussion is, and looking at what massage is, and understanding that the two together create percussive massages.”

Ex-1024, 45:16-24. Nevertheless, when asked if he looked for any applicable dictionaries or extrinsic evidence published before 2013, Mr. Morrill responded that he “did not look at a dictionary at that time for a definition.” Ex-1024, 45:11-15.

10. ***Second***, I understand that Patent Owner’s expert cites almost no intrinsic evidence in support of its construction and the little it cites does not support the narrow limitations imposed by its construction. This is not surprising as the specification, far from being a useful guide as to the meaning of “percussive massager” never even uses the word “percussive” or any variant outside of the claims (and those uses were all added after 2023, as discussed above). The first citation Patent Owner’s expert makes to the specification is merely a statement of intended use and purpose in the background section: “This invention relates generally to medical devices, and more particularly, to a deep muscle-stimulating device used to

increase muscle metabolism, increase the lactic acid cycle and relieve pain.” Ex-1001, 1:22-25 (cited at Ex-2005, ¶57). In my opinion, this says nothing to support the requirement that the device provide a “high-speed, long stroke action”—key features of the Patent Owner’s construction. *See* Ex-2005, ¶57.

11. Mr. Morrill’s only other citation to the specification does even less to support its construction. There, the specification states: “In some instances, it may be desirable to adjust the throw or the stroke length of the massaging head to work on larger or smaller muscle groups, or *deeper or shallower* points of stress or soreness in the muscles.” Ex-1001, 7:20-23 (cited at Ex-2005, ¶58). Not only does this fail to support the “high speed, long stroke action portion” of Patent Owner’s proposed construction but actually demonstrates that Patent Owner’s construction would read out certain embodiments that have a shorter stroke length to work on smaller muscle groups or shallower points of soreness. Similarly, this passage calls into question the “to massage deep muscle tissue” portion of Patent Owner’s construction. In my opinion, this citation illustrates that the specification explicitly contemplates the massager being used for “deeper or shallower points of stress or soreness in the muscles.” *Id.* I understand that Patent Owner’s expert agreed that this passage indicated that shorter stroke lengths would fall within the ambit of the claim if they “provide relief on the muscle” whether deep tissue or not. Ex-1024, 75:9-76:13.

12. Apart from these vague references, I understand that Patent Owner's expert could not identify a single citation from the specification that supported any of the limitations created by Patent Owner's construction. When asked about the origin of the "high-speed" language, Patent Owner's expert vaguely indicated that "[i]t came from my review of the different documents within this case to look at what constitute high speed for the patent." Ex-1024, 48:3-7. However, when asked about the two citations referenced above, Mr. Morrill stated that "I do not see them specifically saying anything about speed at that point, no." Ex-1024, 51:9-10. And he could not identify anywhere in the patent that used the phrase "high speed." Ex-1024, 51:11-16. When pressed to identify the objective boundaries for "high speed" Mr. Morrill could not identify a cutoff for "high speed" except for whether or not the speed in question gave the intended therapeutic benefits:

Q. How would you determine if it qualified as high speed?

A. Again, it's going to depend on experimentation to see if it actually is providing the response needed for relieving the lactic acid buildup as well as the soreness in the muscles at that speed.

Q. So whether or not something is high speed depend on whether it's providing the desired therapeutic benefit; is that right?

A. At least in the discussion of a percussive massager, yes.

Ex-1024, 54:8-19.¹ *See also, id.*, 54:25-56:19 (failing to identify any objective boundaries for “high speed”); 60:22-25 (“Q. But [the specification] doesn’t provide any description of what high speed is? A. It doesn’t specifically say this is high speed, this is low speed.”).

13. Similarly, with respect to the “long stroke action” portion of the Patent Owner’s proposed construction, I understand that Mr. Morrill could not identify any support in the specification either using the term “long stroke action” or providing support for his understanding. Ex-1024, 61:2-17, 62:23-63:5. Again, Mr. Morrill resorted to pointing to whether a particular stroke length gave the intended therapeutic benefits:

Q. And a percussive massage has to have a long strong length, according to your definition here in paragraph 57?

¹ Even if experimentation to determine if a certain speed provided the therapeutic benefit satisfied the legal standard for definiteness (which I understand it does not), it would make no sense here since, as Mr. Morrill acknowledged, the therapeutic benefits do not derive solely from the speed: “Q. Now the therapeutic benefits from percussive massage are not just based on the speed of the impact, but also based on other things, for example, the stroke length of the impact, correct? A. That is correct.” Ex-1024, 56:20-24.

A. It needs to have a stroke that's long enough to be able to activate the necessary response on the muscle and help with the pain relief within the muscle.

Q. So the distance of the stroke length and whether it's a long stroke length or not under this definition would relate to whether or not it gives certain therapeutic benefits; is that right?

A. Yes.

Ex-1024, 64:5-16. *See also id.*, 64:17-24 (long stroke action would have to be determined from experimentation and testing); 71:20-73:15 (whether different stroke lengths constitute percussive massage would depend on testing as to whether it provides the benefits of percussive massage).

14. In my opinion, the term “percussive massager” simply cannot be construed to include the amount of speed, stroke action, and/or type of massage where the intrinsic evidence does not support that construction, and Patent Owner attempts to insert an intended use for an apparatus claim, which I understand is improper. Moreover, Patent Owner’s construction, if adopted, would render the challenged claims invalid for indefiniteness, lack of enablement, or lack of written description, considering that the phrase is never used in the patent and there is no evidence that “percussive massager” even had a plain and ordinary meaning in 2013,

and would therefore violate the general rule that claim construction should act to preserve the claims' validity.

15. There is also no evidence in the '482 Patent specification disclosing a distinction between percussive and vibration massage that Patent Owner relies upon in construing the preamble. Throughout the POR and Mr. Morrill's declaration, Patent Owner and its expert attempt to manufacture a meaningful difference between percussive and vibration therapy to undermine otherwise invalidating disclosures in supposed "vibration" device and to argue that a POSITA would not be motivated to combine or modify various massage devices to arrive at the '482 Patent. *See, e.g.*, POR 2-3; Ex-2005, ¶¶38-44. Notably, all of the materials cited by Patent Owner and its expert post-date the 2013 priority date of the '482 Patent by a significant amount of time. As of the priority date, the terms percussive and vibration therapy were not well defined in the art and a POSITA would not have understood any meaningful difference between the two terms.

16. In my opinion, Patent Owner's and Mr. Morrill's position that there is a meaningful difference between vibration and percussive therapy is directly contradicted by its own statements where it refers to the Hypervolt as a "vibration device" in its press release, but also alleges that the Hypervolt practices the '482 Patent which is allegedly directed to a "percussion massager." *See* Ex-1025 (Hyperice's Amended Responses to Therabody Interrogatories). Further, it is my

understanding that Hyperice used the terms vibration and percussive therapy interchangeably even as late as 2018. *See, e.g.*, Ex. 1022, February 2018 Hyperice Press Release, “Hyperice Introduces Hypervolt, a State-of-the-Art Vibration, Massage Device for Muscle Relief” (“The cordless, state-of-the-art, ***vibration device*** provides a multitude of benefits: increases range of motion, helps relieve muscle pain, stiffness and soreness, increases circulation and blood flow, easy-to-use for self-myofascial release and massage.”) (emphasis added); Ex.1023 Hyperice Website – “About Hypervolt” (“Building on years of expertise in vibration technology, Hyperice introduced the original Hypervolt in 2018, aiming to make state-of-the-art ***percussion massage*** accessible to everyone.”) (emphasis added).

17. In my opinion, “percussive massager” does not need any construction because it is not a limitation to the claim. That the specification contains no reference to “percussive massager” or even to “percussive” and that Patent Owner fails to identify any extrinsic evidence that predates 2022 all indicate the lack of a plain and ordinary meaning as of the 2013 priority date and lead to the conclusion that the preamble is not limiting. However, if a construction is required, the term should be construed consistent with the scope of the ’482 Patent and the extrinsic evidence available to a POSITA in 2013: “a massage device whose piston and massage head reciprocates back and forth.”

