

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

U.S. Patent No. 11,857,482

**DECLARATION OF NATHAN MORRILL IN SUPPORT
OF PATENT OWNER'S RESPONSE**

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
A. Qualifications and Experience	2
B. Materials Considered.....	3
II. RELEVANT LEGAL STANDARDS	4
A. Presumption of Validity	4
B. Claim Construction	4
C. Anticipation Under 35 U.S.C. § 102	5
D. Obviousness Under 35 U.S.C. § 103.....	6
e. Enablement, Written Description, and Indefiniteness Under 35 U.S.C. § 112	12
1. Enablement.....	12
2. Written Description.....	13
3. Indefiniteness	13
III. PERCUSSIVE MESSAGE / PERCUSSIVE MASSAGERS.....	14
IV. THE '482 PATENT.....	16
A. Overview of the '482 Patent.....	16
B. Relevant Prosecution History of the '482 Patent	20
C. Claim Construction	23
1. “Percussive Massager”.....	23
2. “Massaging Head”	24
V. PERSON OF ORDINARY SKILL IN THE ART	25
VI. THE CITED REFERENCES.....	27
A. Mabuchi (Ex. 1005).....	27
B. Harris (Ex. 1006).....	36
C. Pivaroff (Ex. 1007).....	36

VII.	§ 112 GROUNDS	39
A.	Ground 1A	39
B.	Ground 1B	41
C.	Ground 1C	42
D.	Ground 2	43
VIII.	§ 103 GROUNDS	44
A.	Ground 3: Mabuchi	44
1.	Claim Element 34[pre]	44
2.	Claim Element 34[e]	49
B.	Ground 4: Mabuchi and Harris	56
1.	Claim 38	56
C.	Ground 5: Mabuchi, Harris, and Pivaroff	58
1.	Claim 38	59
D.	Ground 6: Pivaroff and Mabuchi	61
1.	A POSITA Would Not Have Been Motivated to Modify Pivaroff in View of Mabuchi	61
2.	Claim Element 34[c]	62
3.	Claim Element 34[e]	64
E.	Ground 7: Pivaroff, Mabuchi, and Harris	69
IX.	CONCLUSION	69

I, Nathan Morrill, hereby declare as follows:

I. INTRODUCTION

1. I have been asked by the law firm of Womble Bond Dickinson (US) LLP, Counsel for Patent Owner Hyperice IP Subco, LLC (“Hyperice” or “Patent Owner”) as an expert witness in the above-captioned Petition for Post-Grant Review (“PGR”) proceeding involving U.S. Patent No. 11,857,482 (“the ’482 Patent”) (Ex. 1001).

2. I have been asked to offer opinions regarding the ’482 Patent and Claims 34-38, 40, 41, 43-46, and 58-60 (the “Challenged Claims”) of the ’482 Patent, as set forth in Therabody, Inc.’s (“Therabody” or “Petitioner”) Petition for PGR (“the Petition”).

3. This declaration contains statements of my opinions formed to date and the associated reasoning in support of my opinions. I reserve the right to offer additional opinions based on further review of the materials of this case, or any related proceedings, including opinions and/or testimony of other relevant witness, including other expert witnesses retained in this matter.

4. The statements contained herein and referenced in Hyper Ice’s Preliminary Response include my opinion and the bases for my opinions.

5. For my work on this matter, I am employed by Alpine Engineering and Design from whom I draw a salary. I understand that Alpine Engineering and Design

was retained by the law firm of Womble Bond Dickinson (US) LLP. Alpine Engineering and Design bill my time at an hourly rate of \$400.00 per hour of time spent on this matter, with travel time being billed at \$200.00 per hour. My compensation is not contingent on the outcome of the PGR or on the substance of my opinions.

6. I have no financial interest in Patent Owner or in the outcome of this proceeding.

A. Qualifications and Experience

7. My Curriculum Vitae, which outlines my educational and employment history, is being submitted concurrently with this declaration. I am a registered Professional Engineer in the States of Utah, Idaho, Texas, New York, and Florida. I am also a Certified Safety Professional in comprehensive practice. I am also a certified operator trainer for hydraulic equipment such as Mobile Elevating Work Platforms including boom lifts and scissor lifts as well as forklifts and telehandlers.

8. I received my Bachelor of Science degree in Mechanical Engineering from the University of Utah in 2004. I have over 20 years of experience in the fields of mechanical engineering, structural design, mechanical design, design of equipment, safety in design, guarding, and manufacturing. I have also designed and analyzed aerial lifts, custom trailers, high thrill rides, ziplines, machine guarding, high energy guarding, hydraulic design, pneumatic design, and drilling equipment.

In my role as a consultant, I have participated in the design and manufacture of numerous products, as well as performed accident reconstructions. I am a named inventor on 12 patents, with other patents pending. A list of my patents is included in my Curriculum Vitae. I believe that my credentials as set forth herein, and in my Curriculum Vitae, demonstrate that I am an expert in the fields of mechanical design, structural design, safety, and accident reconstruction including in the field of consumer product design and human factors analysis.

9. Because of my background, training, and experience, I am qualified to provide the expert opinions within this declaration regarding the technology described and claimed in the '482 Patent.

B. Materials Considered

10. In forming my opinions, I have reviewed the '482 Patent and its prosecution history. I have also reviewed and considered the references cited by the Petitioner, the Petition itself, the Declaration of John D. Pratt, Ph. D. (Ex. 1002) submitted with the Petition, and other documents and information set forth in this declaration, along with the documents and things contained in the Table of Exhibits provided with Patent Owner's Response.

11. In reaching my opinions, I have relied upon my experience in the field and also considered the viewpoint of a person of ordinary skill in the art ("POSITA") at the time of the earliest claimed priority date of the '482 Patent, which I understand

to be July 1, 2013. As explained below, I am familiar with the level of a person of ordinary skill in the art regarding the technology at issue as of that time, and I was at least a person of ordinary skill in the art at that time as well as to the present.

II. RELEVANT LEGAL STANDARDS

12. I am not a legal expert or an attorney, and I am not offering any opinions on the law. While I am not an attorney, I understand that in providing my opinions there are certain principles of patent law that I should apply.

13. I have been informed of and understand the legal standards that apply to patent validity and invalidity, identified below, which I have applied in arriving at my conclusions.

A. Presumption of Validity

14. I understand that patents that have been issued by the U.S. Patent and Trademark Office (“USPTO”) are presumed to be valid, and a party challenging the validity of claims of an issued U.S. patent before the USPTO bears the burden of proving invalidity by a preponderance of the evidence.

B. Claim Construction

15. I have been informed of and understand that claim terms must be properly construed prior to assessing patentability. I also understand that the words of a claim are generally given their plain and ordinary meaning, which is the meaning the words would have to a person of ordinary skill in the art (“POSITA”) at the time

of the invention. However, I also understand that the claims do not stand alone and that the plain and ordinary meaning should be harmonized, to the extent possible, with the patent specification and the prosecution history of the patent. I also understand that extrinsic sources, like dictionaries, handbooks, textbooks, etc., can “shed useful light” on the proper construction of a claim term.

16. I also understand that a POSITA is a hypothetical person who is presumed to have ordinary skill in the relevant art at the time of the invention. Factors that may be considered in determining the level of ordinary skill according to the Manual of Patent Examining Procedures (MPEP) in the art may include: (1) type of problems encountered in the art; (2) prior art solutions to those problems; (3) rapidity with which innovations are made; (4) sophistication of the technology; and (5) educational level of active workers in the field.

C. Anticipation Under 35 U.S.C. § 102

17. I understand that a patent claim is anticipated if, as of the critical date (i.e., the effective filing date according to the America Invents Act (AIA)), each and every limitation recited in the claim is found either expressly or inherently in a single prior art reference and arranged in the prior art in the same way as it is claimed, such that the disclosure effectively puts the public in possession of the invention. Finally, I understand that for a prior art reference to inherently disclose a claim limitation, that claim limitation must necessarily be present in the prior art reference.

18. I also understand that prior art is the body of knowledge publicly available to a person skilled in the particular art or field of the invention at the time the invention was made, or one year prior to the filing of the patent application for the asserted patent. More particularly, I have been informed that prior art is defined as a reference that satisfies (AIA) § 102(a) regardless of whether or not the reference was actually known to those skilled in the art.

D. Obviousness Under 35 U.S.C. § 103

19. I understand that even if all the elements of a patented invention cannot be found in a single piece of prior art, the patent may still be found to be invalid if the invention is found to be obvious as of the critical date (i.e., the effective filing date (AIA)) to a person having ordinary skill in the field of art to which the claimed subject matter belongs.

20. I also understand that the following factors should be considered in analyzing obviousness: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims; (3) the level of ordinary skill in the pertinent art; and (4) the existence of “secondary considerations” of non-obviousness, when present.

21. I understand that “secondary considerations” are factors like commercial success, unexplained results, long felt but unsolved need, industry acclaim, simultaneous invention, copying by others, skepticism by experts in the

field, and failure of others. I also understand that secondary consideration may be utilized as indicia of non-obviousness. I understand, however, that any secondary considerations should be connected, or have a “nexus,” with the invention as a whole.

22. I understand that a reference qualifies as prior art for obviousness purposes when it is analogous to the claimed invention. The test for determining what art is analogous is: (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.

23. I understand that the theoretical POSITA is assumed to have knowledge of all prior art. I understand that one skilled in the art can combine various prior art references based on the teachings of those prior art references, the general knowledge present in the art, or common sense.

24. I understand that a motivation to combine references may be implicit in the prior art, and there is no requirement that there be an actual or explicit teaching to combine two references. Thus, one may take into account the inferences and creative steps that a POSITA would employ to combine the known elements in the prior art in the manner claimed by the patent at issue. I understand, however, that it is improper to use the claimed subject matter of the patent at issue as a template for

piecing together components (or steps) found in separate prior art references, or in other words it is improper to use “hindsight” bias gleaned from the teachings of the patent to establish reasons to combine separate prior art references and elements.

25. I understand that when determining whether a patent claim is obvious in light of the prior art, neither the particular motivation for the patent nor the stated purpose of the patentee is controlling. The primary inquiry has to do with the objective reach of the claims, and that if those claims extend to something that is obvious, then the entire patent claim is invalid.

26. I understand that one way that a patent can be obvious is if there existed at the time of the invention a known problem for which there was an obvious solution encompassed by the patent’s claims. I understand that a motivation to combine various prior art references to solve a particular problem may come from a variety of sources, including market demand or scientific literature. I understand that a need or problem known in the field at the time of the invention can also provide a reason to combine prior art references and render a patent claim invalid for obviousness.

27. I understand that familiar items may have obvious uses beyond their primary purpose, and that a POSITA will be able to fit the teachings of multiple prior art references together like the pieces of a puzzle. I understand that a POSITA is also a person of at least ordinary creativity. I understand that when there is a design need or market pressure to solve a problem and there are a finite number of

identified, predictable solutions, a POSITA has good reason to pursue the known options within his or her technical grasp. If this finite number of predictable solutions leads to the anticipated success, I understand that the invention is likely the product of ordinary skill and common sense, and not of any sort of innovation. I understand that the fact that a combination was obvious to try might also show that it was obvious under the patent laws, and thus invalid. I understand that if a patent claims a combination of familiar elements according to known methods, the combination is likely to be obvious when it does not more than yield predictable results. Thus, if a POSITA can implement a predictable variation, an invention is likely obvious. I understand that combining embodiments disclosed near each other in a prior art reference would not ordinarily require a leap of inventiveness.

28. I understand that obviousness may be shown by demonstrating that it would have been obvious to modify what is taught in a single piece of prior art to create the patented invention. Obviousness may also be shown by demonstrating that it would have been obvious to combine the teachings of more than one item of prior art. I understand that a claimed invention may be obvious if some teaching, suggestion, or motivation exists that would have led a POSITA to combine the invalidating references. I also understand that this suggestion or motivation may come from the knowledge of a person having ordinary skill in the art, or from sources such as explicit statements in the prior art. I understand that when there is a design

need or market pressure, and there are a finite number of predictable solutions, a POSITA may be motivated to apply common sense and his or her skill to combine the known options in order to solve the problem.

29. I understand that the following examples of approaches and rationales may be considered in determining whether a piece of prior art could have been combined with other prior art or with other information within the knowledge of a person having ordinary skill in the art:

- (a) Some teaching, motivation, or suggestion in the prior art that would have led a person of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention;
- (b) Known work in one field of endeavor may prompt variations of it for use in the same field or a different field based on design incentives or other market forces if the variations would have been predictable to a person of ordinary skill in the art;
- (c) Combining prior art elements according to known methods to yield predictable results;
- (d) Applying a known technique to a known device, method, or product ready for improvement to yield predictable results;
- (e) Applying a technique or approach that would have been “obvious to try” (choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success);
- (f) Simple substitution of one known element for another to obtain predictable results; or

- (g) Use of a known technique to improve similar products, devices, or methods in the same way.

30. I understand that, when determining whether a claimed combination is obvious, the correct analysis is not whether one of ordinary skill in the art, writing on a blank slate, would have chosen the particular combination of elements described in the claim. Instead, I understand that the correct analysis considers whether one of ordinary skill, facing the wide range of needs created by developments in the field of endeavor, would have seen a benefit to selecting the combination claimed.

31. I understand that a claimed invention is non-obvious if the claimed invention, when viewed in light of all prior art, would not have been an apparent or predictable solution to a POSITA. I understand that the test for non-obviousness is not whether a POSITA could physically combine the references but whether a POSITA would have been motivated to combine the references to arrive at the claimed invention, in view of the teachings of the prior art as a whole.

E. Enablement, Written Description, and Indefiniteness
Under 35 U.S.C. § 112

1. Enablement

32. I understand that 35 U.S.C. § 112(a) requires that the patent specification provide the manner and process of making and using the claimed invention to allow a POSITA to actually make and use the invention.

