

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MERCHSOURCE, LLC,
Petitioner,

v.

HYPER ICE, INC.,
Patent Owner.

IPR2022-00533
Patent 10,912,708 B2

Before JAMES J. MAYBERRY, ERIC C. JESCHKE, and
FREDERICK C. LANEY, *Administrative Patent Judges*.

MAYBERRY, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background and Summary*

MerchSource, LLC (“Petitioner”), filed a Petition requesting *inter partes* review of claims 1–18 (the “Challenged Claims”) of U.S. Patent No. 10,912,708 B2 (Ex. 1001, the “’708 patent”). Paper 2 (“Pet.”), 2. Hyper Ice, Inc. (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 10 (“Prelim. Resp.”).

After Petitioner filed the Petition, Patent Owner disclaimed claims 13–18. Prelim. Resp. 1–2; *see also* Ex. 2001 (providing the statutory disclaimer filing).

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2022) (permitting the Board to institute trial on behalf of the Director). To institute an *inter partes* review, we must determine that the information presented in the Petition shows “a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). For the reasons set forth below, upon considering the current record, we deny the Petition and do not institute an *inter partes* review.

B. *Real Parties-in-Interest*

Petitioner identifies itself as the real party-in-interest. Pet. 1. Patent Owner identifies itself as the real party-in-interest. Paper 5, 2.

C. *Related Matters*

Patent Owner identifies the following litigations as matters related to the ’708 patent: *Hyper Ice, Inc. v. MerchSource, LLC d/b/a Sharper Image*, No. 21-cv-1133 (C.D. Cal.); and *Hyper Ice, Inc. v. iFit*, No. 21-cv-150 (D. Utah). Paper 5, 2.

D. The '708 Patent

The '708 patent, titled “Battery-Powered Percussive Massage Device,” issued February 9, 2021, and ultimately claims priority to an application filed February 22, 2018. Ex. 1001, codes (54), (45), (63). The '708 patent relates to “devices that apply percussive massage to selected portions of a body.” Ex. 1001, 1:13–15. We reproduce Figures 1 and 3 from the '708 patent below.

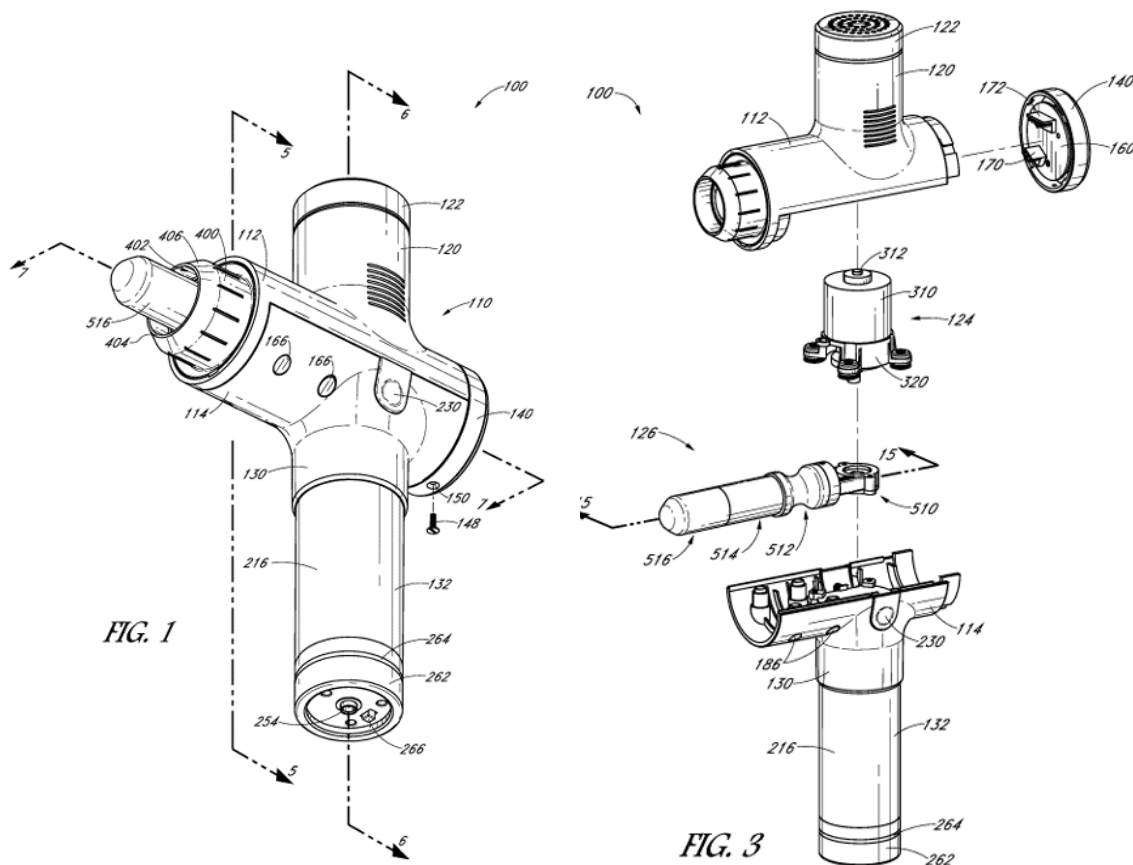


Figure 1 depicts “a bottom perspective view of a portable electromechanical percussive massage applicator that is battery powered and has a single hand grip,” and Figure 3 depicts “an exploded perspective view of the portable electromechanical percussive massage applicator of” Figure 1. Ex. 1001, 3:25–31. Portable electromechanical percussive

massage applicator 100 includes main body 110, having upper body portion 112 and lower body portion 114, with these two body portions forming a generally cylindrical enclosure. *Id.* at 5:23–27. Motor enclosure 120 extends upward from upper body portion 112, with the motor enclosure being substantially perpendicular to the upper body portion. *Id.* at 5:28–30. Cylindrical battery assembly receiving enclosure 130 extends downward from the lower body portion 114, and battery assembly 132 extends from the battery assembly receiving enclosure. *Id.* at 5:36–40.