18. The specification describes “massaging devices” in broad strokes. For example the “Summary” section of the patent explains that it discloses “[e]xemplary embodiments of massaging devices” characterized by a “drive mechanism for moving the piston and massage head.” Ex-1001, 1:34-40. The patent explains the motion of the piston and the massage head as being “reciprocal motion.” *Id.*, 5:2; *see also id.* 1:41-45 (“a drive mechanism for converting rotary motion of the motor to linear motion to drive the piston back and forth in a reciprocating motion”). As mentioned above, different stroke lengths are disclosed for working on different muscle groups and/or different depths within a muscle. *Id.*, 7:20-23. The patent also discloses that the massager can operate at multiple preset speeds. *Id.*, 3:45-4:3. Moreover, the specification makes clear that it applies to a wide variety of massaging devices, noting that “[a]ny values identified in the detailed description are exemplary, and ***they are determined as needed for a particular massaging device.***” *Id.*, 3:27-29. The specification also references “deep tissue massage” but only as one option. For example, the specification’s disclosure “[w]hen providing a deep tissue massage using a massaging device, such as, for example, massaging device 100...” implies that other types of massage may also be provided. *Id.*, 6:49-51.

19. Given the lack of intrinsic evidence, a POSITA would consider extrinsic evidence from the time of the patent such as dictionaries from the relevant time frame, all of which support my opinion. *See. e.g.*, Ex-1026 Stedman’s Medical

Dictionary (defining percussion as “[a] form of massage, consisting of repeated blows or taps of varying force”); Ex-1027 Oxford Dictionary (defining percussion as “striking . . . with some degree of force”); Ex-1028 Mosby’s Medication Dictionary (defining massage as “manipulation of the soft tissue through stroking, rubbing, kneading, or tapping . . . through some mechanical means, such as a vibrator”). Notably, none of these dictionaries define “massage” or “percussion” by the amount of force, speed, or stroke action such that a POSITA would understand “percussive massager” to mean “a device that provides a high-speed, long stroke action to massage deep muscle tissue.” I note that these definitions, taken together are consistent with the understanding I offered during my deposition, when asked by counsel for petitioner, as shown below:

Q. In your opinion generally, what is a percussive massager?

THE WITNESS: It's a tool that imparts percussive forces to parts of the body.

Q. When you say, "percussive force", do you mean a relatively strong force?

THE WITNESS: I don't think it has to be strong force. I guess it's going to depend on which part of the body you're using it on.

Q. Is every impact a percussive impact in your opinion?

Q. Let me rephrase the question. Is every impact, regardless of strength, a percussive impact in your opinion?

THE WITNESS: I have to suppose that the force with which a massage head impacts the skin or the body could be so light as to not be perceived as a percussive impact. My massager, the one that I have is -- exerts a pretty good force against the body. It depends on how hard you're pressing the tool against the body as well. It's not all in the tool itself. It depends on how aggressively it's being pushed against the body.

Ex-2033, 29:2-3; 29:7-9; 29:17-20.

20. Thus, in my opinion, any purported difference between percussive and vibration therapy was not understood by a POSITA during the relevant time period

in 2013. Patent Owner's attempt to differentiate between percussive and vibration massage based on its post-priority date materials should be rejected.

B. "Massaging Head"

21. In my opinion, the plain and ordinary meaning of "massaging head" is not "the end piece of a percussive massager that contacts the user's body and is capable of providing percussive massage, i.e., high-speed, deep tissue massage." Ex-2005, ¶59.

22. I understand that Patent Owner's expert acknowledged that the proposed construction of "massage head" is simply derivative of its construction for "percussive massager":

Q. And so is there anywhere in the specification that you can point me to that limits the massaging head to a massaging head capable of providing percussive massage?

A. Now, the claim language limits it in the preamble that it is only for percussive massage.

...

Q. So can you point me to a passage in the specification that limits massage head to percussive massager heads?

A. A massage head doesn't necessarily need to be percussive massage only.

But within the context of this patent, it's describing that the massage heads are for percussive massage, based off of the claim language.

...

Q. So if instead of saying "a percussive massager," [the claim] said "an apparatus," would you have a different understanding of what massaging head meant in the claims?

A. If it said "an apparatus," at that point it would no longer be limiting the massaging head to a percussive massage device at that point."

Ex-1024, 110:1-114:2.

23. As explained above, neither the claims nor the specification are "limited to percussive massagers" as Patent Owner and its expert misleadingly allege. POR 24; Ex-2005, ¶¶55-56. Rather, the '482 Patent specification lacks any disclosures of percussive massagers.

24. In my opinion, Patent Owner ignores the intrinsic evidence and incorrectly uses post-2013 publications as support. *See* Ex-2020 (published 2021); Ex-2022 (published 2022).

25. Further, Mr. Morrill testified that the plain and ordinary meaning of "massaging head" is broader and, if construed at all, should merely mean "the part

of the massager that makes contact with the body.” Ex-1024, 108:9-11; *see also id.*, 110:1-114:2.

III. THE CHALLENGED CLAIMS LACK WRITTEN DESCRIPTION

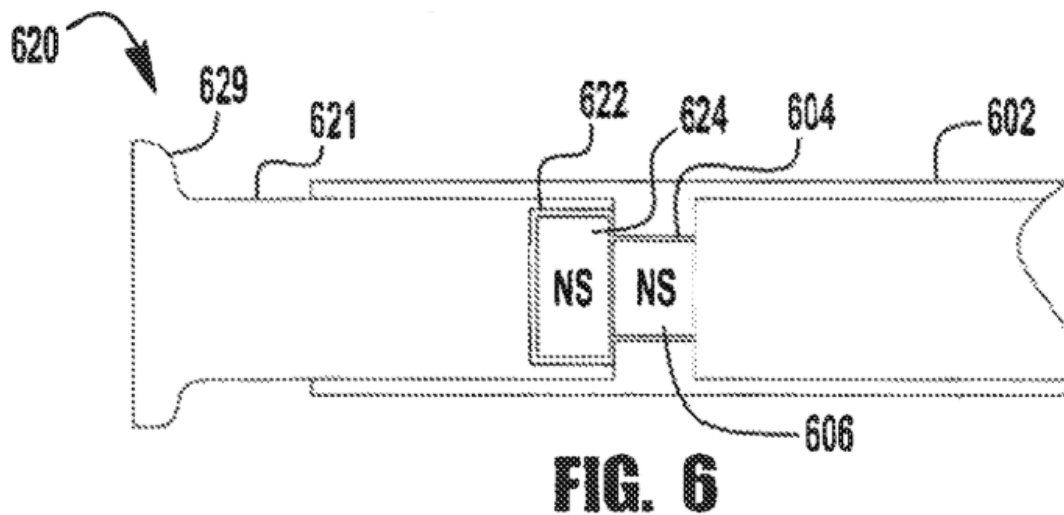
A. Ground 1A: “first massaging head” having a “pocket to receive the quick release connector”

26. Claim 34 requires that a “first massaging head” have a “pocket to receive the quick release connector.” Ex-1001. In my opinion, the specification does not provide written description support for this combination.