33. I also understand that a patent is enabling if its disclosure is sufficient to enable a POSITA to make and use the claimed invention without undue experimentation. In considering whether the written description of a patent satisfies the enablement requirement, the specification is viewed from the perspective of a POSITA. I also understand that the patent need not teach, and preferably omits, what is well known in the art. Thus, a patent need not expressly state information that skilled persons would be likely to know or could obtain.

34. I also understand that to determine whether an “undue” level of experimentation is required to practice the invention, several factors—known as the *Wands* factors—are often considered in the analysis: (1) the quantity of experimentation necessary; (2) the amount of direction or guidance disclosed in the patent; (3) the presence or absence of working examples in the patent; (4) the nature of the invention; (5) the state of the prior art; (6) the relative skill of those in the art; (7) the predictability of the art; and (8) the breadth of the claims.

2. Written Description

35. I understand that 35 U.S.C. § 112(a) requires that a patent specification contain a written description of the invention. I also understand that the written description requirement is satisfied if a POSITA reading the patent application at the time it was filed would have recognized that the patent application described the invention as claimed, even though the description may not use the exact words found

in the claim. The written description requirement may be satisfied by the patentee's disclosure of such descriptive means—e.g., words, structures, figures, diagrams, tables—that fully set forth the claimed invention.

36. I understand that working examples are not necessary to satisfy the written description requirement. A requirement in a claim need not be specifically disclosed in the patent application as originally filed if a POSITA would understand that the missing requirement is necessarily implied in the patent application as originally filed. I also understand that the patent does not need to disclose what is well known in the art to provide a sufficient written description.

3. Indefiniteness

37. I understand that 35 U.S.C. § 112(b) requires that a patent specification must include claims that particularly point out and distinctly claim the subject matter that the inventor(s) regard as the invention. I also understand that a patent claim is invalid for indefiniteness only if its claims, read in light of the specification and the prosecution history, fail to inform, with reasonable certainty, a POSITA about the scope of the invention. In patents the certainty to which the law requires is not greater than is reasonable having regard to the subject matter.

III. PERCUSSIVE MESSAGE / PERCUSSIVE MASSAGERS

38. I have personal experience using percussive massage devices, which are also known as percussive massagers and percussive massage guns. Based on my personal experience, I understand that percussive massagers are characterized in that they provide a very high speed, high impact massage. These devices have an end piece, often called a head or attachment, that contacts the user's body to impart the force and provide the massage. The high impact aspect of percussive massage is provided by the movement length (also referred to as stroke length) of the end piece.

39. I have reviewed the Internet webpage captures labeled Exhibits 2018-2021, 2023, 2027, and 2028 in this proceeding. My personal experience with percussive massagers comports with the description of percussive massage in these documents, in particular, that percussive massage is characterized by its high-speed, deep muscle stimulating massage. I also agree that percussive massage is markedly different from vibration massage, which is a high-speed but topical (rather than deep) massage. Often, the stroke length of vibration massagers may be zero or near zero compared to 8+mm stroke length for percussive massagers.¹

40. I also understand that percussive massagers are most often designed to be used by the general consuming public without any specialized training.

¹ <https://massagegunadvice.com/highest-amplitude-massage-gun/>

Such products are generally called consumer products (or consumer devices). On the other end of the spectrum, professional products (or professional devices) are products that are designed for use by individuals after receiving certain certification, licensing, or training. Professional products prioritize performance and reliability over ease of use.

41. In this proceeding, in my opinion, Mabuchi and Harris represent consumer products. Mabuchi is a self-described low-impact beauty treatment device differentiated from other, higher-impact devices, such as massagers. Ex. 1005, 1:14-28. Mabuchi also focuses on how “easily” the device can be manipulated. *Id.*, 6:50-51, 7:28-30, 8:40-43. Generally, low-impact devices present a lower risk of injury, and is more common in consumer products. In addition, a focus on ease of use is also more common in consumer products than in professional products. Harris refers to a “hand-held” massager apparently intended to be used by the user on his or her own body. Ex. 1006, 4:26-35. Harris also mentions adjustability in its design but in the context of providing an “effective safe therapeutic massage.” *Id.*, 3:12-15.

42. In this proceeding, in my opinion, Pivaroff represents a professional product (or device). Pivaroff is a particularly high-power, high-speed device. *See generally* Ex. 1007. Pivaroff states that its “deep muscle stimulation device ... has been developed for use by professionals in the chiropractic, medical and physical

therapy fields.” *Id.*, 3:65-4:1. Pivaroff also states that “These professionals may also include massage therapists, rehabilitation providers and sports trainers in all athletic disciplines.” *Id.*, 4:1-3.

43. When designing consumer devices, safety and ease of use are extremely important. Users are presumed to have little knowledge of the device or its limitations; thus, the product must be designed to remain safe to use during expected use and misuse situations. A designer must be aware that not all users will have read the instructions and can expect them to not always be followed. Often, these considerations come at the expense of performance (e.g., decreasing the potential for injury during use) and include additional safety features.

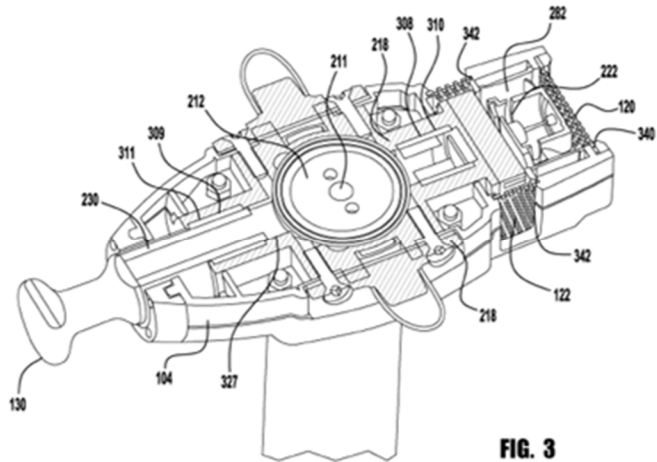
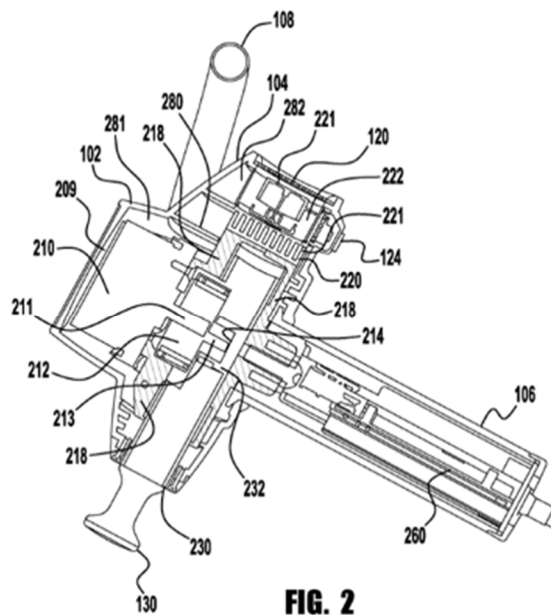
44. On the other hand, professional devices can be designed with a focus on higher performance because the users are expected to be specially trained to use the device, have a deeper understanding of the device’s effects, understand the risks associated with misuse of a higher performance machine, and follow any written instructions or use guidelines.

IV. THE ’482 PATENT

A. Overview of the ’482 Patent

45. The ’482 Patent is generally directed “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, Abstract,

1:23-25, FIGS. 1-3. The detailed description of the '482 Patent similarly describes the inclusion of a multitube of different massaging heads “to work on different muscles or different portions of muscles” during “a deep tissue massage.” *Id.*, 6:49-53. The '482 Patent also describes adjusting “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.” *Id.*, 7:20-23. Additionally, the '482 Patent describes that “the operating speed of the massaging device is generally between about 600 and 3600 strokes per minute.” *Id.*, 4:1-4. Taken together, the '482 Patent's disclosure of a high-speed, deep tissue/muscle massage device indicates that the '482 Patent is directed to and describes what is known as a percussive massage gun (which name comes from the pistol-style handle common on these devices) or simply a percussive massager. This is consistent with the claims as issued, which specify a “percussive massager.” FIG. 2 and 3 of the '482 Patent are provided below and show the general features of the described percussive massager.

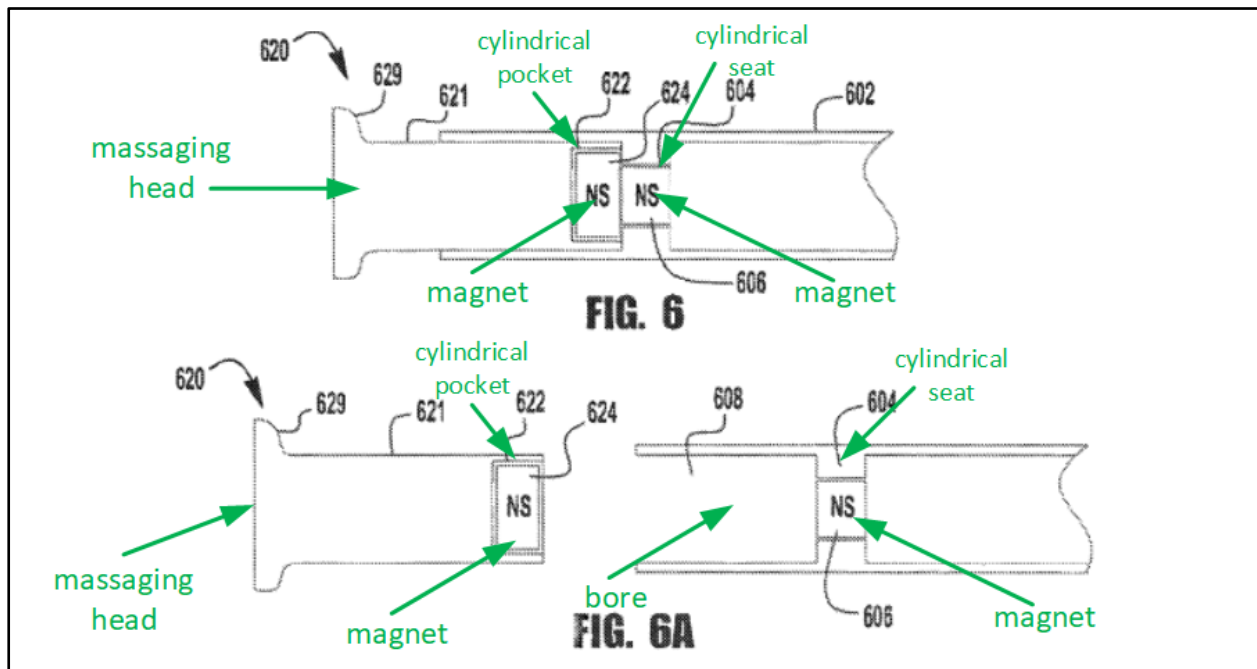


46. The '482 Patent also allows users to “quickly switch massaging heads” of its percussive massager by using a “quick-connect system.” *Id.*, 6:47-7:14. According to the '482 Patent, the quick-connect system “allows a user to quick switch massaging heads” and “may be used without turning off the massaging device 100,” including “even while the piston 608 is moving.” *Id.*

47. Consistent with this disclosure, challenged claim 34 of the '482 Patent recite, among other things, a quick release connector. For example, claim 34 of the '482 Patent recites “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.”

48. The '482 Patent provides an exemplary embodiment of the quick-connect system 600, which is synonymous with the recited quick release connector, illustrated in FIG. 6 and 6A. *Id.*, FIGS. 6-6A. The '482 Patent describes a piston 602 and a massaging head 620. *Id.*, 6:47-56. The distal end of the piston 602 has a hollow-end bore 608 for receiving the shaft 621 of the massaging head 620. *Id.* A cylindrical seat 604 is located within the bore 608 of piston 602, and the cylindrical seat 604 retains a magnet 606 to assist in holding the massaging head 620 to the piston 602. *Id.*, 6:47-7:3. The massaging head's 620 structure includes a shaft 621 having a cylindrical pocket 622 at its distal end that retains a magnet 624. *Id.*, 6:63-65. As explained in the '0482 Patent, the magnet 606 in the piston 602 is positioned "with its north pole ... facing toward the opening in [the] bore 608" while the magnet 624 in the massaging head 620 is "positioned so that its south pole is located at the distal end of shaft 621." *Id.*, 6:60-67, FIGS. 6-6B. "Accordingly, when the shaft 621 of massaging head 620 is slid into the opening in [the] bore 608, the magnets 606 and 624 are attracted to one another and magnetically hold [the] massaging head 620 firmly in place." *Id.*, 6:67-7:3.

49. FIG. 6 and 6A of the '082 Patent are reproduced below with annotations showing many of these features and elements.



50. The '482 Patent also explains that “To remove [the] massing head 620, a user need only apply a sufficient amount of force to separate the two magnets 606, 624.” *Id.*, 7:4-6. “The strength of the magnets 606, 624 are sized to prevent the massaging head 620 from separating the piston 602 during normal use, and yet allow a user to quickly remove and replace the massaging head 620.” *Id.*, 7:6-9. The '082 Patent also explains the end of the massaging head may be shaped to allow it “to easily slip into the opening 608 even while the piston 608 is moving.” *Id.*, 7:9-14

B. Relevant Prosecution History of the '482 Patent

51. I reviewed the prosecution history of the application that eventually issued as the '482 Patent. For convenience, I will refer to the application that led to the '482 Patent simply as the '482 Patent.