Motor enclosure 120 encloses electric motor assembly 124, which includes electric motor 310 having central shaft 312 that rotates in response to applied electrical energy to the motor assembly. Ex. 1001, 7:57–61. Central shaft 312 engages central bore 362 of eccentric crank 360. *Id.* at 8:15–18. Eccentric crank 360 converts the rotational action of central shaft 312 to reciprocating action of reciprocating assembly 126 by engaging cylindrical crank pivot 370, which engages annular bearing 536 of crank engagement bearing holder 510. *See id.* at 8:22–28, 12:5–10, 12:57–14:26 (describing how the exemplary embodiment converts rotating motion to reciprocating motion).

Reciprocating assembly 126 includes piston 514, to which applicator head 516 is attached. Ex. 1001, 8:63–9:2. “[A]pplicator head 516 . . . can be configured in a variety of shapes to enable a user to apply different types of percussive massage.” *Id.* at 11:16–18. The reciprocating action of piston 514 drives the applicator head beyond outer sleeve 400 to a maximum distance “D3,” to allow the applicator head to apply percussive force to a massage recipient. *See id.* at 13:38–53.

We reproduce Figures 9 and 10 from the '708 patent, below.

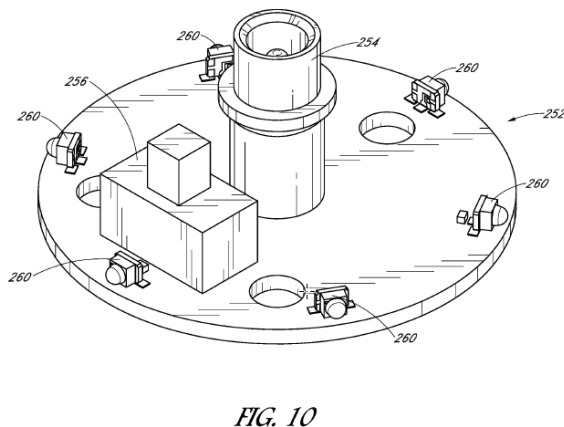
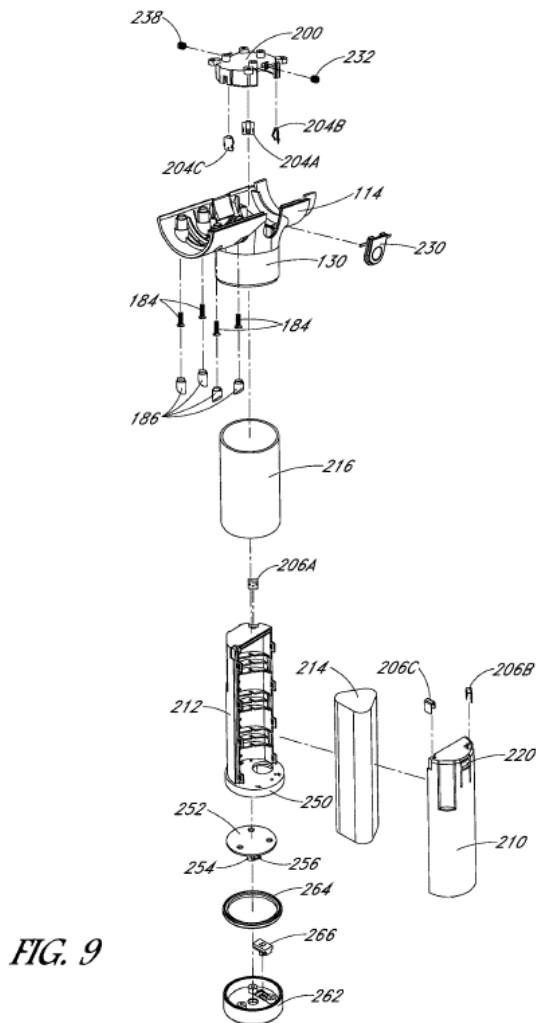


Figure 9 depicts “an exploded perspective view of the lower housing and the battery assembly of F[igure] 3,” and Figure 10 depicts “an enlarged perspective view of the lower surface of the battery assembly printed circuit board” within the lower housing. Ex. 1001, 3:64–67. Lower body portion 114 includes battery assembly receiving tray 200, which engages battery assembly 132. *Id.* at 6:37–49. Battery assembly 132 includes first and second battery cover halves 210, 212, which snap together to enclose battery unit 214, and are also held together by outer cylindrical cover 216.

Id. at 6:50–60. Outer cylindrical cover 216 also serves as a gripping surface for percussive massage applicator 100. *Id.* at 6:60–61.

The second battery cover half 212 includes “integral printed circuit board support structure 250, which supports a battery controller printed circuit board (PCB) 252.” Ex. 1001, 7:33–35. The battery controller PCB includes light-emitting diodes (LEDs) 260 mounted around the periphery of the battery controller PCB, which display certain colors (such as red or green) to indicate the charge state of the battery. *Id.* at 7:40–45, 7:50–52. Light emitted by the LEDs is emitted through translucent plastic ring 264, such that the light is visible to the user. *Id.* at 7:47–50.