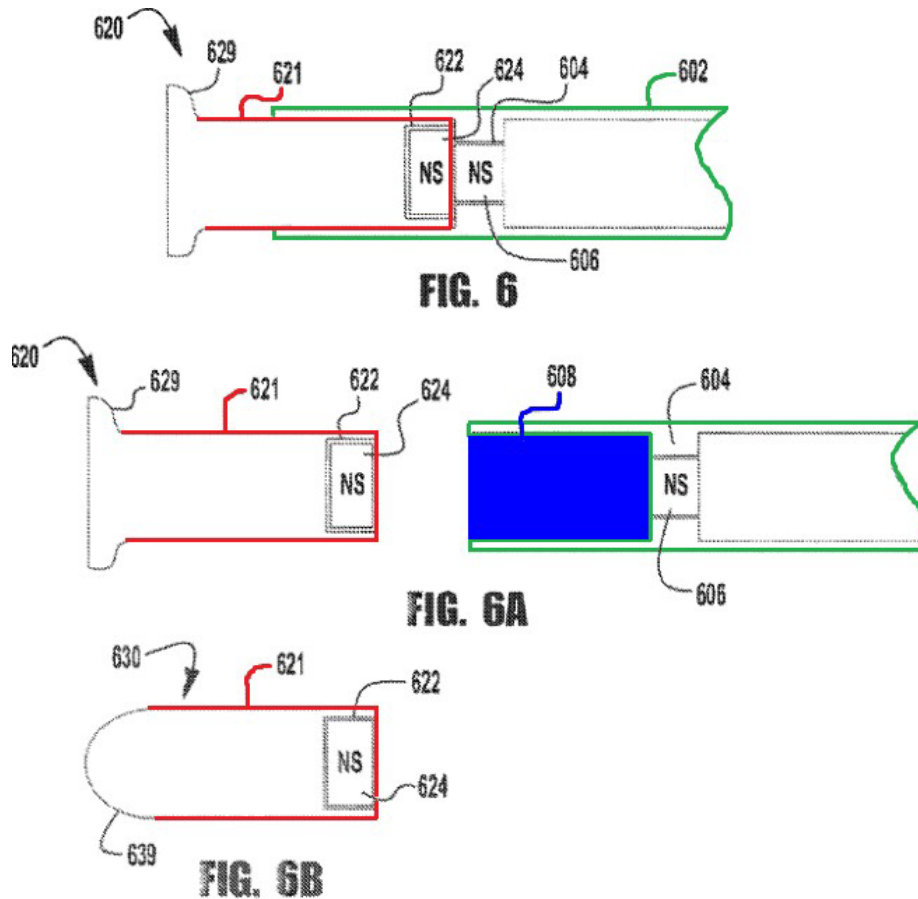
27. *First*, as described in the Petition, the specification describes a configuration that is the inverse of the claimed invention of Claim 34. Petition, 18–20. Specifically, the specification, when describing the quick release connector, describes a (single) embodiment, in which it is the “piston 602 that has a hollow-end bore 608 for receiving the shaft 621 of a massaging head 620.” *Id.*, 6:57–59. This hollow-bore allows for the massaging head “to easily *slip into the opening 608.*” *Id.* at 7:9-13 (emphasis added). The only disclosure of a “pocket” in the massaging head, on the other hand, is the pocket 622 located in the massaging head’s shaft for holding magnet 624. *Id.* at 6:63-65. Then, this entire massaging head assembly 620,

including the magnet that has been located within the pocket, is inserted into the piston (602), as can be seen in Figure 6 below. *See id.* at 6:65–7:3.

28. But Claim 34 describes a configuration in which it is the “first massaging head” that “receive[s] the quick release connector[, which is located] at the distal end of the piston,” in to the massaging head’s “substantially cylindrical pocket.” Ex-1001, Claim 34.



29. **Second**, Patent Owner’s expert incorrectly argues that “receive” can be read so broadly as to include two magnets attracting and contacting each other (*see* Ex-2005, ¶86), but as used in the ’482 Patent, when the piston **receives** the shaft of the massaging head, it means when the shaft of the massaging head is inserted into the hollow-end bore of the piston. This can be seen in annotated Figure 6 below, where the red annotations identify the shaft of the massaging head; the green annotations identify the piston, and the blue area identifies the hollow-bore in which the piston “receives” the massaging head.



30. The specification goes onto to describe that the shaft of the massaging head is “slid” into the piston bore, *i.e.*, the piston is “receiving the shaft 621 of a massaging head.” *Compare id.* at 7:1, with *id.* at 6:57–59; see also *id.* at 7:9-14 (implying that “slip into” is synonymous with receive). In my opinion, a POSITA would understand magnet 624 is permanently fixed in pocket 622, and magnet 606 is permanently retained in seat 604 such that pocket 622 does not “receive” magnet 624 or any part of the quick release connector. The magnets fixed in pocket 622 and

seat 604 are permanent fixation to facilitate the proper operation of the device in changing attachments while the piston reciprocates.

31. Patent Owner's expert states that "[t]he '482 Patent also illustrates, in FIG. 6 (below), the quick-connect system in operation, with the cylindrical pocket 622 in the massaging head 620 receiving *the* quick release connector (*magnets 624 and 606*). See Ex-2005, ¶85 (emphasis added). To achieve its hypothetical example, Patent Owner's expert re-imagines "the" quick release connector to be comprised of two separate magnets. *Id.*, ¶86 ("the quick release connector (annotated in red, below) consisting of two oppositely arranged magnets 624/606").

32. But the language of the claim contradicts that example. Challenged Claim 34 recites:

34. A percussive massager comprising:

[a] a housing;

[b] a *piston* in the housing having a proximal end and a distal end;

[c] a motor at least partially within the housing and 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 between the motor and the piston that controls a predetermined stroke length of the piston; and

[e] a *quick release connector* at the distal end of the *piston*, wherein *the quick release connector* is configured to secure a first massaging head while the piston reciprocates a predetermined stroke length at the first speed, wherein *the first*

massaging head has a substantially cylindrical pocket to receive *the quick release connector*.

Ex. 1001 (annotations added). As can be seen in the red annotations, it is the piston (34[b]) to which “the quick release connector” is attached, and only at “the distal end” of the piston (34[e]). Annotated in green are the three references to “quick release connector,” (34[e] wherein the first reference is preceded by “a,” establishing the antecedent basis for the other two uses of the term in the 34[e] limitation). Thus, Claim 34 only has one “quick release connector” and that connector is located at the distal end of the piston. Annotated in purple is the massaging head, which has “substantially cylindrical pocket.” Claim 34[e]. It is this pocket, which is part of the massaging head, which receives the quick release connector.

33. Contrary to the Board’s analysis in the Institution Decision, the specification and specifically Figure 6 does not describe the configuration claimed by Claim 34. In its Decision, the Board found that “the term ‘receive’ in claim 34 reasonably encompasses the physical insertion of magnet 624, a portion of the magnetic release connector, into cylinder 622. Claim 34 does not require that the entire quick release connector be contained within the cylindrical pocket, but only that a portion is within the pocket.” DI 20. In my opinion, this finding is unsupported by the claim language.

34. In my opinion, no part of the quick release connector of Claim 34 is contained “within the pocket.” Rather, Claim 34 locates the entirety of the “quick

release connector” at the distal end of the piston, and then this “quick release connector” is received by the massaging head’s “substantially cylindrical pocket.” Moreover, the Board’s reliance on magnet 624 as part of claim 34’s “quick release connector” also improperly maps the embodiment of Figure 6 onto the limitations of claim 34.² Claim 34 only describes “a” quick release connector; one which is affixed to the distal end of the piston. In my opinion, Claim 34 does not map well onto Figure 6 precisely because the specification *does not* provide a written description for the limitations of Claim 34.

B. Ground 1B: “substantially cylindrical pocket to receive the quick release connector”

35. I understand that although a patentee need not define an invention with mathematical precision, in cases where precision is required for the claimed invention, the disclosure must match that precision.

36. Here, Applicant argued during prosecution that careful alignment is not required for attaching a connector to the piston. In making that argument, Applicant

² The manufacturing process of installing magnet 624 into cylindrical pocket 622, is not the action that the invention must be referring to when it is describing (and claiming) the act of a quick release connector. A POSITA would understand that magnet 624 is permanently affixed to cylindrical pocket 622, as is magnet 606 permanently installed (*i.e.*, “retained”) within cylindrical seat 604.

concedes that a connection is secure even without alignment. That premise requires a pocket geometry precise enough to retain the magnet under misalignment and reciprocating loads such that the pocket securely holds the magnet.

37. Further, Patent Owner misinterprets my testimony that there “may be” tolerances on cylindrical parts in developing fasteners. Ex-2033, 24:17-20. The fact that tolerance may exist in some contexts does not mean that variance is acceptable here, where a misfit risks detachment of the connector during reciprocation.

C. Ground 1C: “quick release connector”

38. Claim 34’s claim of a “quick release connector” lacks written description support from the specification because it would not be apparent to a POSITA as to the scope of “equivalent” quick release connectors. I have been informed that a specification cannot always support expansive claim language and satisfy the requirements of 35 U.S.C. 112 merely by clearly describing one embodiment of the thing claimed.

39. I understand that the Board agreed with Patent Owner that my recitation of the many different types of connectors suggests the conclusion that a POSITA would know the variety of potential quick release connectors.

40. But Mr. Morrill’s own position undercuts this reasoning; he argued that no alignment is necessary to connect the massaging head to the piston. *See, e.g.*, Ex-2005, ¶76 n.7 (“the magnets 606/624 are axially magnetic with their opposite poles

facing in the assembly/disassembly direction such that they are connected regardless of rotational alignment”). Taking that position as true, not all of the examples from my declaration will work as claimed—for instance, threaded fasteners and quarter-turn mechanisms will not work. Ex-1002, ¶¶ 53-57.