52. I understand that each of the references cited in the Petition—Mabuchi, Harris, and Pivaroff—were submitted to the USPTO by the applicant and considered by the Examiner before he allowed the '482 Patent. Ex. 1004, pp. 1167-84, 2207-24.

53. In the last Office Action prior to the patenting being allowed (See July 6, 2023, Final Office Action, Ex. 1004, pp. 2455-73) the Examiner cited the previously relied-upon teachings of Pivaroff (as a primary reference) in combination with the teachings of Rhoades (regarding the use of magnetic attractive forces for connection mechanisms). *See id.*, pp. 2458-59.

54. In response to this Office Action, the applicant amended the preamble of every claim from “An apparatus comprising...” to “A percussive massager comprising...” and added new claims 35-65, each of which also recited “A percussive massager comprising....” *See id.*, pp. 2524-2531. In the argument section of the response, the applicant stated that “Pivaroff is directed to a deep muscle stimulation device” and that “Rhoades is directed to a cosmetic instrument (e.g., a microderm abrasion device) that is not a percussive massager, as recited in the claims.” *Id.*, p. 2534. The applicant, later in the same response, reiterated that “Rhoades’ apparatus is a cosmetic instrument, not a ‘**percussive massager**’ ... as recited in amended claim 1.” *Id.*, p. 2536 (**emphasis** in original). Addressing new

claims 38-65, the application stated that “Independent claim 38² recites a percussive massager” before addressing Pivaroff and Rhoades and the applicant’s previous remarks regarding the rejection of claim 1. *Id.*, pp. 2537-38.

55. I understand that every claim term is to be considered and that every claim amendment is to be considered as well. Because the applicant specifically amended the claims to recite a “percussive massager” instead of merely a generic “apparatus,” and moreover because the applicant then specifically pointed out that one of the cited references, Rhoades, was not a percussive massager, it is my opinion that a POSITA would understand that the claims in the ’482 Patent are limited to a percussive massager and specifically not to a cosmetic instrument, such as that disclosed in Rhoades and that the same argument would encompass Mabuchi (discussed below).

56. It is further my opinion that the scope of the claims of the ’482 Patent being limited to a “percussive massager” provides a POSITA additional context and scope that would allow a POSITA to further understand the ’482 Patent’s recitation of other components and elements, such as “massaging head,” “piston,” “motor,”

² Challenged Claim 34 corresponds to as-filed claim 38 referenced in the discussion of the prosecution history.

“drive mechanism,” and “quick release connector.”³

C. Claim Construction

1. “Percussive Massager”

57. In my opinion, the term “percussive massager” is not given any special or particular definition in the ’482 Patent; rather, it is used according to its normal meaning. In relevant part, the ’482 Patent explains that “This invention relates ... more particularly[] to a deep-muscle stimulating device used to increase muscle metabolism, increase the lactic acid cycle and relieve pain” and describes using different stroke lengths to “work on larger or smaller muscle groups, or deeper or shallower point of stress or soreness in the muscles.” Ex. 1001, 1:22-25, 7:20-23. This description of the invention of the ’482 Patent is consistent with my understanding of percussive massagers generally as described above. Accordingly, in my opinion, a POSITA would understand that the plain and ordinary meaning⁴ of percussive massager is a device that provides a high-speed, long stroke action to

³ I provide this list as a non-exhaustive example, as I understand that each of the claim terms of the ’482 Patent are to be read in view of the claim’s preamble.

⁴ I am informed that the “plain and ordinary meaning” of a claim term is the ordinary and customary meaning as would be understood by a POSITA in the context of the patent and its prosecution history.

massage deep muscle tissue and most commonly is electromechanically driven.

58. As explained above, percussive massagers differ from vibration massagers primarily because vibration massagers have very small, almost zero, stroke length, creating a surface level “buzzing” sensation. On the other hand, percussive massagers have sufficient stroke to reach and massage deep muscle tissue. *See generally* Ex. 2020, 2021, and 2027. The ’482 Patent is consistent with this understanding by relating the stroke length of its percussive massager to its muscle massaging ability, stating that “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. In other words, the ’482 Patent confirms that the stroke length of the massaging head directly affects the resulting deep muscle massage.

2. **“Massaging Head”**

59. In my opinion, the term “massaging head” is used in the ’482 Patent consistent with its plain and ordinary meaning as 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. In particular, the ’482 Patent directly ties the “massaging head” to the muscle massaging effect, describing that different massaging heads “work on different muscles or different portions of muscles during the massage.” Ex. 1001, 6:51-53. In other words, while different massaging heads

may be designed to work on different muscles or portions of muscles, each massaging head is for massaging muscle.

V. PERSON OF ORDINARY SKILL IN THE ART

60. I am informed and understand that, in the field of patent law, a POSITA is a hypothetical person who is presumed to have known the relevant art at the time of the invention. I understand that the facts that may be considered in determining the level of ordinary skill in the art include: (a) the types of problems encountered in the art; (b) prior art solutions to those problems; (c) the rapidity with which innovations are made; (d) the sophistication of the technology at issue; and (e) the educational level of active workers in the field.

61. I am informed that the “time of invention” I should use for the purpose of providing my opinions in this declaration is July 1, 2013. Although my opinion would not change if this date were to be changed by a few years.

62. It is my opinion that the relevant field of art is percussive massage devices that apply a percussive force to a selected portion of a body sufficient to massage deep muscle tissue. *See* Ex. 1001, 1:22-25, 6:53-56, 7:4-13.

63. It is further my opinion that a person of ordinary skill in the art (“POSITA”) as of 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. It is my opinion that I qualified (and continue to qualify) as a person of ordinary skill in the art under this definition as of at least July 1, 2013, and at all times until present.

64. In forming my opinions expressed in this declaration, I relied upon my knowledge, skill, experience, training, and education in the relevant field of the art, and all of my opinions presented herein are considered from the viewpoint of a POSITA at the time of invention. My opinions, therefore, represent the view of a POSITA as of July 1, 2013.

65. I understand that Petitioner alleges that a POSITA would have had: 1) a bachelor's degree in mechanical engineering or related field; and 2) two-to-three years of experience in the research, design, development, or testing of *rotating or reciprocating mechanisms*. Pet., p. 15 (*emphasis added*). I disagree. It is my opinion that Petitioner's identification of "rotating or reciprocating mechanisms" is vague and overly limiting, as such properties fail to account for the broader category of percussive massagers and consumer product design. The '482 Patent's specification specifically notes that the inventions are made in light of how a consumer/user would interact with the percussive massager. *See* Ex. 1001, 3:45-57, 4:5-14, 6:53-56, 7:4-14, 9:17-21. The level of ordinary skill in the art should, therefore, account for more than just "rotating or reciprocating" functionality, which is only one part of the described and claimed percussive massagers but should focus

on the overall percussive massager and the particular features and configurations of the percussive massager as described and claimed in the '482 Patent.

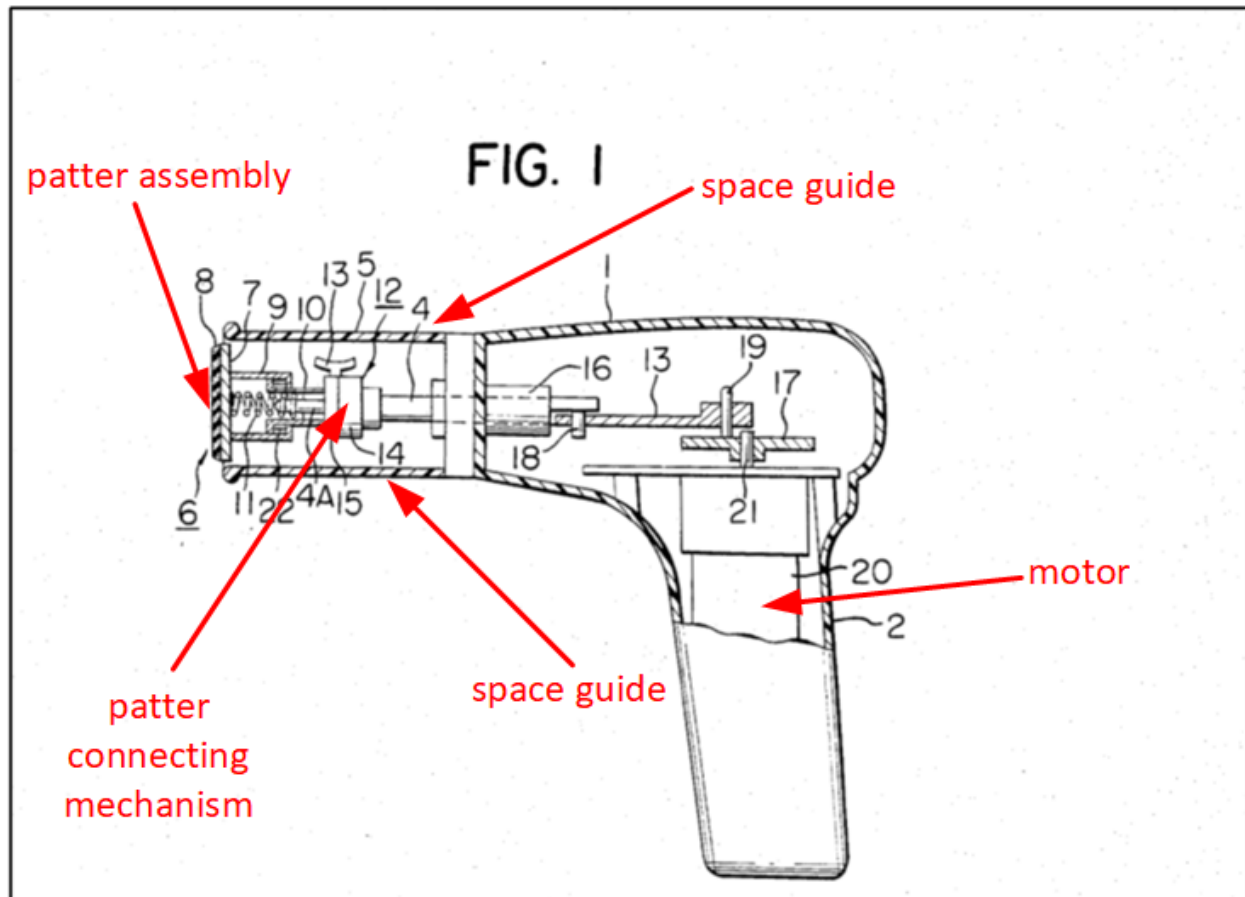
66. Nevertheless, I was qualified (and continue to qualify) as a person of ordinary skill in the art under this definition as of at least July 1, 2013, and at all times until present even under Petitioner's proposed level of ordinary skill in the art.

VI. THE CITED REFERENCES

A. Mabuchi (Ex. 1005)

67. Mabuchi describes and is directed toward a “beauty treatment device.” Ex. 1005, Abstract. Mabuchi distinguishes its device for “beauty treatment to repeatedly tap or pat the skin surface” from “[a] vibrator [that] only presses and/or kneads the skin, causing the skin to stretch” and a “conventional patting device, which is intended mainly for the massage of muscular tissues.” *Id.*, 1:13-29. I understand from sources, such as <https://training.seer.cancer.gov/anatomy/muscular/>, which is a U.S. government / National Institute of Health website, that “The muscular system is composed of specialized cells called muscle fibers.” Thus, I understand that Mabuchi's reference to “muscular tissues” to refer to muscle fibers or tissue. Thus, Mabuchi expressly contrasts its beauty treatment device with devices “intended mainly for the massage of the muscular [muscle] tissues, not for the beauty treatment of skin,” which Mabuchi describes as “massagers.” *Id.*, 1:24-28.

68. FIG.1 of Mabuchi is provided below with annotations and illustrates the fully assembled beauty treatment device.



69. Mabuchi focuses on two primary features of its beauty treatment device: the space guide (indicated by 5) and the pater assembly (indicated by number 6).

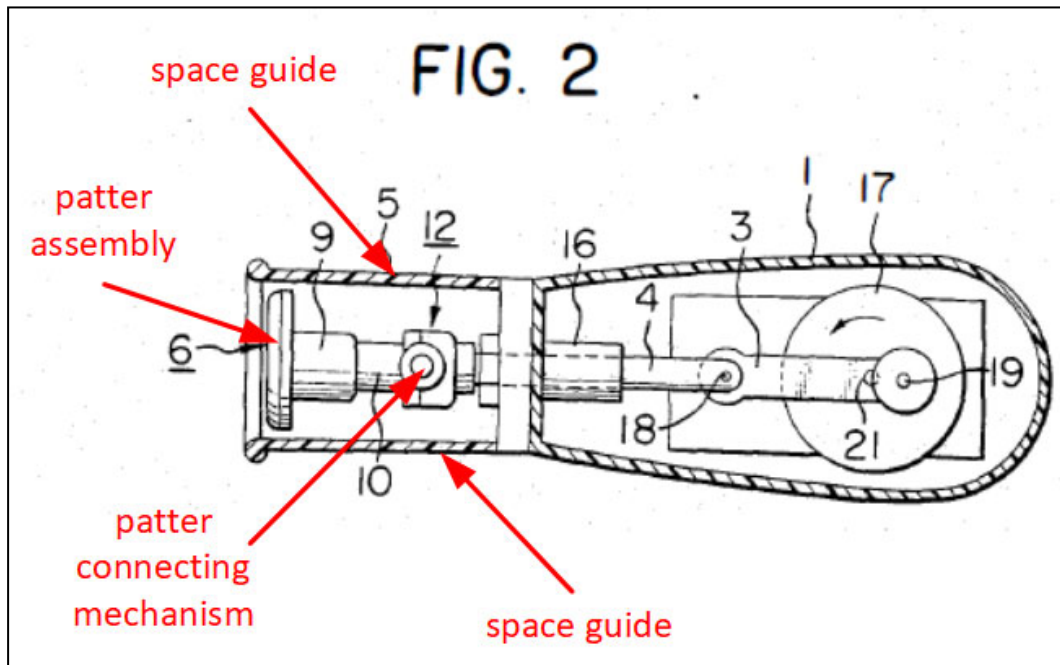
70. Mabuchi explains that the space guide 5 is designed to “maintain a distance between a device body and the skin surface being patted” because “[i]n the absence of the space guide 5, the patting intensity of the pater assembly 6 would become unstable due to the variability of the distance with service conditions ...