E. Challenged Claims

The Petition challenges claims 1–18. Pet. 1. Claims 13–18 have been disclaimed. Prelim. Resp. 1–2; *see also* Ex. 2001 (providing the statutory disclaimer filing); 37 C.F.R. § 42.107(e) (“The patent owner may file a statutory disclaimer under 35 U.S.C. [§] 253(a) in compliance with § 1.321(a) of this chapter, disclaiming one or more claims in the patent. No *inter partes* review will be instituted based on disclaimed claims.”).

Claims 1 and 7 are the two remaining independent claims. We reproduce claim 1 below.

1. A battery-powered percussive massage device comprising:
 - a main enclosure extending along an axis, the main enclosure having a proximal end and a distal end, the main enclosure including a cavity;
 - a motor having a rotatable shaft;
 - a reciprocation assembly coupled to the rotatable shaft, the reciprocation assembly including a piston, the reciprocation assembly configured to reciprocate the piston along a reciprocation axis in response to rotation of the rotatable shaft,

the reciprocation assembly positioned within the cavity of the main enclosure;

an applicator head having a proximal end removably attachable to the piston, and having a distal end that extends from the distal end of the main enclosure when the proximal end of the applicator is attached to the piston;

a handle attached to the main enclosure, the handle comprising:

a cavity, the cavity housing at least one battery and a printed circuit board, the printed circuit board including a battery controller that receives electrical power via a connector and that selectively charges the at least one battery, the printed circuit board having a mounting surface with a peripheral edge;

an outer gripping surface covering at least a portion of the handle;

a charge indication display, the charge indication display comprising a plurality of light-emitting diodes (LEDs) positioned on the mounting surface of the printed circuit board near the peripheral edge of the mounting surface, the LEDs generating light responsive to a charge condition of the at least one battery, the light emitted outward from the LEDs toward the peripheral edge of the printed circuit board; and

an annular light transmissive ring positioned around the handle in alignment with the LEDs to propagate light from the LEDs to the outside of the handle.

Ex. 1001, 22:62–23:32. Claim 7 recites similar subject matter. *Id.* at 23:50–24:18. Claims 2–4 and 6 depend directly from claim 1, and claim 5 depends from claim 1 through claim 4. *Id.* at 23:33–49. Claims 8–10 and 12 depend directly from claim 7, and claim 11 depends from claim 7 through claim 10. *Id.* at 24:19–35.

F. Prior Art and Asserted Grounds

Petitioner asserts that the Challenged Claims are unpatentable based on two grounds, Grounds A and B:

Claims Challenged	35 U.S.C. §	References/Basis
1–13	103 ¹	Shaanxi ² , Horie ³ , Huang ⁴ , Srinivasan ⁵
1–13	103	Jingwen ⁶ , Horie, Huang, Srinivasan

Pet. 2.

Petitioner relies on the declaration testimony of Mr. Bryan Howell (Ex. 1002) in support of these grounds.⁷

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the ’708 patent was issued from an application filed after this date, the AIA version of § 103 applies. Ex. 1001, codes (22), (63).

² CN 205251993 U, issued May 25, 2016 (Ex. 1006, “Shaanxi”). Exhibit 1006 is an English translation of Exhibit 1005. *See* Ex. 1006 (providing, as its last page, a “Verification of a Translation”).

³ US 2014/0014384 A1, published January 16, 2014 (Ex. 1012, “Horie”).

⁴ TW M402573U1, published April 21, 2011 (Ex. 1010, “Huang”). Exhibit 1010 is an English translation of Exhibit 1009. *See* Ex. 1010 (providing, as its last page, a “Verification of a Translation”).

⁵ US 2019/0125972 A1, published May 2, 2019, and claims priority to a Patent Cooperation Treaty application filed March 31, 2017 (Ex. 1011, “Srinivasan”).

⁶ CN 204246459 U issued April 8, 2015 (Ex. 1008, “Jingwen”). Exhibit 1008 is an English translation of Exhibit 1007. *See* Ex. 1008 (providing, as its last page, a “Verification of a Translation”).

⁷ Mr. Howell’s declaration indicates that he was “retained on behalf of the Patent Owner.” Ex. 1002 ¶ 1. We understand this statement to be a typographical error, and that Mr. Howell has been retained by Petitioner.

The following subsections provide brief descriptions of the asserted prior art references.

1. *Shaanxi (Ex. 1006)*

Shaanxi, titled “Vibration Massager,” issued May 25, 2016. Ex. 1006, codes (54), (45). Shaanxi “provides a vibration massager,” which is “simple in structure.” *Id.* ¶ 3. We reproduce Shaanxi’s Figure 1, below.