41. I have been informed that the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics. Here, the specification only describes a single species (magnets) of quick release connectors, only identifies the magnets in its drawings, and provides no additional “relevant, identifying characteristics” of a “quick release connector.” Thus, in my opinion, contrary to the Board’s initial view, the specification fails to provide written description support for the broad sweep of Claim 34.

IV. THE CHALLENGED CLAIMS ARE INDEFINITE

A. Ground 2: “substantially cylindrical pocket to receive the quick release connector”

42. In my opinion, the claims are unclear as to the degree of variance allowed in the cylindrical shape such that there is a secure connection between the massaging head and piston. Because the non-alignment of the attachment connector is a feature of the alleged invention, Patent Owner cannot argue that *any* cylindrical

shape is sufficient. Thus, a POSITA is unable to determine the scope of the invention without more guidance regarding what is meant by “substantially cylindrical.”

43. As Patent Owner concedes, a claim term may not be indefinite “based on the purpose of the claimed structure.” Here, the purpose of the pocket receiving the quick release connector is to provide a secure attachment between the massaging head and piston without requiring careful alignment by the user. During prosecution, the Applicant explicitly argued that no alignment is required for the attachment to overcome the cited prior art. Thus, in the context of the ’482 Patent at issue, it is critical that the claims inform a POSITA with reasonable certainty the exact shape of the pocket and/or the amount of variance allowed such that the massaging head can be securely connected while the piston reciprocates without requiring careful alignment by the user.

44. Patent Owner’s citation to U.S. Patent No. 10,557,490 (“the ’490 Patent”) or U.S. Patent No. 8,348,566 (“the ’566 Patent”) for use of “substantially” in the claims is inapposite for similar reasons. With regard to the ’566 Patent, I explicitly testified that “in the context of this patent” and “for these types of fasteners,” a POSITA would understand that the disclosure supports the claimed “substantially rounded edge.” Ex-2033, 18:23-19:1; 20:9-10. Likewise, with regard to the ’490 Patent, I referred back to the specification of that patent to conclude that a POSITA would understand “substantially parallel” as claimed and that in the

context of that patent, “perfectly parallel would still mean substantially.” *Id.*, 21:20-21; 23:2-3. Patent Owner takes my testimony out of context to erroneously allege that a POSITA would understand “substantially” as claimed in any patent based on context clues.

45. In the context of the ’482 Patent, the precise shape or degree of variance allowed is pertinent to the alleged invention, and the lack of disclosure is fatal to the functionality of the claims.

V. MABUCHI ALONE INVALIDATES CLAIMS 34, 35, AND 58-60 (GROUND 3)

46. Contrary to Mr. Morrill’s allegations, my Opening Declaration identifies how all elements of the Challenged Claims are met by Mabuchi.

A. Mabuchi discloses, teaches, or suggests all of the limitations.

1. 34 [pre]: “A percussive massager”

47. It is my understanding that Patent Owner’s arguments that Mabuchi would not disclose or render obvious Claim 34 based on the preamble hinge entirely on the preamble being both limiting and construed according to Patent Owner’s results-oriented, unsupported construction. For the reasons discussed in Section II.A *supra* neither is true. In my opinion, Mabuchi discloses exactly the features in the body of Claim 34 that constitute the claimed percussive massager as further explained below.

a. Mabuchi teaches a percussive massager.

48. Mabuchi discloses a device with “an actuator to repeatedly reciprocate,” “to stimulate subcutaneous muscular tissues,” and a “patter assembly having a desired shape or size, or equipped with a magnet according to the portion or purpose of treatment.” Ex-1005, 1:8-9, 9:15-16, 9:20-24. A POSITA would understand that such reciprocation and purpose-specific patters encompass percussive massage. For therapeutic devices, “repeatedly reciprocate”—in which a head travels along a stroke path to deliver successive impulses into subcutaneous muscular tissues—defines the kinematic mode of percussive massage. Likewise, the disclosure of patter assemblies tailored by shape or size to the treatment area aligns with the recognized use of interchangeable heads (e.g., flat, ball, cone, fork) selected to target different muscle groups and treatment objectives, including percussive massage.

49. I understand that Patent Owner’s expert agreed that Mabuchi converts rotational motion into linear reciprocation of an actuator connected to a patter or patter assembly that repeatedly contacts the skin at a given rate:

Q. Would you agree with me that Mabuchi operates by converting the rotational motion of the motor into linear motion that’s ultimately driving a piston, referred to as the actuator, that moves a patter and patter assembly?

A. Mabuchi teaches that it does transfer rotational motion into linear motion that does move a patter assembly.

Q. [D]o you see that one of the objects of Mabuchi is to provide a device that repeatedly pats the skin by causing a patter or patter assembly to hit the skin at a given rate to impact the skin's surface?

A. I see where it says that.

Q. Is that consistent with your understanding of Mabuchi?

A. My understanding is that it creates a patting effect on the skin.

...

Q. So having reviewed Mabuchi in connection with this PGR, do you agree that the patter assembly strikes the skin surface at a certain velocity?

A. I agree that the patter surface is moving at a velocity when it does make contact with the skin.

Ex-1024, 120:13-121:6; 126:22-127:3. Thus, in my opinion, a POSITA would understand that Mabuchi contemplates using a reciprocating device for different body portions and/or different treatment purposes, including percussive therapy.

50. While it is true that Mabuchi “relates *generally* to a beauty treatment device,” a POSITA would not have understood these intended use disclosures to exclude other types of massagers. Ex-1005, 1:6-12 (emphasis added). In context, a POSITA would have understood that Mabuchi is *confirming* that its device is a type

of “patter” like other massage tools that repeatedly pat a user’s skin. *See* Ex-1024 at 124:17-25 (“Q. And do you agree that some patting devices belong to the category of massager? A. It does state that some patting devices are construed as a massager []”; “Q. And Mabuchi is a patter device as well, correct? A. It is a patter device.”). For example, after stating that the “invention relates generally to a beauty treatment device... wherein a patter repeatedly pats a skin surface being treated at a given rate,” Mabuchi describes the prior art as follows:

It is a wide-spread practice as beauty treatment to repeatedly tap or pat the skin surface with fingertips or palms. Conventionally, various apparatuses have been invented to produce similar face-lifting effects, in which included are an apparatus for applying vibrations to the skin surface and *an apparatus for patting part of the body*.

The vibrator, however, only presses and/or kneads the skin, causing the skin to stretch. This may result in loosening of the skin or wrinkles in some cases. On the other hand, *the conventional patting device which is intended mainly for the massage of the muscular tissues*, not for beauty treatment of the skin. In this sense, *the conventional patting device belongs to the category of massager*.

Ex-1005, 2:14-28.

51. Taken together, a POSITA would have understood that (i) Mabuchi is directed to a patter device; (ii) patter devices include massagers, and (iii) Mabuchi *adds* other features to make the device appropriate for beauty treatment on a user's face. In my opinion, nothing in this disclosure would indicate to a POSITA that Mabuchi does not disclose a percussive massager. To the contrary, a POSITA would understand that Mabuchi uses exactly that kind of device as a starting point and builds onto that foundation by adding features specific to beauty devices. *See, e.g.,* Ex-1005, 1:31-41 (“It is an object of this invention to provide a beauty treatment *device which repeatedly pats the skin* by causing a patter or patter assembly to hit the skin at *a given rate to impact the skin surface...* It is *another* object of this invention 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 patter assembly...*”) (emphasis added).

52. Patent Owner and its expert acknowledge this fact, noting that “Mabuchi has two design features specific to beauty treatment devices... the space guide 5... and a complex patter assembly.” POR 45-47; *see also* Ex-2005, ¶¶97-100. In my opinion, Patent Owner and its expert seem to acknowledge that without those two features Mabuchi *would* exert a strong percussive force to the user's skin.