[which] would cause both the plate member 7 and the cushion member 8 to be kept in contact with the skin surface at all times to exert a pushing force onto the skin surface, rather than patting the skin.” *Id.*, 1:36-39, 5:39-51. In short, I understand that the space guide 5 ensures that as the padder assembly 6 moves back and forth (reciprocates), it does not remain in contact with the user’s skin but is removed from the skin each stroke. This is consistent with Mabuchi’s remarks regarding a vibrator in its introduction, which Mabuchi explains “only presses and/or kneads the skin, causing the skin to stretch” which “may result in loosening of the skin or wrinkles in some cases.” *Id.*, 1:21-23.

71. Mabuchi also describes changing the padder assembly 6 via the padder connection mechanism 12. *Id.*, 5:60-69. In use, that is, when the space guide 5 is attached to the device body, the space guide 5 entirely surrounds the padder connection mechanism 12 as shown in FIG 1 (above with annotations) and FIG. 2 (below with annotations). The various embodiments of the padder connection mechanism 12 each require physical manipulation by the user. *See, e.g., id.*, FIG. 8-9 (button 13) and FIG. 10-12 (pushbutton 30), FIG. 13-14 (rotation of padder slide tube 10⁵), FIG. 15-16 (pushbuttons 40 and 41), FIG. 17 (rotation of padder slide tube

⁵ Mabuchi states that “When disengaging the padder assembly 6 from the actuator 4, the padder slide tube 10 or the actuator 4 in the state shown in FIGS. 13 and 14A is

10), and FIG. 18-19 (rotation of flange 15⁶). These components are covered by the space guide 5 when it is installed, and thus, the space guide 5 must be removed so that the user could manipulate these components to change the pater assembly 6.



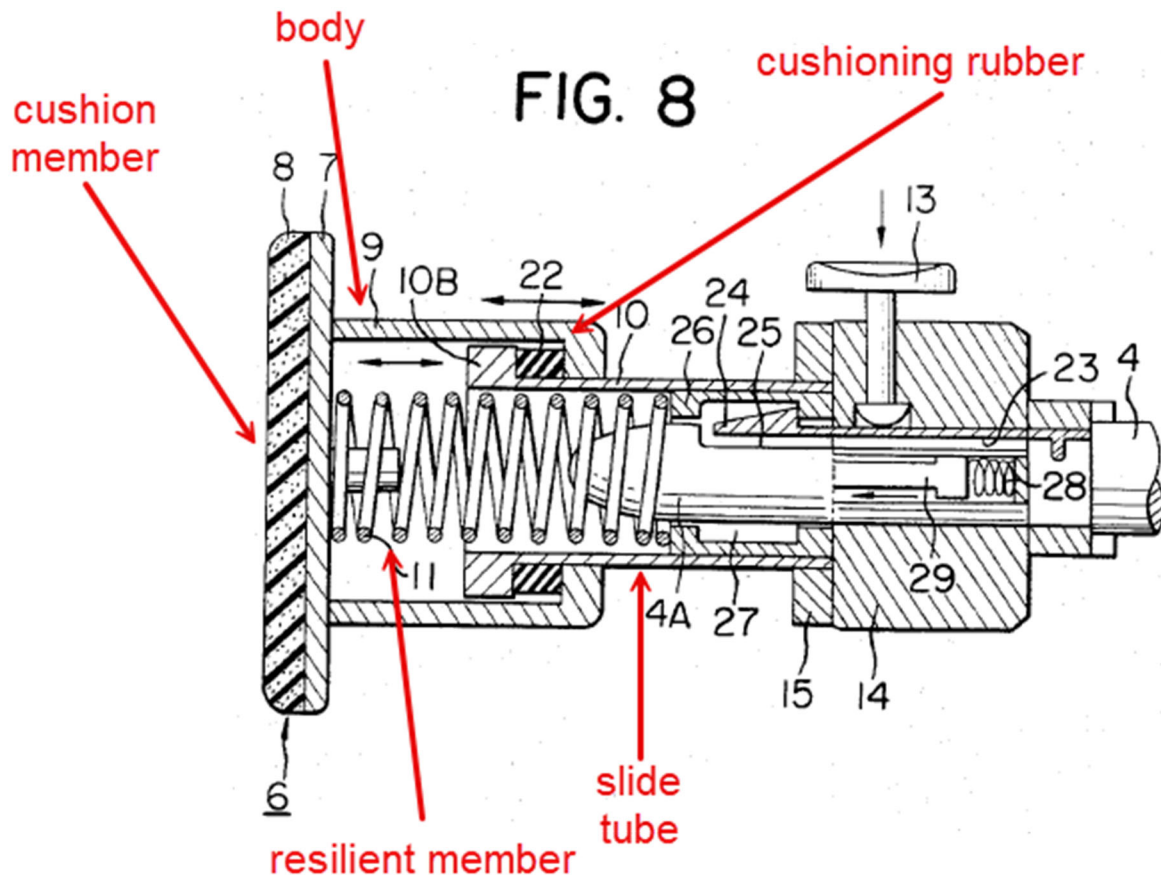
turned 90 to obtain the state shown in FIG. 14B.” Ex. 1005, 7:23-28. To turn either the actuator 4 or the pater slide tube 10 in relation to the other requires that both be gripped and held.

⁶ Similar to FIG. 13 and 14, Mabuchi states that “To change the pater assembly 6, the coupling 14 or the flange 15 or both are turned in either direction shown by arrows shown in FIG. 19.” *Id.*, 8:18-20. Again, this would require both the flange 15 and the coupler 14 be held and rotated in relation to each other.

72. Additionally, half of the patter connection mechanism 12 remains with the device (and, thus, inside the space guide 5 unless it is removed). A user would not be expected to change the patter assembly 6 by inserting it into the remaining half of the connection mechanism 12 attached to the device with the space guide 5 in place because the user would have difficulty seeing the connection mechanism and have difficulty placing the other half of the connection mechanism 12 into its complimentary piece if the actuator 4 was towards the rotating disc 17. In more detail, every embodiment (with the exception of the threaded connection shown in FIG. 17, discussed below) of the patter connection mechanism 12 features the patter slide tube 10 of the patter assembly 6 being slid around the actuator 4 (more accurately the actuator head 4a). *See id.*, FIGS 8, 10, 13, 15, 18. With the space guide 5 in place, the actuator head 4a would be obscured by the guide 5 while the user was attempting to slide the patter assembly 6 around the actuator 4a (or threading them together as in FIG. 17). This would frustrate the user and be contrary to Mabuchi's desire for "easy" swapping of the patter assemblies 6 if the space guide 5 were in place when attaching the patter assembly 6. *See id.*, 6:50-51, 7:28-30, 8:40-43. Thus, it is my opinion that a POSITA would understand that Mabuchi's space guide 5 must be removed from the device body so that the patter assembly 6 could be replaced.

73. Also relevant to Mabuchi's function as a beauty treatment device,

Mabuchi's end piece, embodied as the pater assembly 6, is a complex mechanism, multi-component designed to avoid applying a pushing force to the user's skin. *Id.*, 4:37-57, 5:33-38; FIG. 8 (below with annotations). In use, the actuator 4 moves the pater slide tube 10 to the left (in the figure), and the movement of the pater slide tube 10 is transmitted to the body 9 via the resilient member 11 (shown as a spring) so that the cushioning member 8 contacts the skin surface. *Id.*, 2:58-3:5. On the return stroke, the pater slide tube 10 moves to the right (in the figure), and the flange 10B of the pater slide tube 10 contacts the pater body 9 to move it away from the skin surface. *Id.*, 3:5-12.



74. The combination of the complex patten assembly 6 and the space guide 5 avoid “exert[ing] a pushing force onto the skin surface, rather than patting the skin.” *Id.*, 5:46-50. Mabuchi explains the space guide 5, in combination with the stroke length of the actuator 4 and the resilient member 11, ensure that the cushion member 8 pats the skin. *Id.*, 4:28-37. Once the cushioning member 8 contacts the skin surface at the end of the space guide 5, the patten body 9 is “prevented from [sic, from] being moved leftward by the skin surface,” and the patten assembly 6 compresses (*e.g.*, shortens) via the resilient member 11. *Id.*, 4:48-57. Operating together, the space guide 5 and the patten assembly 6 ensure that Mabuchi’s beauty treatment device has an effective stroke length of zero or near zero when in contact with the skin—that is, it does not press into the user’s body beyond the open end of the space guide 5.

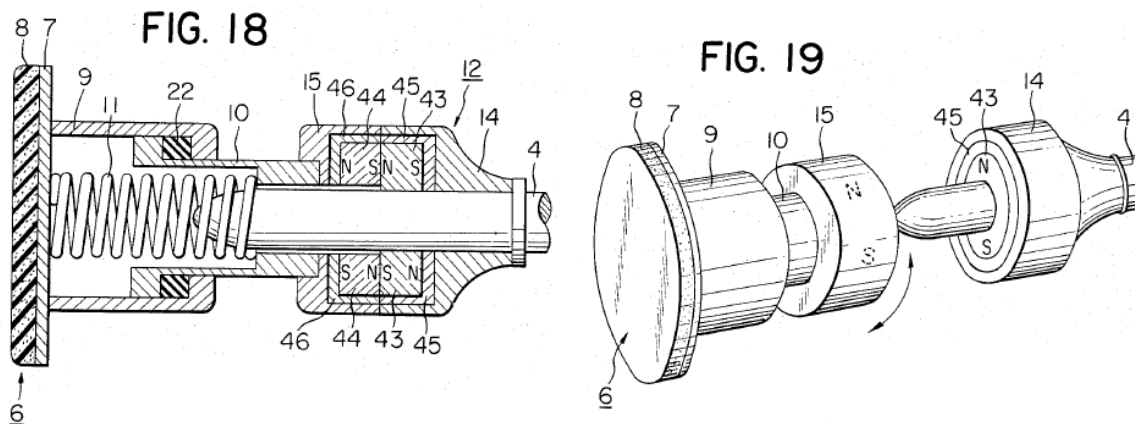
75. The Petition relies on the example patten connection mechanism including “the magnets 43 implanted in the coupling 14 and the magnets implanted in the flange 15 [that] are connected to each other by attracting force cause by different polarities on the two magnets 43 and 44.” *Id.*, 8:11-15. According to Mabuchi, “[t]o change the patten assembly 6, the coupling 14 or the flange 15 or both are turned in either direction shown by arrows in FIG. 19. By turning 180° in FIG. 19, for example, the magnet 43 implanted in the coupling 14 and the magnet 44 implanted in the flange 15 are repulsed with each other due to repulsion force

caused by the same polarities, causing the pater assembly 6 to separate from the actuator 4.” *Id.*, 8:18-25.

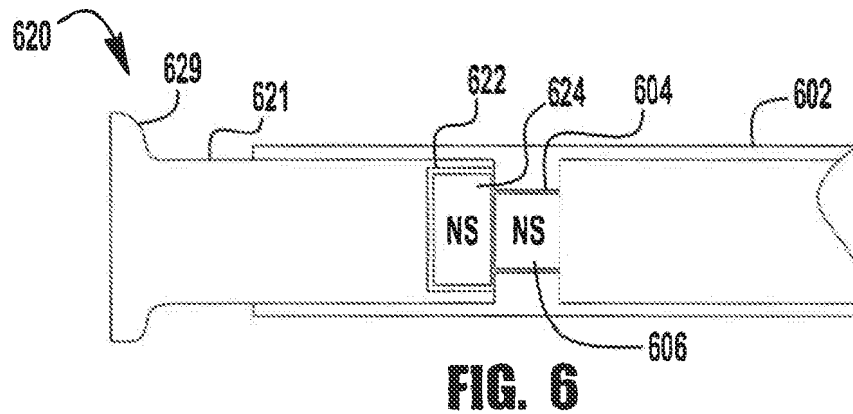
76. As can be seen in both FIG. 18 and 19 of Mabuchi (both reproduced below), the magnets 43 and 44 are radially oriented alternating polarity magnets such that the magnet 44 has north facing left and south facing right on the top half of the magnet 44 while the bottom half has a south pole facing left and the north facing right. The poles of the magnet 43 are shown to be opposite to those of the magnet 44. *See also id.*, FIG. 18, Ex. 1002, para. 61. Due to the radial pole arrangement, explained in Mabuchi, the rotational (or angular) alignment between the coupling 14 and the flange 15 determines whether the coupling 14 and the flange 15 are attracted to each other (for connection) or repulsed from each other (for disconnection). *Id.*, 8:18-25, 8:40-43. In other words, the angular orientation of the pater assembly 6 with respect to the coupling 14 determines if the pater assembly 6 is attracted to the coupling 14 or repulsed from the coupling 14.⁷ Absent some intentional marking or coloring, both magnet poles look the same. In other words, a user would not be able

⁷ In embodiments of the '482 Patent, the magnets 606/624 are axially magnetic with their opposite poles facing in the assembly/disassembly direction such that they can be connected regardless of rotational alignment. *See, e.g.*, Ex. 1001, 6:61-7:3, FIG. 6.

to determine how to align the flange 15 with respect to the actuator 4 / flange 14 by looking at the magnets 43 /44 but would have to use trial-and-error to connect the two components.