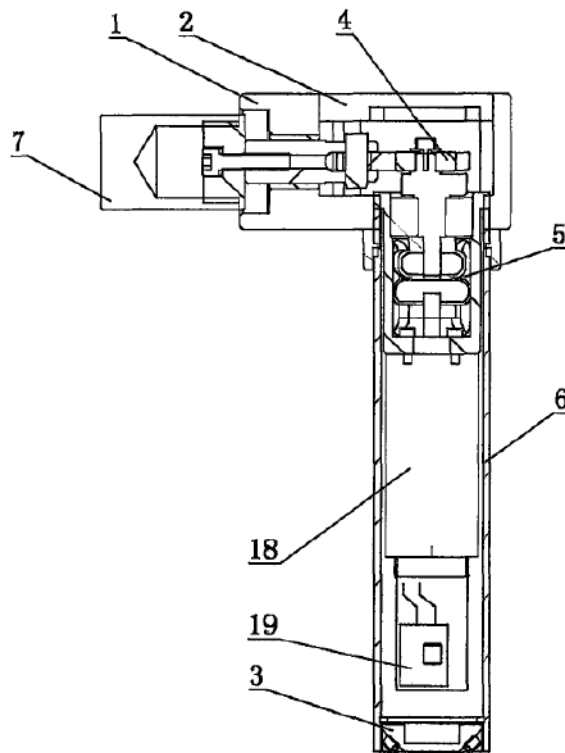


Figure 1 provides a schematic diagram of Shaanxi’s vibration massager. Ex. 1006 ¶ 9. The vibration massager includes handle 6, which contains driving assembly 5, and piston link assembly 4 connected to driving assembly 5. *Id.* ¶ 18. Piston link assembly 4 provides reciprocating action to ram 7. *Id.* Driving assembly 5 includes driving motor 18, motor support 17, and eccentric shaft 14. *Id.* ¶ 19.

Piston link assembly 4 includes piston 10 and link 12. Ex. 1006 ¶ 20. One end of link 12 connects, through a series of structures, with an off-shaft of eccentric shaft 14, and the other end connects to piston 10. *Id.* A power switch controls driving motor 18 and an adjustment switch adjusts control circuit module 19 (which controls vibration frequency), both of which are provided on handle 6. *Id.* ¶ 19.

2. *Jingwen (Ex. 1008)*

Jingwen, titled “Electric Meridian Massage Gun,” issued April 8, 2015. Ex. 1008, codes (54), (45). Jingwen “provide[s] an electric meridian massager,” that is “labor-saving, has a simple structure, and can reduce the manufacturing cost” as compared to prior art electric-driven massagers. *See id.* ¶¶ 2–3. We reproduce Jingwen’s Figures 1 and 2, below.

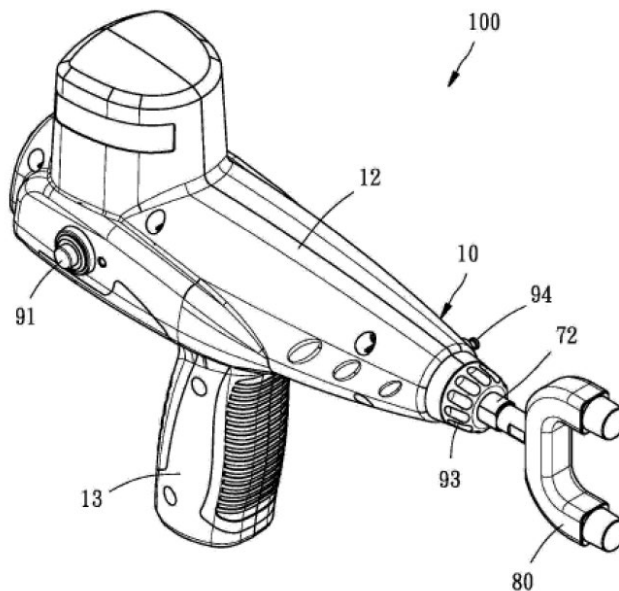


Fig. 1

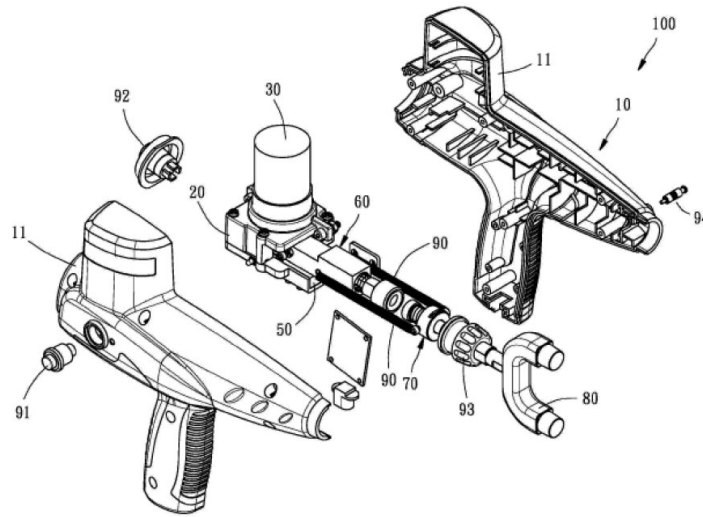


Fig. 2

Figure 1 depicts “a perspective combined view of” Jingwen’s massager, and Figure 2 depicts “an exploded perspective view of the embodiment shown in F[igure] 1.” Ex. 1008 ¶¶ 27–28. Electric meridian massage gun 100 includes gun-shaped shell 10 (formed by two shell halves 11), base 20, electric motor 30, pendulum 40, sliding rail 50, slider group 60, passive assembly 70, massager head 80, and extension springs 90. *Id.* ¶¶ 34–35.

Receiving portion 12 includes electric motor 30 and provides rotational power to the massager. Ex. 1008 ¶ 37. Pendulum 40 is attached to electric motor 30 and is “circumferentially swung by being driven by the” motor. *Id.* ¶ 38; *see also id.* at Figs. 4–8 (illustrating how pendulum 40 moves). Sliding rail 50 is positioned within receiving portion 12, with slider group 60 slidably coupled to the sliding rail 50 “so as to be linearly and reciprocally slid along the sliding rail 50 by an external force.” *Id.* ¶¶ 39–40.