53. *First*, Patent Owner and its expert take as beneficial to its argument that Mabuchi cautions against operating the beauty treatment device without the space guide. POR 46-47; Ex-2005, ¶¶98-100. In fact, Mabuchi's disclosures expressly demonstrate that the device *can* be operated without the space guide and that without the space guide, the massaging head of Mabuchi would "exert a pushing force onto the skin surface, rather than patting the skin." Ex-1005, 5:48-50. Although removing the space guide may change the *use* of Mabuchi's pater, such a modification is clearly disclosed by Mabuchi and a POSITA would accordingly understand that Mabuchi also discloses or at least teaches a percussive massager, as understood by Patent Owner and its expert. I understand that even disclosures in the prior art that *teach away* from the claimed features are highly relevant and would be considered by a POSITA.

54. Moreover, I explained during my deposition that even without removing the pater assembly, the massaging effect would depend on how a user uses a massager and on which part of the body. For example, there could be a light force on the cheek or a bigger force on the shoulder muscle with the same massager. *See, e.g.*, Ex-2033, 38:14-22; 39:6-13 ("It's also a function of what it's up against. For example, if in Figure 5 I'm holding this up against a wall, a flat surface is not going to yield. It's going to look like Figure 5. If I'm holding it up against somebody's cheek, number 6 will extend past number 5 by some small amount,

depending on the resiliency of whatever it's up against."); 43:6-12 ("It depends on whether it's on something like a cheek, because it's very soft, or a forehead. . . . a person of ordinary skill in the art would recognize that Figure 5 is an absolute hard stop for Item Number 6. There are a few areas of the body that are a hard stop."); 44:16-17 ("It would be whatever [patter assembly] 6 is bearing up against.").

55. *Second*, Patent Owner and its expert allege that Mabuchi's use of a "complex patter assembly 6, which includes a resilient member 11" would have indicated to a POSITA that Mabuchi prevents percussive force being applied to a user. POR 47-48; Ex-2005, ¶¶98-100. In my opinion, Patent Owner and its expert ignore the fact that by discussing the role of the complex patter assembly, Mabuchi *is disclosing*, or at least teaching, a modification to its beauty treatment device that might change the use but that brings the disclosure of Mabuchi into the ambit of "percussive massagers" even as construed by Patent Owner. For example, Patent Owner's expert explains that the complex patter assembly "avoid[s] imparting substantial pressure to the user's skin." Ex-2005, ¶112 (citing Ex-1005, 2:53-3:12, Fig. 8). By that token, a POSITA interested in designing a massager with greater force would recognize that the resiliency of spring 11 should be adjusted or removed entirely. Increasing the stiffness of the resilient member (or eliminating it entirely) results in higher impact forces for a given stroke and speed. Further, it is my opinion that Mabuchi does not have "an effective stroke length of zero or near zero" but

rather, depending on the surface and the stiffness of the spring, the patten assembly 6 would extend beyond the end of the space guide 5 such that the stroke length would not be zero. *See* Ex-2033, 43:6-12.

56. I understand that Patent Owner's expert also agreed that the force delivered in Mabuchi depends on momentum and the resilience of the member at the point of contact, and that a POSITA could adjust the velocity (through Mabuchi's kinematic parameters) and the resilient element's characteristics to change the impact force:

Q. And if we go back to column 3, do you see around line [] 39 through 51, [Mabuchi] provides a formula for calculating the velocity of the actuator?

A. Yes.

...

Q. Do you understand that if you wanted to change the velocity in formula 1, that you could do so by adjusting the values of the different variables, for example, the radius of the crank shaft or the length of the rod or the rotating angle or the angular velocity of the rotating disk?

A. That will affect the speed, the linear speed, yes.

...

Q. What factors would influence that momentum?

A. Momentum is basically the mass of the object and the speed of the object.

...

Q. And so the force that's ultimately impacted to the user would depend on the momentum [] that the head of the padder assembly or the padder has, along with [] the K value of that spring; is that right?

A. The spring constant for the spring, yes.

Q. And so if it was a stiffer spring, would that make the force greater or smaller in this case?

A. A stiffer spring would make it greater.

Q. And so as a mechanical engineer, thinking about Mabuchi, you would understand that you could change the force at which the padder impacted the user by changing the velocity and/or by changing the spring that's in the resilient member; is that right?

A. My understanding is that those can be changed to change the force with which Mabuchi is teaching.

...

Q. What would [replacing cushion member 8A with a rigid material] do?

A. It would then reach a full stroke.

...

Q. Would it be outside the skill set of a person of skill in the art to replace the cushion member 8A with a more rigid material?

A. It is not outside the skill set of someone to replace 8A with a more rigid member [].

Q. Would it be difficult to make that replacement?

A. Again, well, it would not be difficult to make that replacement.

...

Q. And so if you removed the space guide, the patten assembly would exert a greater force on the user's skin; is that right?

A. It could exert a greater force.

Ex-1024, 127:4-8; 128:12-19; 130:11-16; 131:14-132:7; 136:4-6; 136:15-137:4; 138:18-23. Thus, in my opinion, adjusting the parameters as taught by Mabuchi was well within the skillset of a POSITA as of the priority date of the '482 Patent.

b. Patent Owner and its expert misinterpret and misapply Petitioner's statements about Mabuchi made during prosecution of an unrelated patent

57. It is my understanding that Petitioner's U.S. Patent No. 11,730,668 ("the '668 Patent") is an unrelated patent that is directed to a vibration therapy device with interchangeable attachments and different claim requirements. Moreover, Petitioner's responses during prosecution of this unrelated patent focused on claim requirements that *do not appear* here, and Patent Owner's expert's arguments misleadingly suggest that Petitioner contrasted Mabuchi with percussive devices. Ex-2005, ¶101. Notably, the claim amendments from Applicant's response cited by

Patent Owner did not include the term “percussive massager,” and Applicant did not discuss “percussive massagers” in any way.

1. (Currently Amended) A vibration therapy device, comprising:
 - a housing that includes a handle portion and a head portion[[,]];
 - an electrical source[[,]];
 - a motor positioned in the housing[[,]];
 - a switch for activating the motor[[,]];
 - a push rod assembly operatively connected to the motor, wherein the push rod assembly ~~includes~~ comprises:
 - a reciprocating shaft having a distal end; and
 - an attachment member coupled to the distal end of the reciprocating shaft, the attachment member comprising a first magnet,
 - wherein the reciprocating shaft is configured to reciprocate in response to activation of the motor, such that the attachment member has a linear velocity between 0.06 m/s and 0.5 m/s; and
 - ~~an attachment member that defines the distal end of the push rod assembly, wherein the attachment member is configured to reciprocate in response to activation of the motor at a linear velocity between 0.06 m/s and 0.5 m/s, wherein the attachment member includes a first magnet;~~
 - a reciprocating attachment removably received on the attachment member, wherein the reciprocating attachment includes a second magnet that is magnetically attracted to the first magnet to secure the reciprocating attachment on the attachment member.

Ex-2014, 1028. In fact, the specific claim amendment discussed in that section of Applicant’s response plainly shows different claim requirements that are not relevant here. Nowhere in Applicant’s response does Petitioner state that Mabuchi is not a percussive device.

58. Further, Petitioner’s argument that “the device of Fuhr is not designed for treating the face” such that a POSITA would not have looked to Fuhr to arrive at the claimed linear velocity does not equate to an argument that a POSITA would not

have modified Mabuchi to exert greater force for use as a percussive massager. Ex-2014, 1022. Petitioner did not characterize Fuhr in a way such that “[a] POSITA would understand that Mabuchi . . . would be designed differently from a percussive chiropractic device like Fuhr” as Patent Owner’s expert alleges. Ex-2005, ¶101. Regardless, the Examiner did not find Petitioner’s argument persuasive and allowed the claims after an Examiner’s Amendment to the “attachment member” limitation. *Id.*, 2421. In the Notice of Allowance, the Examiner explained that “it would have required substantial hindsight rationale to modify the Mabuchi reference to additionally include a flexible sleeve at least partially surrounding the reciprocating shaft, and wherein the distal most end of the flexible sleeve is secured to the attachment member and the proximal end of the flexible sleeve is secured to the housing.” *Id.*, 2430 (emphasis added). In my opinion, this limitation is plainly irrelevant to whether a POSITA would understand Mabuchi to teach a percussive massager.

2. 34[e]: “a quick release connector”

59. I disagree with Mr. Morrill’s opinion that (1) Mabuchi’s patter assembly cannot be secured while the actuator reciprocates, (2) Mabuchi’s magnetic connector requires particular alignment, and (3) Mabuchi’s patter assembly is not a massaging head. Ex-2005, ¶¶102-113.

a. Mabuchi discloses that its patter assembly is easily changed.