77. Of note, one embodiment of the quick-connect system shown and described in the '482 Patent includes two opposing magnets. Ex. 1001, 6:61-7:3, FIGS. 6-6B (FIG. 6 is reproduced below). Different from Mabuchi, however, the magnets in the '082 Patent are arranged with their different poles facing in the connection direction of the massaging head 620 and the piston 602. Thus, connection of the massaging head 620 with the piston 602 occurs regardless of the angular orientation of these two components. In other words, the user would be able to insert the massaging head 620 into the piston 602 and be assured that the magnets 624 / 606 would attract each other every time regardless of the massaging head's angular orientation.



B. Harris (Ex. 1006)

78. Harris is directed to a “hand held percussive massager with adjustable nodes.” Ex. 1006, Title. Harris states that its “object of the present invention [is] to provide a hand-held massager having both vibratory and percussive massage capabilities ... to deliver an effective therapeutic massage.” *Id.*, 1:33-38. Consistent with the express disclosure of Harris, and as explained above, I understand that Harris discloses and describes a consumer level percussive massager.

C. Pivaroff (Ex. 1007)

79. Pivaroff describes a deep muscle stimulator device “to increase muscle metabolism, increase the lactic acid cycle and to relieve pain.” Ex. 1007, 1:5-10. Pivaroff contrasts its “deep muscle stimulator device” with “vibrating massage-type devices [] known for use on different portions of a person’s body, to help relieve stress, or tightened muscles” and other “known prior art devices [that] do not reach deep enough into the muscle tissues to provide the necessary relief for many persons” because these prior devices “do not vibrate at high enough speeds and/or

do not provide sufficient force to reach deep muscle tissues.” Ex. 1007, 1:11-26.

In my opinion, Pivaroff is directed to a percussive massager, similar to the ’482 Patent. *Compare* Ex. 1001 (’482 Patent), 1:22-25 (“This invention relates generally ... to a deep muscle-stimulating device used to increase muscle metabolism, increase the lactic acid cycle and relieve pain.”) *with* Ex. 1007 (Pivaroff), 1:5-49 (“This invention relates generally ... to a deep muscle stimulator device to increase muscle metabolism, increase the lactic acid cycle and to relieve pain.”).

80. Pivaroff’s disclosure concludes by explaining that “the deep muscle simulation [sic, stimulation] device of the present invention has been developed for use by professionals in the chiropractic, medical and physical therapy fields. These professionals may also include massage therapists, rehabilitation providers and sports trainers in all athletic disciplines.” *Id.*, 3:65-4:3. Thus, in my opinion, and as explained above, and different from the ’082 Patent, Pivaroff is directed to a *professional grade* percussive massager intended for use by “professionals in the chiropractic, medical and physical therapy fields” and not by the consuming public.

81. The most important feature of Pivaroff’s deep muscle stimulation device is its hollow head 44 that is partially filled with granular material to provide deep muscle relief. *Id.*, 2:55-3:30. Pivaroff describes that “improved and extraordinary results are obtained by using a mixture of 10 grains of diamond, 25

grains of ruby, 200 grains of copper and 100 grains of carbon for a total of 335 grains of material” in the head 44. *Id.*, 3:20-23. According to Pivaroff, “[a]lthough no explanation can be given for these surprising and unexpected results,” the hollow head and partially-filled grain design is critical to providing deep muscle stimulation. *Id.*, 3:20-29. Pivaroff also states that “it appears that somehow the movement of the mixed grains of material within the interior hollow chamber made from titanium, during reciprocally motion thereof, is transferred to a patient's body in an affected deep muscle area to produce improved and superior deep muscle relief.” *Id.*, 3:25-30.

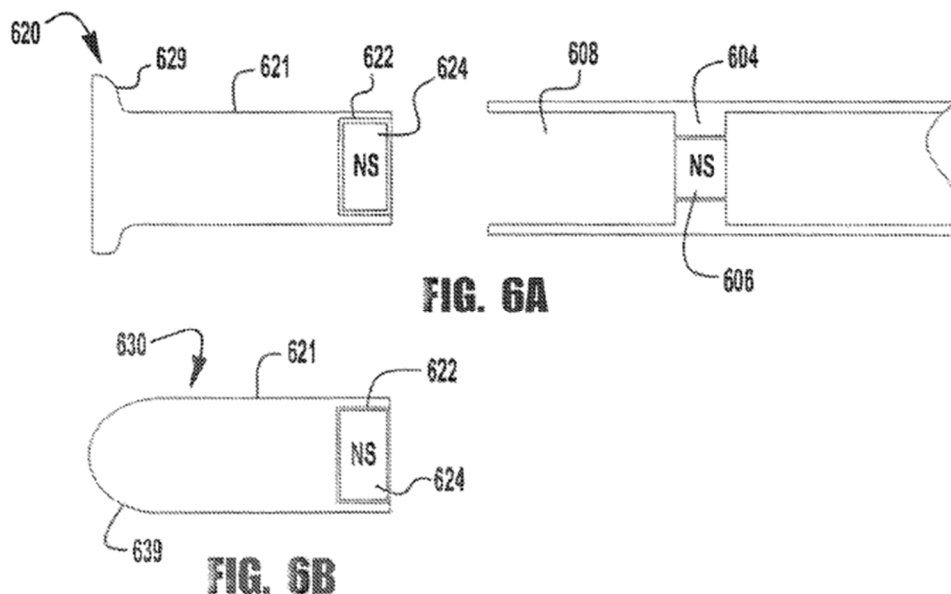
82. Pivaroff's percussive massager “operates at a speed of between about 2000 to 3600 RPM ... to provide sufficient percussion and mechanical vibrations against a portion of a patient to which it is applied by a user, to provide the deep muscle tissue within the patient's body with kinetic forms of percussion and concussion vibration.” *Id.*, 3:44-54. The movement length (*i.e.*, stroke length) of the head 44 is designed “to provide maximum concussion and percussion, and, therefore, maximum muscle relief.” *Id.*, 3:61-64.

83. I understand that the teachings of Pivaroff were extensively considered, and overcome, during prosecution of the '482 Patent. *See, e.g.*, Ex. 1004, pp. 2587-95.

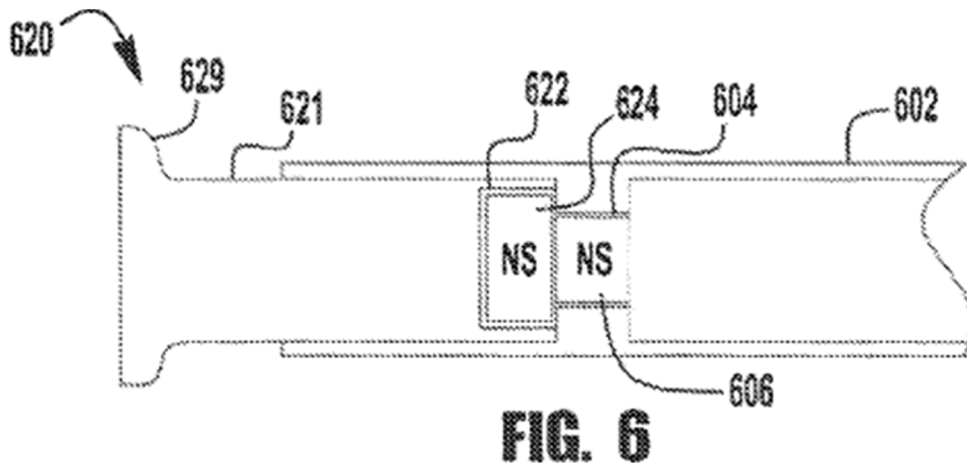
VII. § 112 GROUNDS

A. Ground 1A

84. In my opinion, a POSITA would understand that the '482 Patent fully supports the “first massaging head” having a “pocket to receive the quick release connector” limitation. The '482 Patent illustrates, in FIG. 6A and 6B, (below), two embodiments of massaging heads 620 and 630, each of which has a “cylindrical pocket 622 at the distal end” and a magnet 624 within the pocket 622. Ex. 1001, 6:63-65.

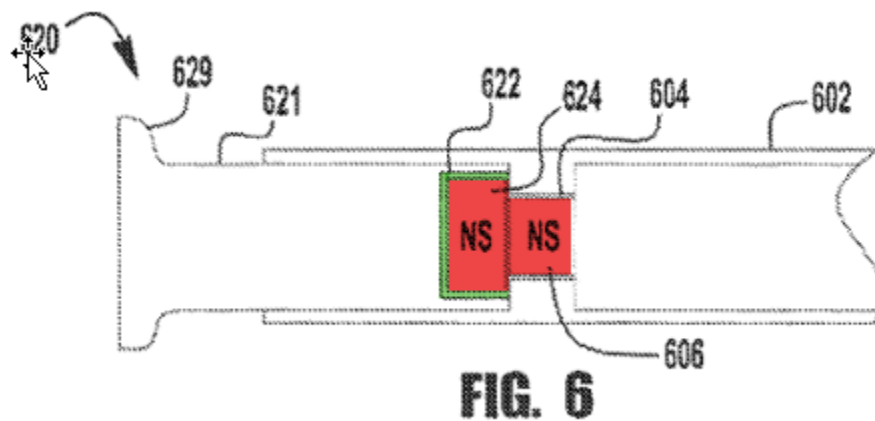


85. The '482 Patent also illustrates, in FIG. 6 (below), the quick-connect system in operation, with the cylindrical pocket 622 in the massaging head 620 receiving the quick release connector (magnets 624 and 606).



86. Also, in my opinion, a POSITA would readily understand that the pocket 622 in the massaging head 620 (annotated in green, below) receives⁸ at least one-half of the quick release connector (annotated in red, below) consisting of two oppositely arranged magnets 624/606, which disclosure fully supports the claimed embodiment of “wherein the first massaging head has a ... pocket to receive the quick release connector.” However, a POSITA would also readily understand that the pocket 622 in the massaging head 620 (annotated in green, below) receives the entire quick release connector (annotated in red, below) because the pocket 622 *contains* and *holds* at least the magnet 624 and the magnetic forces *hold* the magnet 606, which is consistent with the recitation of “to receive” in claim 34.

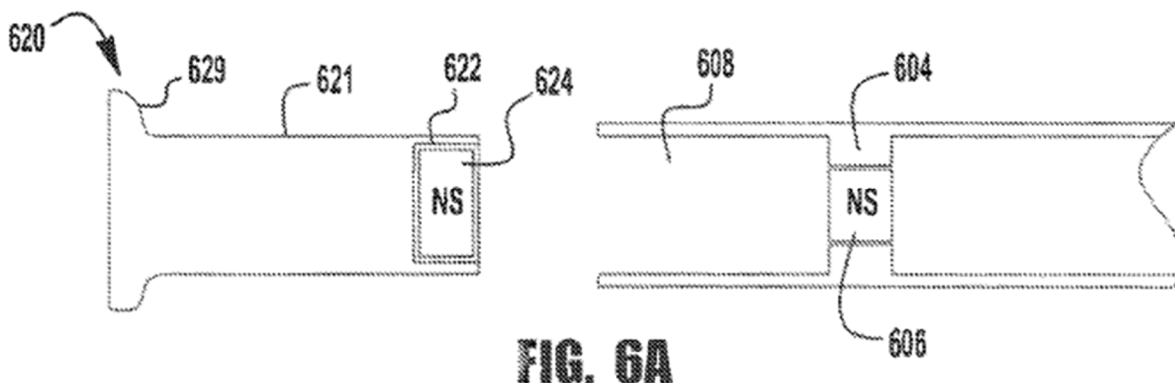
⁸ “Receive” may be defined as “to hold, bear, or contain.” Ex. 2016.



87. In my opinion, a POSITA would fully understand the “first massaging head” having a “pocket to receive the quick release connector” limitation based on the ’482 Patent.

B. Ground 1B

88. In my opinion, a POSITA would understand that the ’482 Patent sufficiently describes the “substantially cylindrical pocket” limitation. The ’482 Patent states that the “[m]assaging head 620 includes a shaft 621 having *a cylindrical pocket 622* at the distal end.” *Id.*, 6:63-64 (*emphasis* added); FIG. 6A (below).



89. Moreover, the term “substantially” does not affect my opinion. I understand that the term “substantially” is commonly used in patents to avoid strict numerical boundaries and simply means “approximately.” In my opinion, a POSITA would understand that a “substantially cylindrical pocket” is simply a pocket that is cylindrical or approximately cylindrical such that minor variations in a cylindrical shape fall within the scope of the claim as long as the pocket still performs its intended function of receiving the quick release connector. In manufacturing, this tolerance is referred to as cylindricity, which is the range of allowable variation in a cylindrical shape that allows it to be assembled and perform its intended function. *See* Ex. 2017.

90. Thus, in my opinion, a POSITA would understand that the ’482 Patent reasonably conveys to them that the inventor had possession of this element of the claimed invention—a substantially cylindrical pocket to receive the quick release connector.

C. Ground 1C

91. In my opinion, a POSITA would understand that the ’482 Patent fully supports the “quick release connector” limitation. First, the ’482 Patent provides a detailed explanation of one embodiment of such a quick connect system embodied as a pair of opposing magnets. *See* Ex. 1001, 6:57-7:3, FIG. 6; *see also id.* at 2:7-11, 3:35-36, 42-45, FIGS. 1-3. The ’482 Patent explains, in detail, how this embodiment

operates and provides a full description to the reader.

92. In addition, quick connects, which is synonymous with the quick connect system and quick release connector as described and claimed in the '482 Patent, are known by a few different names including quick connect fittings, which are a well-known class of connectors that feature male and female components that can be attached and detached without the use of tools. *See* Ex. 2024, 2025. To this point, Dr. Pratt provides numerous examples of quick connect fittings or connectors in his report. Ex. 1002, paras. 53-64.