Slider group 60 includes body portion 61, toggle portion 62, striking head portion 63, and buffer spring 64. Ex. 1008 ¶ 40. Body 61 is

configured to slide along sliding rail 50, with toggle portion 62 located at the rear end of body 61 and toggled by pendulum 40, and striking head 63 connected to the front end of body 61. *Id.* Buffer spring 64 is positioned between striking head 63 and body 61. *Id.*; *see also id.* at Fig. 4 (reproduced below and showing buffer spring 64).

Passive assembly 70 is located within receiving portion 12 and extends partially beyond the front end of gun-shaped shell 10. Ex. 1008 ¶ 41; *see also id.* at Fig. 3 (depicting passive assembly 70 in shell 10). Massage head 80 is detachably coupled to (and moves with) passive assembly 70. *Id.* ¶ 42.

We reproduce Jingwen's Figure 4, below.

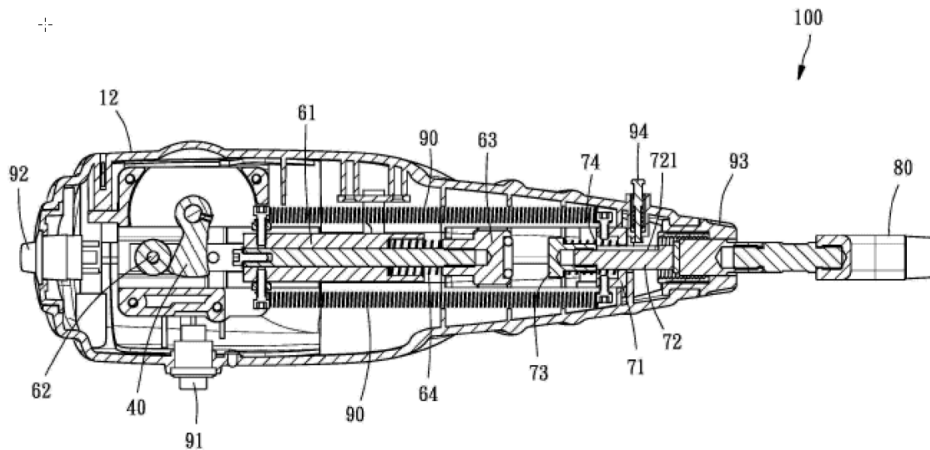


Fig. 4

Figure 4 depicts a snapshot showing how Jingwen's massage gun operates. *See* Ex. 1008 ¶ 30. When motor 30 is activated, it drives pendulum 40 against toggle portion 62. *Id.* This action forces toggle portion 62 (and the rest of slider group 60) towards the rear of the massage gun (that is, in a direction opposite massage head 80). *Id.* This action

extends spring 90. *Id.* As motor 30 continues to rotate, pendulum 40 disengages with toggle portion 62, and spring 90 pulls slider group 60 towards the front of the massage gun. *Id.* Striking head 63 strikes striking tail 73 such that shaft 72 extends forward, driving massage head 80. *Id.* After one revolution of motor 30's shaft, pendulum 40 again strikes toggle portion 62, pulling back slider group 60, such that striking head 63 of group 60 separates from striking tail 73. *Id.* Return spring 74 pulls back shaft 72 and massage head 80. *Id.* With each revolution of motor 30, these actions are repeated, providing a reciprocating action. *Id.*; *see also id.* at Figs. 5–7 (depicting pendulum 40 in different positions as motor 30 rotates, and the resulting relative positions of toggle portion 62, striking head 63, striking tail 73, and shaft 72).

3. *Horie (Ex. 1012)*

Horie, titled “Power Tool,” published January 16, 2014. Ex. 1012, codes (54), (43). Horie is directed to a hand-held power tool driven by a battery disposed in the grip of the power tool. *Id.* at code (57). We reproduce Horie's Figure 1A, below.