60. Mr. Morrill's arguments regarding the feasibility of connecting the patter assembly 6 while the actuator 4 reciprocates ignore the explicit disclosure of the relevant embodiments of Mabuchi. I understand that Mr. Morrill testified that Mabuchi discloses multiple patter attachment mechanisms, including magnet-based couplings that enable swapping attachments and disconnection by simple rotation:

Q. Now, Mabuchi provides a number of different embodiments for how the patter assembly is connected, right, which it refers to as the patter connecting mechanism, right?

A. It does disclose several disconnecting mechanisms.

...

Q. And the patter connecting mechanism in Figures 18 and 19 use some magnets, right?

A. That is correct. They do use magnets in Figures 18 and 19.

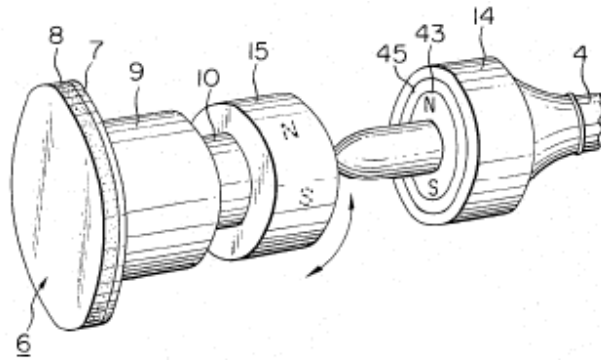
...

Q. Now, why does turning the two [magnetic] components cause a disconnection?

A. By holding one fixed and rotating the other, it changes the alignment of the poles from being north to south to being north to north and south to south, which then pushes them apart, repulses them.

Ex-1024, 144:4-9; 146:9-12; 155:9-15.

61. In those embodiments, Mabuchi discloses that changing the patter assembly using magnet 43 located at the distal end of actuator 4 (as shown below in Fig. 19) can be “easily accomplished since the actuator 4 and the patter assembly 6 are automatically disconnected merely by turning each other.” *See, e.g.*, Ex-1005, 8:40-43.



Ex-1005, Fig. 19

62. Mabuchi also discloses that “[treatment] effects can be enhanced by changing the shape or patting intensity of the patter assembly 6 or using a magnet as a part of the patter assembly 6 in accordance with the portion being treated or the purpose of treatment. To achieve this, the patter assembly 6 requires to be interchangeable. Furthermore, the patter assembly 6 must be securely connected to the actuator 4 to prevent unwanted disengagement.” Ex-1005, 5:56-64. I understand that the Board also acknowledged that Mabuchi “does not identify any changes, redesign, or reconstruction that would be necessary for the device in order to

function.” DI 35. Thus, in my opinion, Mabuchi does not require any of the modifications that the Patent Owner proposes to change the patter assembly, in particular “removing the space guide 5.” POR 54.

63. Rather than address these issues directly, Patent Owner relies on separate non-magnetic embodiments of Mabuchi and other irrelevant disclosures to argue that the patter assembly cannot be secured while the actuator reciprocates. However, this reliance is misplaced because Patent Owner concedes that the patter assembly extends beyond the space guide “when the user’s skin is not present,” which is exactly when a user might change the patter assembly. POR 53-54. Neither Patent Owner nor its expert identify any teaching in Mabuchi quantifying the extension beyond the space guide as being “slight.”

64. Additionally, Patent Owner’s speculation that a user’s fingers might be pinched, such that removing the patter assembly during operation is not advisable does nothing to undermine Mabuchi’s disclosure but rather admits that Mabuchi’s patter assembly can be removed during reciprocation. As stated above, Mabuchi discloses easy interchangeability and positive connections. In my opinion, generalized safety speculation does not negate the fact that a POSITA would be able to implement an in-operation quick-release in a predictable way. In fact, managing finger clearance is a routine, predictable design choice (e.g., adding a small guard lip, extending the flange beyond the guide, providing finger tabs,

using a soft face, or specifying hand positions). Engineers routinely manage finger clearance during reciprocation by minor geometrical features while maintaining the same interchange mechanism. In my opinion, POSITAs routinely mitigate such risks without altering the underlying connection principle.

65. Patent Owner's expert relies on Figure 4 where the patter and space guide can be secured by a number of "patter connecting mechanisms" (including non-magnetic connections) rather than Figure 19, which demonstrates the magnetic connection embodiment. As shown in Figure 19, the piston is designed with a tapered portion allowing the user to easily slip the patter head onto the connection point—even doing so without being able to see due to the space guide (as Patent Owner's expert assumes) would not present any difficulty since inserting the patter head into the space guide would be sufficient to allow the user to connect the two pieces. Patent Owner's expert also admitted that the tapered shape of the piston helps for alignment, which undermines the opinions in his declaration:

Q. In your experience as a mechanical engineer, why would a designer use a tapered shape there?

A. The tapered shape helps for alignment. It also would help with alignment of the spring as it moves.

Q. When you say it helps with alignment, it would help guide the patter onto the actuator?

A. It can be used to help guide the patter onto the actuator.

Ex-1024, 166:7-16.

b. Mabuchi's magnetic connectors do not require a particular alignment.

66. Patent Owner and its expert ignore the express teaching of Mabuchi in arguing that Mabuchi's magnets require a particular alignment. Mabuchi's disclosure is clear that, using this magnetic patter connecting mechanism, a "positive connection can be ensured without positioning the actuator 4 and the patter assembly 6." Ex-1005, 8:33-39 (emphasis added). Magnets inherently self-align and resist misalignment by pulling to the lowest-reluctance path without precise user placement. Indeed, it is common knowledge that bringing two magnets in close proximity will cause the magnets to self-align and a POSITA would have understood Mabuchi's disclosure to be consistent with that knowledge.

67. Patent Owner and its expert attempt to complicate this simple feature by inserting an unnecessary requirement that "the patter assembly 6 must be positioned," which directly contradicts the express disclosure in Mabuchi that the connection occurs "without positioning." There is no basis in Mabuchi for inserting an extra step of "positioning" or "rotationally aligning" to attach and secure the patter head. Any such disclosures in Mabuchi relate to detaching the two magnets easily (though such detachment could also be accomplished by merely pulling the

magnets apart). I understand that Mr. Morrill also acknowledged that magnets can, in many cases, self-align absent constraints:

Q. Now, if you were to hold those magnets loosely so they were in that same orientation and bring them together, what would happen?

A. That's going to depend on how strong the magnets are and how close they come together.

Q. Assume that you bring them very close together and they're reasonably strong magnets.

A. They will typically flip around on [] themselves without anything constraining them and cause the poles to go back together.

...

Q. Now, what would happen if instead you rotated the top magnet so that the south pole side was over the north pole side of the magnet at the bottom of the tube?

A. At that point they would become connected together or attract each other.

Q. Now, assume the scenario that you orient that top magnet so that the north pole is over the north pole again, but instead of holding that magnet firmly, you allowed it to rotate as you pushed it down. What would happen?

A. It's going to depend on the situation. Typically, if you just let it drop and there's no reciprocation that's occurring, it can realign itself.

Ex-1024, 148:19-149:8; 150:8-25.

68. Failing to support its position that Mabuchi's magnet connection requires alignment, Patent Owner instead takes issue with the wording used in the Petition and my Opening Declaration. POR, 56-57. There, consistent with Mabuchi's disclosure, Petitioner argued that the massaging head can be secured without the need to align it to the piston. Petition, 39-40. I made the same point. That the declaration uses slightly different language—"carefully control the angular orientation or spatial positioning of the padder assembly"—does not imply a different standard or interpretation and certainly is not contrary to Petitioner's arguments that a user need to control the angular orientation. Ex-1002, ¶113. Rather, they mean the same thing: the magnets do not need to be aligned because a user does not need to control their orientation. I also confirmed this understanding when I testified that a user "doesn't have to control the angular orientation." Ex-2033, 48:10-18; 51:1-12. In sum, they all support an identical proposition: bringing two magnets in close proximity will cause the magnets to self-align so that the user does not need to control the angular orientation for the connection.