93. In my opinion, a POSITA would fully understand the quick release connector limitation based on the '482 Patent and the existing knowledge of those skilled in the art, such as was confirmed by Dr. Pratt.

D. Ground 2

94. Ground 2 is similar to Ground 1B, discussed above. As I explained, it is my opinion that a POSITA would understand that the “substantially cylindrical pocket” is simply a pocket having a cylindrical or approximately cylindrical shape that can receive the quick release connector. In my opinion, a POSITA would understand that the '482 Patent reasonably conveys to those skilled in the art that the inventor had possession of this element of the claimed invention—a substantially cylindrical pocket to receive the quick release connector.

VIII. § 103 GROUNDS

A. Ground 3: Mabuchi

1. Claim Element 34[pre]

95. The preamble of claim 34 recites “a percussive massager.” As explained above, it is my opinion that a POSITA would understand that the preamble of the claims in this patent acts as a claim limitation. It is also my opinion that Mabuchi does not disclose, teach, or suggest a percussive massager as required by the claims.

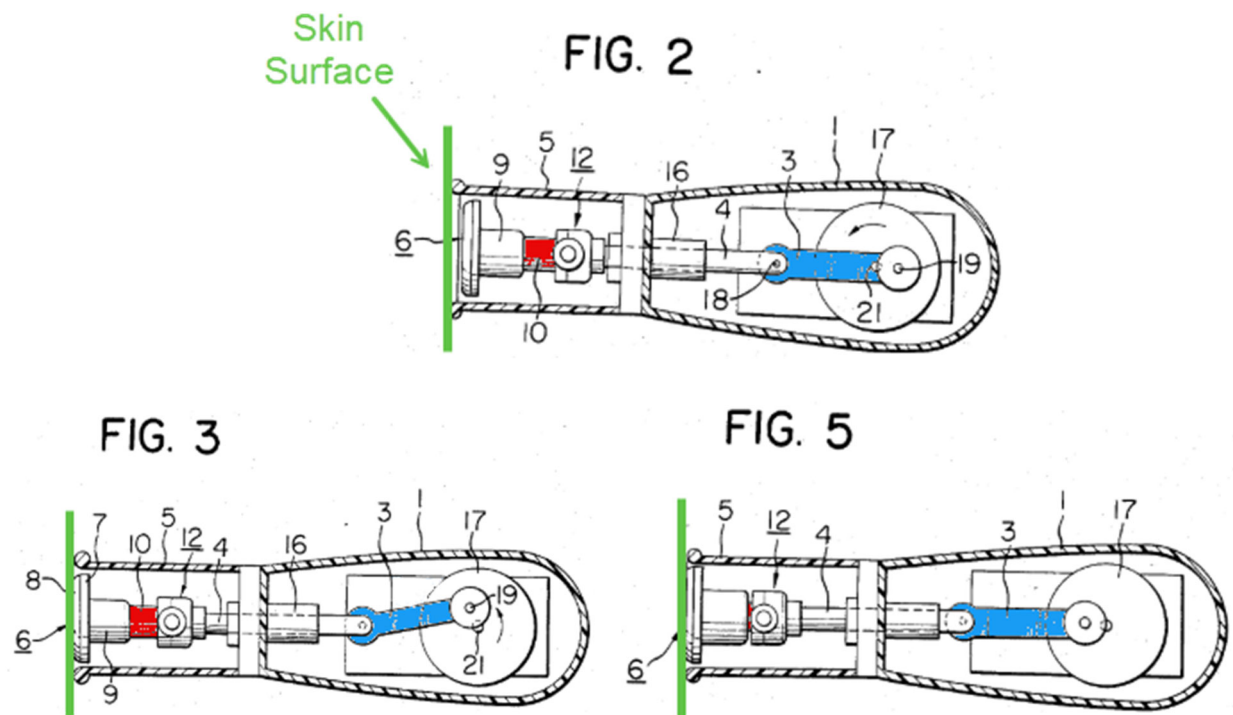
96. As explained in Section VI.A, above, Mabuchi explicitly contrasts its beauty treatment device / cosmetic patting device from both standard vibrators and massagers for muscular (muscle) tissue. Ex. 1005, 1:16-28. According to Mabuchi, vibrators remain in contact with the user’s skin during use, rather than patting and disconnecting each stroke as in Mabuchi’s device, and massagers are for muscle massage and “not for beauty treatment of the skin,” which I understand to refer to at least the long stroke of such devices to massage deep muscle tissue. *Id.* Mabuchi explains that its device can, at most, “remove subcutaneous fat, stimulate subcutaneous muscular tissues and prevent the skin from loosening or wrinkling by patting the skin surface.” *Id.*, 5:52-56. I understand that Mabuchi’s reference to “subcutaneous muscular tissues” would refer to the muscle very near to the skin and directly under the outermost layer of skin, referred to the dermis, such that this

passage of Mabuchi, in my opinion, confirms that it is designed to stimulate (not even massage) only the fat and muscle directly under the skin not massage any deep muscle tissue as would be required by a percussive massager.

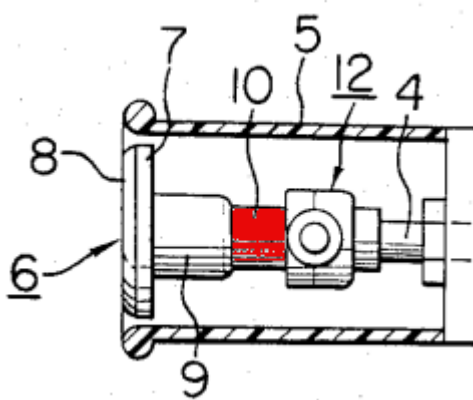
97. Further, Mabuchi is specifically designed to avoid operating as a percussive massager. Mabuchi explains that it is particularly designed to “pat[] the skin” rather than “exert a pushing force onto the skin surface.” *Id.*, 5:33-38. Mabuchi also explains that it can used to “stimulate subcutaneous muscular tissues and prevent the skin from loosening or wrinkling by patting the skin surface.” *Id.*, 5:52-56.

98. To achieve its design goals and intent of patting the skin rather than pushing the skin, Mabuchi has a space guide 5 and a pater assembly 6 with an internal spring that operate together to ensure that the effective stroke length of the Mabuchi’s pater assembly 6 is zero (*i.e.*, its pater assembly 6 does not extend beyond the open end of the space guide 5 when applied to the skin) as applied to a user’s skin. FIG. 2, 3, and 5 of Mabuchi (reproduced below with annotations) illustrate the movement of the pater assembly 6 when applied to a user’s skin. FIG. 2 shows the device placed on the user’s skin at open end of the space guide 5 while the pater assembly 6 is retracted into the space guide 5. Ex. 1005, 4:11-15. FIG. 3 shows the pater assembly 6 advancing toward the open end of the space guide 5 and contacting the user’s skin surface at the open end of the space guide 5.

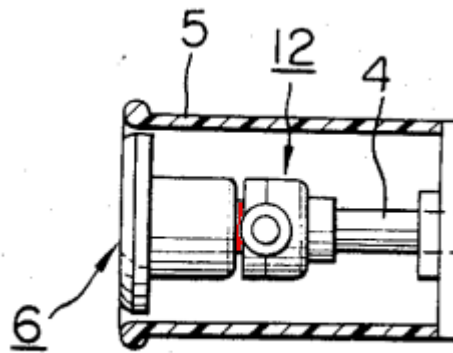
Id. As shown in FIG. 5, as the actuator 4 continues to advance to its farthest extent, the padder assembly 6 compresses via its internal spring 11 such that “[t]he padder body 9 of the padder assembly 6 [] is prevented from [sic] being moved leftward by the skin surface [and] **remains at the same position** during the time from the moment at which the padder assembly 6 of FIG. 3 strikes the skin surface to the moment at which the state shown in FIG. 5 is reached.” *Id.*, 4:37-42 (**emphasis added**). Thus, Mabuchi’s padder assembly 6 has effectively zero or near zero stroke as to the user because the padder body 9 is designed to not protrude beyond the open end of the space guide 5, while in contact with the user’s skin.



99. A close-up view of the padder assembly 6 in the extended (uncompressed) state as shown in FIGS. 2 and 3 and in the retracted (compressed) state as shown in FIG. 5 is provided below with annotations to better show the contraction of the padder assembly 6 (*i.e.*, the padder slide tube 10 (in red) sliding into the padder body 9) once it contacts the user's skin.



UNCOMPRESSED
(FIG. 3)



COMPRESSED
(FIG. 5)

100. The space guide 5 ensures that the padder assembly 6 contacts and releases the skin every stroke and ensure sufficient space between the padder assembly 6 and the user's skin to avoid pushing the skin. And the padder assembly 6 includes a spring 11, which compresses once the cushion member 8 contacts the user's skin, allowing the actuator 4 to completes its stroke again without the padder assembly 6 exerting the full pushing force of the actuator 4 to the user's skin. In my opinion, at least these two features of Mabuchi's beauty treatment device confirm not only that Mabuchi's device is not a percussive massager (which it already admits

to) but is specifically designed to avoid ever operating in a manner similar to a percussive massager.

101. Even further, I have reviewed the prosecution history of Petitioner's/Therabody's U.S. Patent App. No. 17/705,300. *See generally* Ex. 2014. In prosecuting that application, Petitioner made specific arguments and characterizations of, among other references, Mabuchi. One particular argument addressed the examiner's combination of Mabuchi with Fuhr. *Id.*, pp. 1020-22. According to Petitioner, a POSITA would not have been motivated to combine Mabuchi with Fuhr because they are "designed to treat different body area." *Id.*, p. 1021. The thrust of Petitioner's argument was that Mabuchi was a "beauty device that pats the skin with a patter" while "Fuhr is a chiropractic instrument for use in chiropractic adjustment of musculoskeletal structures" and that, accordingly, a POSITA "would have understood that a device for treating the face [a clear reference to Mabuchi] requires different specifications than a chiropractic device for adjusting musculoskeletal structures [a clear reference to Fuhr]" and "would not have looked to Fuhr for linear velocity." *Id.*, p. 1022. First, I agree with the argument the Petitioner made in prosecuting its application. A POSITA would understand that Mabuchi, as a beauty treatment device for the face, would be designed differently from a percussive chiropractic device like Fuhr. But more to the point here, Petitioner's remarks that a POSITA would understand that Mabuchi is not a

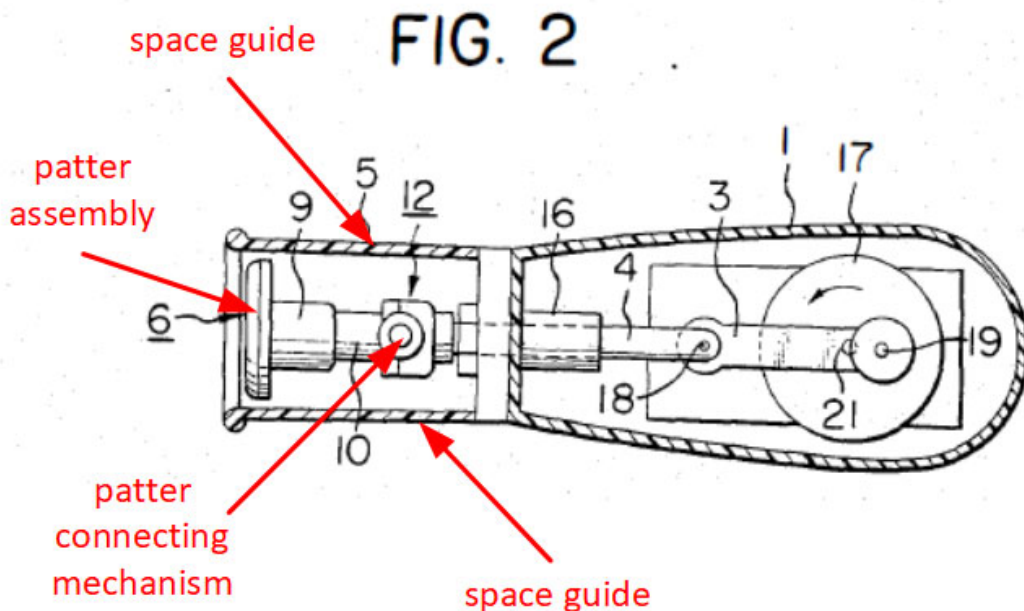
percussive chiropractic adjustment tool equally support my opinion that a POSITA would understand that Mabuchi is not a percussive massager.

2. Claim Element 34[e]

102. Claim 34 recites, in part, “a quick release connector ... 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.” In my opinion, Mabuchi does not disclose, teach, or suggest this claim limitation.

103. First, Mabuchi requires the presence of the space guide 5 during use, and the space guide 5 would prevent securing the padder assembly 6 to the actuator 4 while the actuator 4 reciprocates.

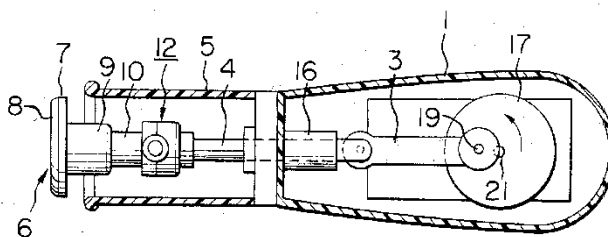
104. Mabuchi explains that the space guide 5 must be present during use to provide the intended treatment. Ex. 1005, 5:38-51. The space guide 5 entirely surrounds the padder connection mechanism 12 and the padder assembly 6, as shown in FIG. 2 of Mabuchi (below with annotations).