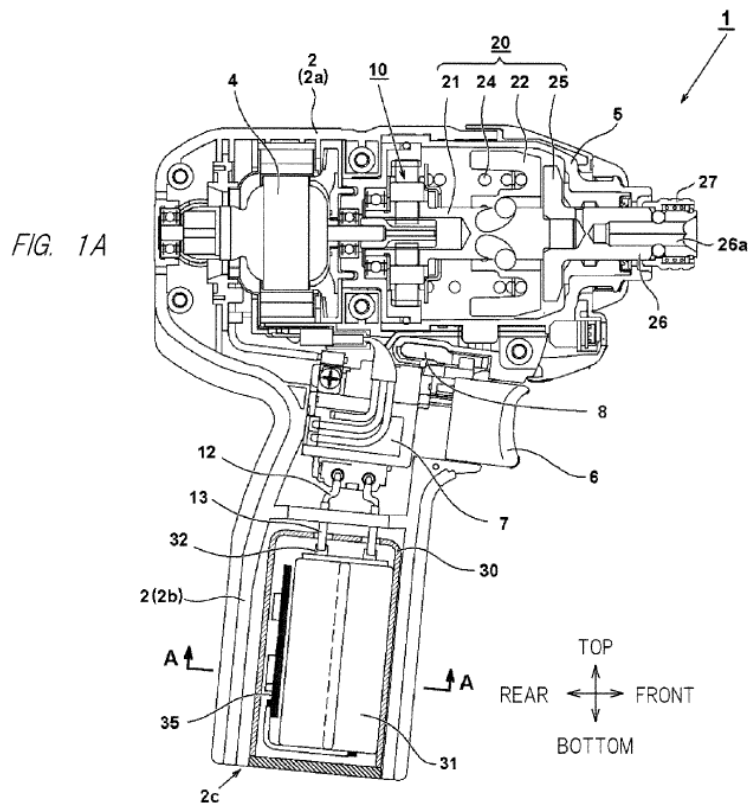


Figure 1A depicts a longitudinal cross-section of an embodiment of Horie's power tool. Ex. 1012 ¶ 18. Power tool 1 includes rechargeable battery pack 30 as a power supply, and motor 4 as a driving source for the tool. *Id.* ¶ 44. Power tool 1 also includes housing 2, with grip portion 2b that is integrally extended from body portion 2a of housing 2 substantially at right angles.

Battery pack 30 is mounted in the inner space of grip portion 2b, and includes a case and three battery cells 31 housed inside the case. Ex. 1012 ¶¶ 45–46. Battery pack 30 is disposed in grip portion 2b such that the longitudinal orientation of the battery cells corresponds to the longitudinal direction of grip portion 2b. *Id.* ¶ 46. Battery pack 30 also includes circuit board 35 with a protective circuit for protecting battery cells 31. *Id.* In the embodiment of Figure 1A, circuit board 35 is disposed in an orientation

parallel with the longitudinal direction of battery cells 31. *Id.*; *cf. id.* at Fig. 2A (depicting a circuit board (item 46) in an orientation perpendicular to the longitudinal direction of the battery cells of that embodiment).

4. *Huang (Ex. 1010)*

Huang, titled “Power Display Structure of Wireless Microphone,” published April 21, 2011. Ex. 1010, codes (54), (45). Huang is directed to “a power display structure of a wireless microphone.” *Id.* at code (57). Relevant to this proceeding, Huang’s wireless microphone includes one or more circuit boards 21 powered by a battery and including power supply circuit 22. Ex. 1010, 5. Light-emitting circuit board 25 is connected to and controlled by circuit board 21. *Id.* at 10.

Circuit board 25 includes light-emitting elements 26, which indicate sufficient power for Huang’s microphone, and light-emitting elements 28, which indicate insufficient power for the microphone. Ex. 1010, 10. In Huang’s exemplary embodiment, light-emitting elements 26 are blue LEDs, and light-emitting elements 28 are red LEDs. *Id.*

Huang’s wireless microphone also includes light-transmitting connector 30, which includes light-transmitting display ring 35, which covers the full circumference of connector 30. Ex. 1010, 10; *see also id.* at Figs. 1, 2 (depicting connector 30 and light-transmitting display ring 35).

[W]hen the battery of the wireless microphone is in a sufficient power status, when the user presses the power source key (16) to start the use, the circuit on the circuit board (21) can start the first light-emitting element (26), which represents sufficient power, on the light-emitting circuit board (25) after detecting that the battery power is sufficient, so that the light is transmitted through the light-transmitting display ring (35) of the light-transmitting connector (30)

On the other hand, when the battery of the wireless microphone is in a power shortage status, after the user presses the power source key (16) to start use, the circuit on the circuit board (21) immediately detects the power shortage of the battery, while the second light-emitting element (28), representing the power shortage, on the light-emitting circuit board (25) is started, and simultaneously the first light-emitting element (26) representing sufficient power is turned off, so that the light of the second light-emitting element (28) is emitted from the light-transmitting display ring (35) of the light-transmitting connector (30)

Id. at 10–11.

5. *Srinivasan (Ex. 1011)*

Srinivasan, titled “Pen Needle Exchange System,” published May 2, 2019, from a Patent Cooperation Treaty application filed March 31, 2017. Ex. 1011, codes (54), (43), (22). Srinivasan is directed to medication pens. *Id.* ¶ 2. Relevant to this proceeding, Srinivasan’s medication pen includes battery board 250, which is a printed circuit board connected to battery 252. *Id.* ¶ 53. Connected to battery board 250, through battery board connector 261, is main board 260. *Id.* ¶ 55. Main board 260 includes circuit board components 266 and LEDs 268. *Id.* These LEDs are arranged on circuit board 260 and provide the status of the device, including if the device is powered on or has a low battery level. *Id.* ¶¶ 59–60; *see also id.* at Fig. 21 (depicting LEDs 268 arranged near the periphery of circuit board 260).

Srinivasan’s medication pen also includes diffuser ring 244, which “is configured to diffuse the light emitted by the LEDs 268 around an entire outer perimeter of the needle assembly 2 . . . [, such that] the device status of the electronic exchange system 200 is more obvious from . . . viewing angles . . . based on [the] illumination of the diffuser ring 244.” Ex. 1011 ¶ 69; *see also id.* at Figs. 1–3, 20, 21, 26 (depicting diffuser ring 244).

II. ANALYSIS OF PETITIONER’S CHALLENGES

A. *Applicable Law*

Petitioner’s asserted grounds of unpatentability are based on obviousness under 35 U.S.C. § 103.

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

35 U.S.C. § 103 (2011). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when available, objective evidence, such as commercial success, long felt but unsolved needs, and failure of others⁸. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

“[O]bviousness must be determined in light of *all the facts*, and . . . a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine” teachings from multiple references. *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (emphasis added); *see also PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1196 (Fed. Cir. 2014) (“The presence or

⁸ Neither party directs us to evidence of indicia of nonobviousness in the current record.

absence of a motivation to combine references in an obviousness determination is a pure question of fact.”).