69. Patent Owner makes much of a supposed "magnet test" that came up during my deposition. To be clear, I did not rely on any "magnet test" to form my opinions. In fact, this "magnet test", with magnets I ordered from McMaster-Carr on December 12, 2024, was done months after my Opening Declaration in support

of the Petition was filed on September 27, 2024. Thus, I did not—and could not—rely on this test to form my opinions in the submitted Declaration. My opinions are based on the express disclosure of Mabuchi and knowledge of how magnets behave, which a POSITA would be familiar with regardless of a “magnet test.”

c. Mabuchi’s patter assembly is a massaging head.

70. In my opinion, Mr. Morrill’s attempt to rely on the recited “massaging head” to be “capable of providing percussive massage” should be rejected. Ex-2005, ¶111. The claims here recite a “massaging head” which corresponds to Mabuchi’s patter assembly 6. In my opinion, the amount or type of force that the patter assembly exerts is irrelevant. And even if the amount or type of force matters (which it does not), as explained in Section II, a POSITA would not understand the resilience of spring 11 to exert zero force. Rather, depending on how the device is positioned on the skin, body, or surface, a greater or lighter force can be exerted by the patter assembly 6.

71. I understand Patent Owner’s citation to Therabody’s current website to differentiate between attachments for percussive and vibration therapies is unavailing for the reasons explained in Section II, including because it improperly imports a use restriction to the challenged claims. POR, 63.

VI. MABUCHI IN VIEW OF HARRIS INVALIDATES CLAIMS 36-38, 40, 41, AND 43-46 (GROUND 4)

A. Claim 38: “The percussive massager of claim 36, wherein the first speed and the second speed are each greater than or equal to 600 strokes per minute.”

72. I disagree with Patent Owner’s argument of the lack of relevant disclosure in Mabuchi or Harris. Harris teaches how to control motor speeds and display devices that permit a user to select desirable motor speeds. A POSITA looking to improve the functionality of massagers would understand that Mabuchi could be modified by allowing a user to control and select particular speeds of the motor. While Patent Owner argues that Mabuchi and Harris do not disclose any stroke rate or RPM to arrive at the claimed limitation, I understand that there is no requirement for such literal disclosure.

73. Harris discloses a “control panel” that includes a “speed setting control button” that allows the motor to be driven at multiple speeds. Ex-1006, 2:49-57. A POSITA interested in improving massagers for different body parts and/or uses would apply Harris’s speed control to Mabuchi to allow users to select particular motor speeds, including greater than or equal to 600 strokes per minute for percussive therapy.

74. For the reasons discussed above in Section V.A, in my opinion, Mabuchi is not restricted to a beauty treatment device.

VII. MABUCHI IN VIEW OF HARRIS AND PIVAROFF INVALIDATES CLAIMS 37 AND 38 (GROUND 5)

A. Claim 38: “The percussive massager of claim 36, wherein the first speed and the second speed are each greater than or equal to 600 strokes per minute.”

75. Pivaroff expressly teaches speeds of the motor that would meet the claimed limitation of “600 strokes per minute.” In my opinion, Patent Owner erroneously assumes that the only use for Mabuchi’s device is on the face in arguing that a POSITA would not have modified Mabuchi’s device “to pat a user’s face to operate at those same speeds.” POR, 72. Patent Owner’s argument is based on a false premise—that Mabuchi “is designed to mimic a person tapping or patting their skin.” POR 71-72. That premise is incorrect because its entire support comes from Mabuchi’s description of the prior art that simply notes: “It is wide-spread practice as beauty treatment to repeatedly tap or pat the skin surface with fingertips or palms.” Ex-1005, 1:14-16. But Mabuchi never sets forth a goal to mimic the speed of such patting or tapping, instead merely stating that it is an object to provide a device “which repeatedly pats the skin... at a given rate.” *Id.*, 1:31-34. In my opinion, a POSITA would have recognized that a benefit of using a machine like Mabuchi is precisely to not be limited to human constraints for actions like patting, which can be done more rapidly and precisely by a treatment device. Indeed, Mr. Morill acknowledged that percussive massage devices are able to impact a user’s skin much more rapidly than a human giving percussive massage:

Q. Are you aware of other ways besides percussion massagers that muscles can get a deep tissue massage?

A. There are other forms of massage that can reach deep tissues that aren't necessarily percussive.

Q. So, for example, a professional masseuse could give a manual deep tissue massage?

A. Yes.

Q. Now, because the percussive massager is also providing deep tissue massage, is it fair to say that the number of strokes of the percussive massager would be similar to the number of strokes that a person doing manual massage could do?

A. I don't necessarily agree with that. Many time manual massage is a slower process and not necessarily a fast, deep tissue massage, but a slower, consistent force, where they're kneading it or moving it.

Q. But it provides similar deep tissue muscle relief?

A. Yes.

Ex-1024, 163:19-165:1.

76. Further, in my opinion, Mabuchi, Harris, and Pivaroff all teach compatible systems because they include similar motor and drive systems, which power massage devices for similar purposes. Petition, 54. In improving Mabuchi's

device with various or different speeds, a POSITA would have looked to Pivaroff and combined the teachings to arrive at the claimed speed limitation. In my opinion, a POSITA would have looked to Pivaroff's teachings of various speeds to modify Mabuchi given that they are both devices that operate for similar purposes (massage).

77. Apart from Mr. Morrill's misplaced assumption that Mabuchi should be limited to slower speeds, its only argument for why these references would not be combined is that such speeds would be incompatible with Mabuchi's design containing a spring as the resilient member 11 since at those speeds the spring would likely "surge or float" causing undesirable vibrations. Ex-2005, ¶¶123-125. Mr. Morrill's argument is unpersuasive for two reasons. First, as he acknowledges, a POSITA would understand how to size Mabuchi's spring to avoid this undesirable floating. *Id.*, ¶125. For instance, changing the number of active coils, varying wire diameter, adjusting mean coil diameter, and setting appropriate preload can raise the spring rate and natural frequency to avoid "surge or float" at an operating speed. Mr. Morrill's argument that the combination of references would undermine "Mabuchi's desired 'patting' sensation" is speculation. Indeed, Patent Owner acknowledges that vibration massage is "low amplitude, low impact, a high-speed massage." *Id.*, ¶125. A POSITA would recognize that those frequencies can be used on various body parts, including the face, so merely operating at that frequency would not depart

from Mabuchi's intended use. Second, and perhaps more important, Mabuchi discloses embodiments with *no spring* where the cushioning is provided entirely by the cushioned massage head. Ex-1005, 5:10-21. A POSITA employing this embodiment would entirely avoid any problems related to the spring at higher frequencies.

78. Patent Owner also focuses on the preferred embodiment of Pivaroff—" [p]referably, the electric motor operates at a speed of between about 2000 to 3600 RPM"—to argue that Mabuchi would be "unsuitable for its intended use as a cosmetic patting device" at that speed. POR 72-74. However, speeds of 2000 to 3600 RPM are the disclosed preferred embodiment—they are not the only speeds that a POSITA would consider. In my opinion, a POSITA would understand that speeds other than the preferred embodiments in Pivaroff can be used for massage devices and choose the appropriate speed, based on the POSITA's knowledge and skill, in modifying Mabuchi to operate at a particular speed. For instance, a POSITA would balance speed with stroke and compliance to maintain the desired impact by selecting a rate that preserves stroke amplitude at the higher operating speed.

79. In addition, Patent Owner's expert alleges that a speed between 2000 to 3600 RPM "would cause valve surge or float because the spring 11 would be unable to maintain control of its connected mass, that is, the padder body 9." Ex-2005, ¶¶124. Yet, Patent Owner offers no evidence in support, for example,

calculations that the spring cannot keep up with the patten assembly. While this phenomenon may be possible at some level of RPM, a POSITA would know to make adjustments so that the device can operate at the required speeds.

VIII. PIVAROFF IN VIEW OF MABUCHI INVALIDATES CLAIMS 34, 35, 37, 38, 58-60 (GROUND 6)

A. A POSITA Would Have Been Motivated to Combine Pivaroff And Mabuchi

80. I disagree with Patent Owner's expert's argument that Mabuchi is not directed to a percussive massager. Mr. Morrill's statement that Mabuchi's features are not applicable to percussive massagers like Pivaroff (Ex-2005, ¶¶126-127) assumes the intended use, rather than similar operation, is the critical determination related to motivation to combine. In my opinion, a POSITA would have recognized that the similar reciprocating mechanism of Pivaroff would have been improved by the magnetic head connection described by Mabuchi.