105. FIG. 4 of Mabuchi (below) shows the actuator 4 in “the extreme left-hand position,” which is the most extended position as confirmed by the position of the rod 3 being nearest to and parallel with the actuator 4. *Id.*, 4:18-25 (explaining that, in FIG. 4, “the cushion member 8 of the pater assembly 6 protrud[es] from the open end face of the space guide” when “no skin surface exists at the open end face of the space guide 5”). As can be seen below, there is simply no room for a user to get his or her fingers around and behind the plate member 7 when the space guide 5 is present to remove the pater assembly 6, especially while the actuator 4 is reciprocating. Put simply, the user would not be able to remove the pater assembly 6 from the actuator 4 while the actuator 4 reciprocates and the space guide 5 is in place. Similarly, the user could not insert the pater assembly 6 into the actuator 4. Again, the user could only possibly control the pater assembly 6 by grasping it

around the plate member 7, but as the patter assembly 6 approached the actuator 4, the user would have difficulty seeing into the space guide 5 to align the patter assembly 6 and the actuator 4. As mentioned above, with the magnets 43/44 designed to be twisted apart to separate, the user would have difficulty aligning the magnets so that they connect while reciprocating. The difficulty seeing into the space guide 5, and the alignment issues of the magnets 43/44 would cause the users to pinch his or her fingers between the plate member 7 and the space guide 5 when it reciprocates.

FIG. 4



106. Petitioner appears to place outsize importance on the statement in Mabuchi that “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)). In my opinion, Petitioner reads into this passage more than is supported by Mabuchi’s disclosure. The entire relevant passage from Mabuchi is copied below:

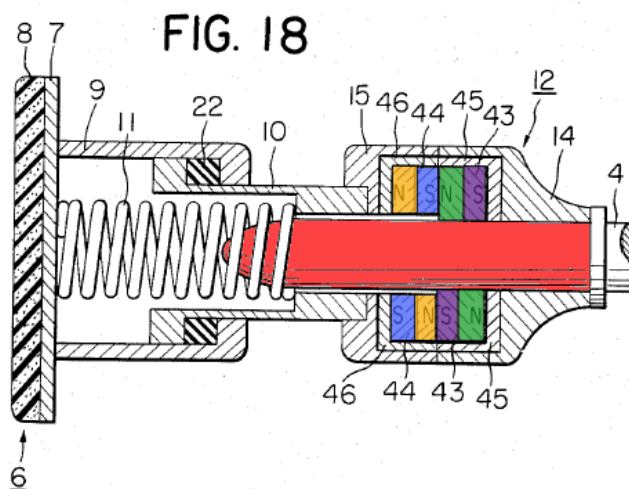
As shown in FIG. 18, the magnet 43 implanted in the coupling 14 and the magnet 44 implanted in the flange 15 are connected to each other by attracting force caused by different polarities on the two magnets 43 and 44. In this state, or in the state where the actuator 4 is connected to the patter assembly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

Ex. 1005, 8:11-18.

107. The first sentence describes the state of Mabuchi in FIG 18. when the magnets 43 and 44 in the actuator 4 and patter assembly 6 are “connected to each other,” which is the same as the following sentences reference to “in the state where the actuator 4 is connected to the patter assembly 6.” In other words, this passage of Mabuchi only describes one “state,” that is when the actuator 4 and patter assembly 6 are and “the patter assembly 6 is operated.” When read in context, it is clear that “or in the state...” is simply further describing the initial introduction of “this state” at the beginning of the sentence rather than some other “state” where the “patter assembly 6 is operated” as Petitioner suggests.

108. In addition to the space guide 5 preventing securing the patter assembly 6 during use, the alignment requirements and particular magnetic pole arrangement in Mabuchi also prevents securing during use. In Mabuchi (below), the patter assembly 6 must be positioned (or aligned) so that the openings in the patter slide 10, the flange 15, and the magnet 44 are positioned or aligned with the actuator head

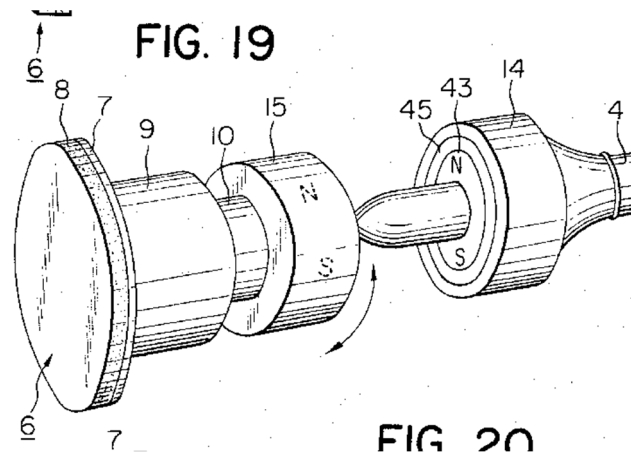
4a of the actuator 4 (shaded in red) and must be rotationally aligned such that poles of the magnet 44 (shaded in orange for north and blue for south) are rotationally or angularly aligned with the opposite poles of the magnet 43 (shaded in green for north and purple for south). As explained above, in Mabuchi, the space guide 5 would hide this connection and alignment from view by the user, preventing it from occurring during use.



109. More importantly here, the magnetic pole arrangement of the magnets 43 and 44 in Mabuchi require a particular radial (or rotational) alignment between the patten assembly 6 and the actuator 4 to determine whether these components attract each other or repulse each other. As shown in FIG. 18 (above) and described in Mabuchi, the magnets 43 and 44 have poles that are radially arranged around their open centers. *See* Ex. 1005, 8:21-43. In other words, each magnet 43 and 44 has both North (green for magnet 43 and orange for magnet 44) and South (purple for

magnet 43 and blue for magnet 44) poles facing in the direction of connection. When the same poles of the two magnets 43 and 44 are aligned with each other, the magnets repulse each other, either causing the pater assembly 6 and actuator 4 to disconnect (when previously connected) or preventing connection when attempting to connect the two together. On the other hand, when the opposite poles of the two magnets 43 and 44 are aligned with each other, the magnets attract each other, causing the pater assembly 6 and actuator 4 to connect to each other.

110. This required rotational consideration is expressly shown in FIG. 19 of Mabuchi (below), where the double ended arrow is included to show that the rotational alignment between the flange 15 and the coupling 14 is critical to whether or not they connect or disconnect (or fail to connect). Also, contrary to this embodiment, Mabuchi describes other embodiments that do not require this rotational alignment, describing them as be connectable “at any angular position.” Ex. 1005, 6:43-48 (FIG. 8), 7:54-57 (FIG. 15). That Mabuchi does not similarly describe FIG. 18 (the magnetic embodiment) confirms my analysis that this embodiment requires a particular rotational (or angular) alignment between the pater assembly 6 and the actuator 4 for connection or removal.



111. This claim element also introduces the “first massaging head.” As explained above, in my opinion, the term “massaging head” should be given its plain and ordinary meaning as 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. In my opinion, a POSITA would understand that Mabuchi’s patter assembly 6 is not a massaging head as recited in the ’482 Patent.

112. As explained above, Mabuchi’s patter assembly 6 has a complex design including the spring 11, which is included to specifically avoid imparting substantial pressure onto the skin surface. Ex. 1005, 2:53-3:12, FIG. 8. Mabuchi explains that, once the patter body 9 contacts the skin surface, “the patter slide tube 10 is moved leftward via a patter connecting mechanism 12 as the actuator 4 moves leftward. That is, the patter slide tube 10 slidably fitted to the patter body 9, as shown in FIG. 8, is moved leftward (in the figure), resisting the resiliency of the resilient member 11.” *Id.*, 4:42-49, 3:18-25. In other words, the patter assembly 6 is

specifically designed to avoid providing any deep tissue massage by compressing in on itself via the spring 11 and applies light pressure after contacting the user's skin rather than pressing into the user's skin and body as in a percussive massager. Because the padder assembly 6 cannot, and is designed to not, provide any deep tissue massage, a POSITA would not consider it a "massaging head" or the "first massaging head" as recited in this claim.

113. For any of these reasons, it is my opinion that claim 34 is not obvious in view of Mabuchi as alleged by Petitioner in the Petition. In more detail, it is my opinion that a POSITA would understand that Mabuchi is not a percussive massager, does not have a massaging head, and lacks a padder assembly 6 that can be secured to the actuator 4 while the actuator 4 reciprocates.

B. Ground 4: Mabuchi and Harris

114. Petitioner does not appear to rely on Harris to correct any of the issues and shortcomings I discussed above with respect to Mabuchi. Accordingly, in my opinion, claims 36-38, 40, 41, 43-46, and 58-60 are not obvious in view of Mabuchi and Harris.

1. Claim 38

115. In my opinion, a POSITA would not have been motivated to modify Mabuchi in view of Harris generally because they are directed to different types of devices. However, with particular reference to claim 38, there is no basis for

Petitioner's arguments that a POSITA would have modified Mabuchi's beauty treatment device to operate at the speeds claimed in claim 38 based on Harris' disclosure or teachings.

116. Neither Mabuchi nor Harris disclose any particular speed or speeds. Lacking any disclosure as to speeds, there is no basis for Petitioner's conclusion that a POSITA would have modified Mabuchi to arrive at the speeds as claimed in claim 38.

117. Moreover, Mabuchi is designed to mimic manual patting by a person's "fingertips or palms." Ex. 1005, 1:7-15. The speeds claimed in claim 38 are "greater than or equal to 600 strokes per minute." 600 strokes per minute is equivalent to 10 strokes per second, a feat impossible for a user to achieve with their "fingertips or palms," and thus does not mimic manual patting.

118. Second, Harris is directed to a percussive massager, but Mabuchi is directed to a beauty treatment device. Although Harris certainly does not disclose the claimed speed ranges, even if it did, those speeds would be relevant to Harris' percussive massager, and not Mabuchi's beauty treatment device. A POSITA would not simply modify a beauty treatment device based on the speeds of a percussive massager.

119. Additionally, in prosecuting its own patent application, Petitioner argued to the Patent Office that a POSITA would not have been motivated to modify Mabuchi's speed based on Fuhr because Mabuchi and Fuhr are directed to different types of devices for different parts of the body. *See* Ex. 2014, pp. 1021-22. Petitioner also asserted to the Patent Office that a POSITA "would not have looked to Fuhr" to modify Mabuchi's speed based on Mabuchi having a magnetic connection. *Id.* In my opinion, Petitioner is now making contrary arguments by asserting that a POSITA would have modified Mabuchi's speed based on Harris, which is a percussive massager and not a beauty treatment device for the face and which lacks a magnetic head attachment. *See* Ex. 1006, 1:5-7, 1:33-38, 3:67-4:4, 4:36-39.

120. In short, having reviewed Mabuchi and Harris, in my opinion, there is no reason why a POSITA would have modified the speed of Mabuchi based on Harris, which lacks any disclosure of speed, to arrive at the invention claimed in claim 38. Rather, it is my opinion that a POSITA would not have looked to Harris to modify Mabuchi's speed because they are different types of devices serving different purposes for different body parts.

C. Ground 5: Mabuchi, Harris, and Pivaroff

121. Petitioner does not appear to rely on Pivaroff to correct any of the issues and shortcomings I discussed above with respect to Mabuchi and Harris.

Accordingly, in my opinion, claims 37 and 38 are not obvious in view of Mabuchi, Harris, and Pivaroff.

1. Claim 38

122. Ground 5 appears substantially similar to Ground 4 but adds Pivaroff's disclosure of a percussive massager operating between 2000 and 3600 RPM. For the same reasons discussed above in Section VIII.D.1, addressing Mabuchi and Harris, it remains my opinion that a POSITA would not have modified Mabuchi's speed in view of a percussive massager, be it Harris or Pivaroff.

123. In addition to my opinions in Section VIII.D.1, a POSITA would have specifically avoided Pivaroff's speeds in view of the complex construction of Mabuchi's pater assembly 6. As explained above, Mabuchi's pater assembly 6 includes a body 9 that reciprocates independently of the pater slide tube 10, and the motion of the pater slide tube 10 is transmitted to the body 9 via the spring 11 so that the cushioning member 8 contacts, but does not press, the skin. Ex. 1005, 2:58-3:5, FIG. 8. In other words, Mabuchi has two reciprocating systems acting in concert: first, the actuator 4 reciprocates according the motion of the motor and associated elements; and second, the pater body 9 and plate member 7 / cushion member 8 separately reciprocate along the pater slide tube 10 based on the motion of the actuator 4 and the spring 11. To maintain control of the pater body 9, the spring 11 must be sufficiently strong to ensure that the movement of the pater body

9 is controlled while the actuator 4 reciprocates. When a controlled mass cannot be controlled by an associated spring, such as when the connected mass cannot complete a full cycle before the cycle begins again (equivalent to the actuator 4 outpacing the padder body 9, essentially), a phenomenon called valve surge or float occurs. This is a well-known phenomenon in internal combustion engines, where the crankshaft rotates, causing the valves to reciprocate to allow air into and out of the cylinders, with the movement of the valves being controlled primarily by the crankshaft and secondarily by the valve springs. When the crankshaft moves faster than the valve springs can handle, their connected mass, the valves themselves, begin to float or surge, either bouncing off their valve seats or failing to close (*i.e.*, the next movement cycle begins before the valve spring can close the valve).

124. In my opinion, reciprocating the actuator 4 at speeds between 2000 and 3600 RPM based on Pivaroff's teaching 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. In simple terms, the actuator 4, cycling at 2000 to 3600 RPM, would move or cycle faster than the spring 11 and body 9 could react, and no longer function as a patting device as it was intended.