B. Level of Ordinary Skill in the Art

The level of skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Petitioner contends that a person having ordinary skill in the art had “a bachelor’s degree in mechanical engineering or industrial design and at least 2-3 years of experience in consumer product design, production, development, and/or manufacturing, or equivalent experience.” Pet. 24 (referencing Ex. 1002 ¶ 33). Patent Owner does not challenge Petitioner’s characterization of the level of ordinary skill in the art at this stage of the proceeding. Prelim. Resp. 12.

For the purposes of this Decision, we apply Petitioner’s definition of the level of ordinary skill in the art. We determine that this definition is consistent with the prior art of record and the skill reflected in the Specification of the ’708 patent, based on our review of the current record.

C. Claim Construction

In *inter partes* reviews, we interpret a claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b).” 37 C.F.R. § 42.100(b). Under this standard, we construe the claim “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.*

“Petitioner proposes that each claim term in the Challenged Claims be given its plain and ordinary meaning in this proceeding.” Pet. 24. Petitioner adds that “the prior art relied on in this Petition meets each of the claim

terms under any reasonable construction.” *Id.* Petitioner further explains that, in the parallel district court litigation, the parties do propose differing constructions for certain claim terms, but Petitioner does not believe any differences in the parties’ proposed constructions impact this proceeding. *Id.* (citing Ex. 1013, which provides the parties’ Joint Claim Construction and Prehearing Statement).

Patent Owner also does not propose any express constructions. Prelim. Resp. 12 (“Petitioner’s proposed combinations fail to render the challenged claims obvious even under the plain and ordinary meaning of their terms. Thus, Patent Owner does not believe it is necessary to construe any claim term at this stage.”).

We determine that we need not expressly construe any claim terms to resolve the parties’ disputes on the current record.⁹ *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). To the extent that the scope of any particular claim term requires discussion, however, we provide it in our assessment of the challenges, which we turn to next.

⁹ The parties’ joint claim construction statement, filed in the parallel district court litigation between the parties, identifies the following disputed terms: “a handle attached to the main enclosure,” “an outer gripping surface,” “a charge condition,” and “a charge indication display.” Ex. 1013, 2–3. As will be evident from our analysis below, none of these claim terms are implicated in our Decision.

D. Ground A: Claims 1–12 as unpatentable over Shaanxi, Horie, Huang and/or Srinivasan

Petitioner contends that the combination of Shaanxi, Horie, Huang and/or Srinivasan teaches or suggests each limitation of claims 1–12.

Pet. 25–47. We analyze the scope and content of the prior art and any differences between the prior art and the subject matter to the extent necessary to determine if the information in the Petition demonstrates a reasonable likelihood that at least one of claims 1–12 is unpatentable.

1. Independent claim 1

Independent claim 1 recites, in relevant part, “[a] battery-powered percussive massage device comprising: . . . a handle . . . comprising: a cavity, the cavity housing at least one battery and a printed circuit board, . . . including a battery controller that receives electrical power via a connector and that selectively charges the at least one battery.” Ex. 1001, 22:62–23:18 (the “battery” limitation of claim 1). Petitioner recognizes that “Shaanxi does not specify the electrical power source” for its percussive massage device. Pet. 25. Petitioner contends that a person having ordinary skill in the art would have understood “that an electric power source was required to provide electric power [to the massager] and would [have] look[ed] to known options . . . such as found in Horie.” *Id.* (referencing Ex. 1002 ¶¶ 77–80). Petitioner adds that “during prosecution the Examiner noted that utilizing a rechargeable battery in a handheld massage device would have been obvious.” *Id.* (referencing Ex. 1004, 347).

Petitioner contends that “Horie describes a handheld, pistol-shaped, electric power tool.” Pet. 28. Petitioner explains that embodiments of Horie’s tool include a handle with battery cells, a control circuit board, and

electrical contacts used to recharge the batteries. *Id.* at 28–29 (referencing Ex. 1012 ¶¶ 46, 52–54, Figs. 5B, 8B, 11B, 12B; Ex. 1002 ¶¶ 89–92); *see also id.* at 29 (reproducing Horie’s Figures 4A and 10A and highlighting the battery cells and handle, and Horie’s Figure 6, showing the battery control circuitry).

Petitioner also directs us to disclosure in Horie discussing the operation of protective integrated circuit (“IC”) 140, and concludes that “Horie discloses a circuit board 130 in the handle containing a battery charging circuitry, including 140, that receives electricity from the charger 148 to selectively charge the batteries/battery unit.” Pet. 30 (referencing Ex. 1012 ¶¶ 67, 77, Fig. 6; Ex. 1002 ¶ 93).

Patent Owner argues that “Petitioner fails to provide any analysis . . . as to how a [person having ordinary skill in the art] *could have*, let alone why a [person having ordinary skill in the art] *would have*, incorporated the battery cells 31, which are housed in the handle 62b of Horie, into the handle 6 of Shaanxi as required by claim 1 *when* [Shaanxi’s] *motor 18 is in the handle 6.*” Prelim. Resp. 16–17. Patent Owner argues that even if it would have been obvious to have used a rechargeable battery in Shaanxi’s massager, such as the battery taught by Horie, Petitioner fails to address why a person having ordinary skill in the art would have incorporated the battery in Shaanxi’s handle. *Id.* at 17. Patent Owner argues that the fact that the elements of claim 1 are shown separately in Shaanxi and Horie alone is insufficient to demonstrate that the subject matter of claim 1 would have been obvious. *Id.* at 17–18.