81. Mr. Morrill's argument that Pivaroff is concerned with a non-replaceable head ignores the fact that Pivaroff discloses 11-different preferred heads, each of which would be time consuming to properly fill with the appropriate granules. Ex-1007, 2:55-3:30; *see also* Ex-1024, 171:7-173:19 (Q. I'm curious how you would as a mechanical engineer, how you would go about filling that massage head with that specific quantity of materials. A. You would have to measure out the materials individually, and then you would have to fill them inside the massage head

and then close the massage head up. Pivaroff teaches about a threaded connection on the head that you could use to disconnect that to fill it.; Q. [A]ll of these 11 mixtures are preferred mixtures, correct? A. In some sense, they are preferred.). In my opinion, A POSITA would have recognized that to obtain the advantages of the different disclosed heads, it would have been advantageous to be able to quickly remove and replace one with another. In practice, to capture the benefits of different purpose-specific heads, a quick-interchange connection is desirable. Mr. Morrill recognized that while Pivaroff discusses a threaded connection for the head, other types of linkages would also be encompassed by Pivaroff's teachings, so long as they were strong enough to accommodate holding Pivaroff's head. *See* Ex-1024, 175:14-177:23.

B. Claim 34[c]: “a motor at least partially within the housing and operatively connected to the proximal end of the piston, wherein the motor is configured to cause the piston to reciprocate at a first speed”

82. In my opinion, Patent Owner and its expert ignore the clear disclosure of Pivaroff and argues that motor 24 is not within the housing. A POSITA would understand that the “housing” covers the exterior of the device, including handle 14. Ex-1002, ¶ 168. Mr. Morrill's testimony about the plain and ordinary meaning of “housing” is consistent with that understanding, and he admitted that in the context of the '482 Patent, a “housing” is merely something that holds another component:

Q. What are housings?

A. Housings typically are the outer component that contains the movable parts within it or parts of the machine itself.

...

Q. Are all these uses of housing in columns 5 and 6 [of the '482 Patent] consistent with outer components that contain movable parts within it or parts of the machine itself?

A. My understanding is it discusses housings that contain components within them or make up a structure.

Ex-1024 at 115:24-116:2; 117:25-118:7.

83. Furthermore, the fact that Pivaroff describes the top portion of the device as “top hollow housing 16” does not indicate that the handle is not a housing, especially when it is an “outer component that contains the movable parts” of the motor within it. Ex-1007, 2:30–33; 3:33–35; Ex-1024, 115:25-116:2. Pivaroff does not explicitly limit the top portion of the device to be the housing or disclose that handle 14 is not part of the housing.

84. I understand that Mr. Morrill testified that the hollow handle houses the electric motor and that there is a mechanical communication between the handle and the top housing to translate rotary-to-linear motion, which supports that a POSITA would have understood the handle and top housing to both be part of the claimed housing:

Q. And so if we look at Figure 6 [of Pivaroff], do you understand that that hollow handle is the portion that's extending down vertically that houses the motor?

A. That is my understanding.

...

Q. [C]an you describe how the motor in the hollow handle has its rotational motion translated into linear motion in the top element?

A. In the top element, the motor is connected via 28, which is the coupling system between the motor. That coupling system then, in turn, turns the cam means 30, which is basically like a flywheel. That then, in turn, pushes on 34, being that reciprocating link. And that translates the motion into 38, being the rod.

Q. And so there's components that are [] mechanically communicating between the handle and the top housing; is that right?

A. There are components that are within the housing, and there are components within the handle that communicate together.

Ex-1024, 167:24-168:3; 168:15-169:7. Thus, in my opinion, a POSITA would understand that motor 24 within the handle 14 is at least partially within the housing.

- C. **Claim 34[e]: “a quick release connector at the distal end of the piston, wherein the quick release connector is configured to secure a first massaging head while the piston reciprocates a predetermined stroke length at the first speed, wherein the first massaging head has a substantially cylindrical pocket to receive the quick release connector.”**

85. In my opinion, a POSITA would have recognized that Pivaroff discloses multiple heads and would have been motivated to exchange those heads quickly, as disclosed by Mabuchi, to obtain different benefits from different heads.

86. Mr. Morrill’s argument that “granular materials 50 contained within the head 44” prevents a user from changing the head is misguided. Ex-2005, ¶132. Pivaroff does not teach that a single combination of granular fillings are critical, just that a particular arrangement provides particularly good results in a particular use case. Ex-1007, 2:55-3:30. In fact, Pivaroff explicitly teaches **11 different** granular combination that it describes as “produc[ing] improved and superior results.” *Id.*, 3:24–30. I understand that Mr. Morrill also admitted that Pivaroff discloses multiple massage heads and that loading the specified granular mixtures would require measuring and filling steps, which is not an instant process:

Q. Well, I guess I’m curious how you would as a mechanical engineer, how you would go about filling that massage head with that specific quantity of materials.

A. You would have to measure out the materials individually, and then you would have to fill them inside the massage head and then close the massage

head up. Pivaroff teaches about a threaded connection on the head that you could use to disconnect that to fill it.

Ex-1024, 172:9-19.

87. I also understand that Mr. Morrill also agreed that although Pivaroff discloses threaded connections, the claims refer to “linkages” which a POSITA would read to be broader than only threaded connections:

Q. As a mechanical engineer, would you understand that there are other linkage means that could be used in addition to a threaded connection?

A. Yes, I understand that you could use other means to connect the two together.

Ex-1024, 176:15-19.

88. Further, Mr. Morrill agreed that a POSITA would understand that multiple types of linkage or coupling mechanisms could satisfy the claim requirements as long as they are robust enough to sustain the head’s mass, reciprocation, and internal concussive effects, which further confirms that Pivaroff is not limited to a single threaded approach:

Q. Again, this claim [4 of Pivaroff] doesn’t mention a threaded connection, right?

A. It merely states that you need to have a coupling between the two that can allow for that motion of the head. So whatever connection you have will []

have to be able to sustain the weight of the head, sustain its motion, [] sustain the concussive forces that are generated by the materials within it. So you're going to want a coupling means that will be robust enough to be able to sustain that and be able to actually cause it to be practicable.

Q. And a person of skill in the art would understand that there's multiple types of links that could be used that meet those criteria, right?

A. A POSITA would recognize that there are multiple types, and they would have to make sure whatever they use is strong enough to allow for it to reciprocate without coming apart and detached.

Ex-1024, 177:4-23.

89. Patent Owner's citation to the prosecution history of Petitioner's Patent Application No. 17/705,300, directed to an unrelated vibration therapy device, is also unavailing. Patent Owner argues that Pivaroff's disclosure of "between 2000 to 3600 RPM [] substantially outstrips Petitioner's maximum values of 5.0mm and 3000 RPM for a magnetically connected attachment." POR 85. In my opinion, a POSITA would have understood that stronger magnets could be used to accommodate any speeds disclosed by Pivaroff. Patent Owner's argument also ignores the cited Pivaroff range, which includes speeds less than 3000 RPM such that the maximum value would not be exceeded. Further, a POSITA would

understand that Pivaroff's range includes speeds lower than 3000 RPM that could be employed in percussive devices based on the POSITA's knowledge and skill.

90. Lastly, for the reasons discussed above in Section V.A.2.b, a POSITA would understand that magnetic connections do not require a user to align the magnets as they would self-align.

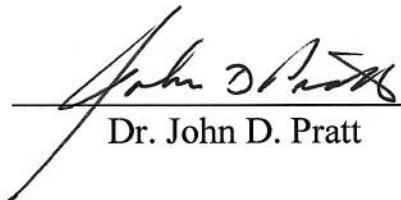
IX. PIVAROFF IN VIEW OF MABUCHI AND HARRIS INVALIDATES CLAIMS 36-38, 40, 41, 43-46 (GROUND 7)

91. I understand that Patent Owner's expert does not provide any additional arguments for this combination and instead relies on its discussion of Pivaroff and Mabuchi. Ex-2005, ¶138. Thus, I incorporate the relevant sections above and from my Opening Declaration.

X. CONCLUSION

92. I declare that all statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Date: December 5, 2025


Dr. John D. Pratt