125. While valve surge or float can most often be overcome by increasing the strength of the spring, a common solution in high performance internal combustion engines, such a solution is entirely unworkable for Mabuchi's beauty

treatment device and is not supported by the cited references. For example, Mabuchi's spring 11 acts to absorb the force of the actuator 4 moving toward the user's skin so that the user feels only a soft "pat" rather than a "push." A POSITA would not increase the spring force of the spring 11 to allow for the padder assembly 6 to reliably operate at 2000 to 3600 RPM because the spring 11 would need to be so strong (or heavy) to maintain control of the padder body 9 it would feel to the user like the spring 11 is nearly solid, contrary to Mabuchi's desired "patting" sensation.

D. Ground 6: Pivaroff and Mabuchi

1. A POSITA Would Not Have Been Motivated to Modify Pivaroff in View of Mabuchi

126. In my opinion, a POSITA would not have modified Mabuchi in view of Pivaroff at least because they are different types of devices designed to serve different purposes on different parts of the body. As explained throughout this declaration, Mabuchi is directed to a beauty treatment device, which directly contrasts a massager, such as Pivaroff. In addition, Mabuchi is a consumer product while Pivaroff is a professional device specifically designed for use by professionals in a professional setting.

127. Moreover, as also explained above, Petitioner previously argued to the Patent Office that a POSITA would not have modified Mabuchi in view of Fuhr because they are designed to provide different functions (cosmetic patting versus

chiropractic adjustment) to different body parts (face versus body) using different connection mechanisms. See Ex. 2014, pp. 1020-22. In my opinion, Petitioner's arguments regarding the combination of Pivaroff and Mabuchi are contrary to its previous arguments submitted the Patent Office in view of Mabuchi and Fuhr.

2. Claim Element 34[c]

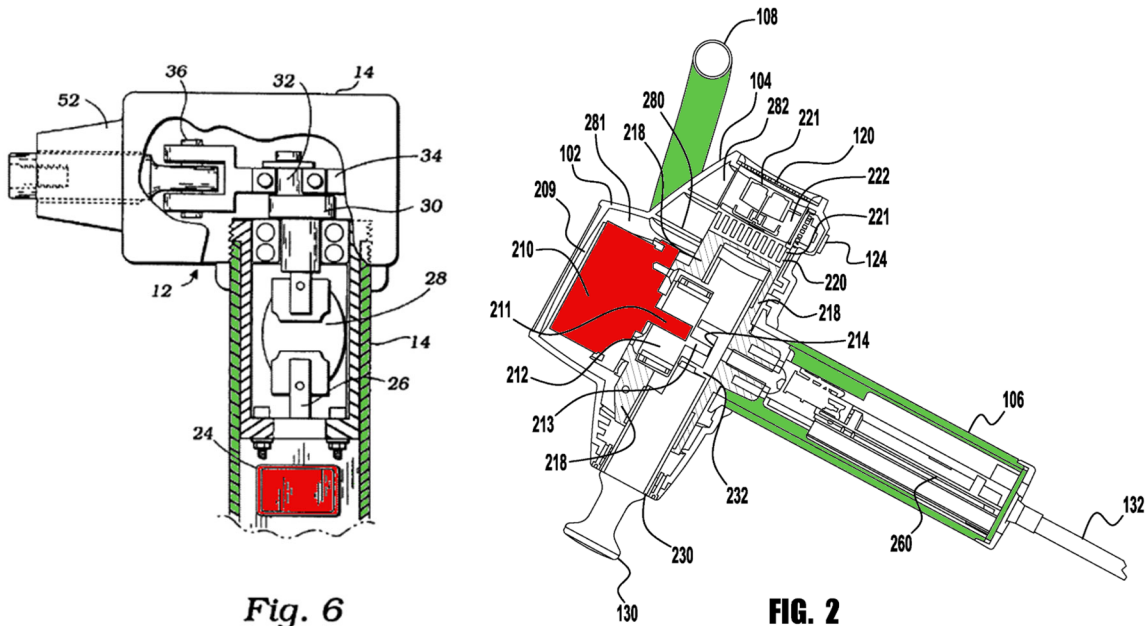
128. Claim 34 recites, in part, “a motor at least partially within the housing.” In my opinion, Pivaroff does not disclose, teach, or suggest this claim limitation.

129. Pivaroff states that “the 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.” Ex. 1007, 2:30-33. Pivaroff also explains that “[a]n electrical motor 24 is mounted within the elongated, hollow handle 14” and that the “rotating electrical motor [is] held in a hollow handle.” *Id.*, 2:37-39, Abstract, FIG. 6 (below). In my opinion, as shown clearly in FIG. 6 of Pivaroff (below), the motor 24 is not even partially within the housing 16 but is entirely mounted within the very bottom portion of the handle 14 farthest away from the housing 16.

130. A comparison between FIG. 6 of Pivaroff⁹ (below left) and the non-limiting example of the inventive embodiment as shown in FIG. 2 of the '482 Patent

⁹ In my opinion, the uppermost “14” in Figure 6 of Pivaroff is a clerical mistake

(below right) is provided below, with the respective motors in red and the handles partially in green. In Pivaroff, the handle 14 would include the entire structure that is designed to be held by the user's hand and would include and extend well above the motor 24.



131. Pivaroff separately refers to and describes the device body and the handle. Thus, in my opinion, a POSITA would not understand Pivaroff's handle 14 to be part of the housing 16 because they are separately described and, as shown, separately formed and connected by a threaded connection. In other words, there is no reason based on either the '482 Patent's separate disclosure and recitation of the

and should be "16." Numerals 14 and 16 are correctly illustrated in Figures 1 and 2 of Pivaroff.

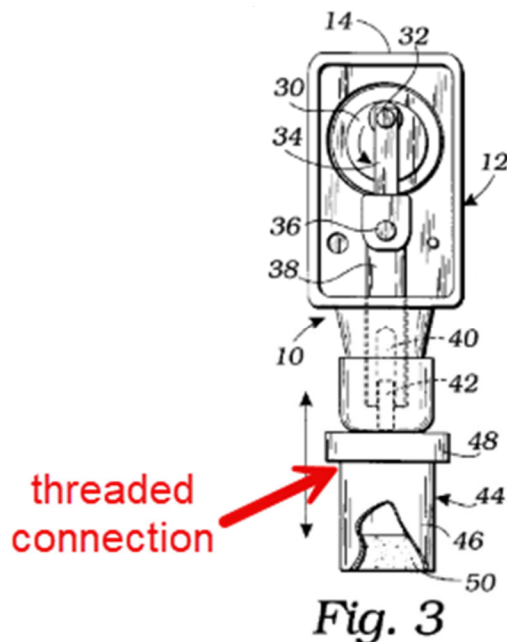
housing and handle or Pivaroff's separate disclosure of its housing 16 and handle 14 why a POSITA would understand Pivaroff's handle 14 to be part of its housing 16.

3. Claim Element 34[e]

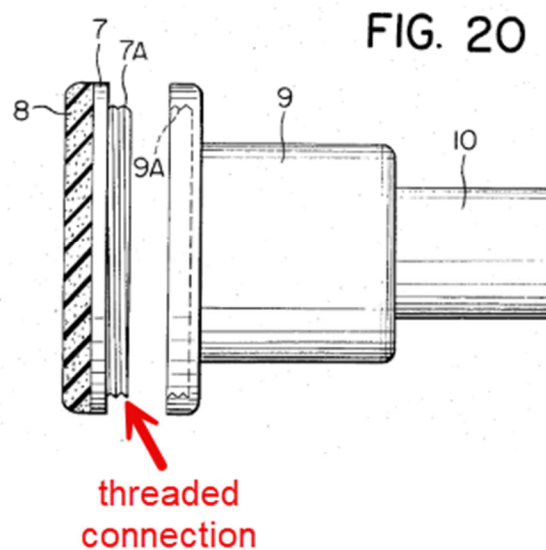
132. It is my opinion that a POSITA would not have been motivated to modify Pivaroff in view of Mabuchi as Petitioner alleges and also that a POSITA would not have had a reasonable expectation of success in such a modification. First, Pivaroff does not describe or suggest any need or desire to replace its head 44. Instead, Pivaroff describes one very particular head that provides "improved" and "extraordinary" results. In my opinion, a POSITA would not understand or even consider modifying Pivaroff to have a replaceable head, let alone making such a replacement easier as Petitioner alleges. Pet., p. 62. Similarly, the only element that changes in Pivaroff is the granular materials 50 contained within the head 44. Ex. 1005, 2:60-65. Pivaroff states that "[t]he hollow head 44 includes a hollow body 46 and a cap element 48 held thereon, as by means of threads formed there between" and that "granular materials ... are mixed together and inserted within the head 50¹⁰," referring to the body 46 of the head 44. *Id.*, 2:55-57, FIG. 3-5. The hollow body 46 "includes an inner chamber, which contains loosely packed granular material 50." *Id.*, 2:58-60. In my opinion, a POSITA would understand that, in

¹⁰ Pivaroff refers to the "head" by numeral 50 in this passage, but I understand this to be a simple clerical error as "50" designates the granular material while "44" is repeatedly used throughout Pivaroff refer to the "hollow head."

Pivaroff, the granular materials 50 are placed into the hollow body 46, which is then closed by a threaded connection to the cap element 48. An annotated FIG. 3 of Pivaroff is provided below showing the location of the threaded connection in the head 44. Thus, in my opinion, if POSITA were to be motivated to modify Pivaroff to change the impact characteristics of Pivaroff (which, in my opinion, they would not be since Pivaroff explains that there is a single best combination of granular materials), the professional would unscrew the body 46 from the cap 48 to access the granular materials in the head 44, and replace the granular material 50 in the body 46, and screw the body 46 back onto the cap 48. While Pivaroff does not disclose or suggest changing any aspect of its device after initial assembly, if a POSITA would have been motivated to modify the impact characteristics of Pivaroff as Petitioner alleges, a POSITA would utilize the threaded connection between the body 46 and the cap 48 to vary the granular materials 50 within the head 44. Mabuchi similarly discloses using a threaded connection used to assemble the cushion member 8/plate member 7 to the padder body 9 in the padder assembly 6, just as is used in Pivaroff's head 44. *See* Ex. 1005, 8:44-52 ("This screw-in mechanism for connecting the plate member 7 to the padder body 9 is convenient not only in changing the cushion member 8 but also in assembling the padder slide tube 10."). An annotated FIG. 20 of Mabuchi is also provided below.



Pivaroff, FIG. 3



Mabuchi, FIG. 20

133. Also, as discussed above, Pivaroff is a professional device, and such devices often forgo ease of use for increased performance. Pivaroff describes its particularly heavy head 44 filled with granular material as operating at 2000 to 3600 RPM for use by professionals. A POSITA would not have looked to making the connection between the head 44 and the device “easier” when it would risk safety or damage by the head 44 unintentionally detaching from the device.

134. Moreover, Pivaroff’s particularly high-speed design (2000 to 3600 RPM) places substantial force on the connection mechanism between the head 44 and the rod 38. Generally, threaded connections, such as is described in Pivaroff, are a standard connection type employed in high stress environments including, for example, airplanes, automobiles, etc. Threaded connections provide a simple and

light weight yet extremely robust connection between components. In addition, threaded connections excel at withstanding axial loads, such as in Pivaroff's reciprocating design.

135. Pivaroff's high-speed design and, the force that it places on the connection mechanism between the head 44 and the rod 38, is compounded by its particularly heavy head 44 and even further by the inclusion of loosely packed granules within the hollow head 44, both factors that substantially increase the force exerted on the connection between the head 44 and the rod 38. According to Pivaroff, "the movement of the mixed grains ... within the interior hollow chamber ... during reciprocally [sic] motion thereof, is transferred to a patient's body." Ex. 1007, 3:24-30. This reciprocal movement of the loosely pack granules within the hollow head 44 would generate momentum (or inertia) in (and in addition to) the head 44, placing additional loads on the rod 38. In more detail, as the rod 38 reaches the farthest extent of its stroke, it rapidly slows down to zero velocity before changing direction. During this phase of its movement, the head 44 is slowed to zero velocity by being pulled via the connection mechanism with the rod 38. However, just as or slightly after the head 44 reaches zero velocity, and when the force on the connection mechanism is at its peak, the loosely packed granules slam into the inside end of the hollow head 44, placing a very high impact load on the connection mechanism already under load from stopping the head 44. According to

Pivaroff, this very high force is beneficially applied to the patient during use, but if the device were used without a patient, as would be necessary to change the head 44 while the rod 38 reciprocates, the connection mechanism would have to withstand that entire force. Ex. 1007, 3:24-30.

136. In my opinion, a POSITA would understand that Mabuchi's magnetic connection, designed for low-speed, low-impact "pat[ting]" of a user's face, is entirely unsuited for use with the high-speed, high-force percussive massager featuring a notably heavy and high-momentum head as in Pivaroff. In other words, a POSITA would not have been motivated to modify Pivaroff's threaded connection with the magnetic connection from Mabuchi nor would a POSITA have understood there to be any reasonably likelihood of success in this combination or modification.

137. In addition, even if Pivaroff were to be modified to include Mabuchi's magnetic connection, that magnetic connection requires a particular angular orientation between components for securing, which is unsustainable while the rod 38 reciprocates. The angular positioning or alignment necessary to effect Mabuchi's magnetic connection is discussed in detail above, and the same reason why it fails to meet the requirements of the claim element in considering Mabuchi alone carry over to its proposed inclusion in Pivaroff's device.

E. Ground 7: Pivaroff, Mabuchi, and Harris

138. Petitioner does not appear to rely on Harris to correct any of the issues and shortcomings I discussed above with respect to Pivaroff and Mabuchi. Accordingly, in my opinion, claims 36-38, 40, 41, and 43-46 are not obvious in view of Pivaroff, Mabuchi, and Harris.

IX. CONCLUSION

139. In my opinion, and for the reasons set forth above, the challenged claims of the '482 Patent are not unpatentable for any reason set forth in the Petition.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Dated: September 24, 2025


Nathan Morrill, P.E., CSP