Patent Owner also argues that both Shaanxi’s and Horie’s disclosures weigh against Petitioner’s proposed modification. Prelim. Resp. 18. Patent

Owner argues that Shaanxi discloses that it is advantageous for a user to handle the massager with one hand. *Id.* Also, Patent Owner argues that Horie touts that the grip portion of its tool is sufficiently narrow to be easily grabbed by workers. *Id.* Patent Owner argues that modifying Shaanxi by putting a battery into a handle that already houses a motor “would run counter” to the benefits of a smaller, easily-gripped handle. *Id.*

We agree with Patent Owner that Petitioner has not sufficiently demonstrated that a person having ordinary skill in the art would have modified Shaanxi’s teachings to include a battery *in the handle* of Shaanxi’s massager to arrive at the subject matter of the “battery” limitation of claim 1, given that Shaanxi teaches its motor is located in the handle. Although we agree with Petitioner that Shaanxi’s electric massager would need a source of electricity (Pet. 25), Petitioner fails to address the implication of modifying Shaanxi’s teachings of a massager with a motor located in its handle to include a battery in the handle. *See* Pet. 28–30 (discussing Horie’s disclosure of a power tool with a battery in the handle by providing no analysis of why a person having ordinary skill in the art would have modified Shaanxi to include a battery in the handle); Ex. 1002 ¶¶ 77–80, 88–93 (testifying as to why a person having ordinary skill in the art would have looked to using a rechargeable battery, but not addressing why an artisan of ordinary skill would have modified Shaanxi as proposed given that the massager has a motor in the handle).

Specifically, neither Petitioner nor its declarant provides any reasoning as to why a person having ordinary skill in the art would have modified a massager with a motor in the handle to also include a battery in the handle beyond stating that an electrical power source would be needed.

Obviousness, however, requires “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements *in the way the claimed new invention does.*” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (emphasis added); *see also id.* (“[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.”); *Johns Manville Corp. v. Knauf Insulation, Inc.*, IPR2018-00827, Paper 9 at 13 (PTAB October 16, 2018) (“Moreover, it is Petitioner’s burden to demonstrate ‘that a skilled artisan would have been motivated to combine the teachings of the prior art references *to achieve the claimed invention*, and that the skilled artisan would have had a reasonable expectation of success in doing so.’” (quoting *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367–68 (Fed. Cir. 2016)) (emphasis added) (informative)).

Petitioner’s reliance on the fact that the “Examiner noted that utilizing a rechargeable battery in a handheld massage device would have been obvious” during prosecution of the application that matured into the ’708 patent does not help Petitioner’s position. *See* Pet. 25 (citing Ex. 1004, 347). In the Office Action cited by Petitioner, the Examiner determined that it would have been obvious to substitute Danby’s electric power cord with Jeong’s battery. Ex. 1004, 347. This determination is not at issue here. Instead, the issue is whether Petitioner adequately demonstrates that a person having ordinary skill in the art would have had reason to modify Shaanxi as Petitioner proposes given that Shaanxi’s motor is in its massager’s handle. In Danby, motor 210 is on top of its massager, and its handle includes only control circuitry 260, thus not providing a possible impediment to housing a battery. *See* Ex. 1014 ¶¶ 32–33, Fig. 2.

For the reasons above, we determine that Petitioner has not demonstrated a reasonable likelihood that claim 1 is unpatentable over Shaanxi, Horie, Huang, and Srinivasan.¹⁰

2. *Independent claim 7*

Independent claim 7 recites, in relevant part, “a battery unit housed at least partially within the handle.” Ex. 1001, 24:1. Petitioner discusses Horie disclosing battery packs, which Petitioner contends corresponds to the recited battery unit, but does not provide any additional reasoning for modifying Shaanxi’s handle with Horie’s battery packs. *See* Pet. 44–45; *see also* Prelim. Resp. 19 (“Petitioner fails to allege how or why a [person having ordinary skill in the art] would have incorporated the battery cells 31 of Horie into the handle 6 of Shaanxi to provide the claimed features of ‘a battery unit housed at least partially within the handle’ as recited in claim 7.”). Accordingly, for the reasons discussed above in connection with our analysis of claim 1 under this ground, we determine that Petitioner has not demonstrated a reasonable likelihood that claim 7 is unpatentable over Shaanxi, Horie, Huang, and Srinivasan.

3. *Dependent claims 2–6 and 8–12*

Dependent claims 2–6 and 8–12 depend, directly or indirectly, from either independent claim 1 or independent claim 7. Petitioner does not provide any arguments or evidence directed to these dependent claims to

¹⁰ Patent Owner provides other arguments directed to the combination of teachings of Huang and Srinivasan with the teachings of Shaanxi and Horie for other subject matter of claim 1. Because we determine Petitioner’s position with respect to the subject matter of the “battery” limitation of claim 1 is insufficient for institution, we need not address Patent Owner’s other arguments.

overcome the deficiency we identify in Petitioner’s position with respect to claims 1 and 7. Accordingly, for the reasons discussed above in connection with our analysis of independent claims 1 and 7 under this ground, we determine that Petitioner has not demonstrated a reasonable likelihood that claims 2–6 and 8–12 are unpatentable over Shaanxi, Horie, Huang, and Srinivasan.

E. Ground B: Claims 1–12 as unpatentable over Jingwen, Horie, Huang and/or Srinivasan

1. Independent claim 1

Independent claim 1 recites, in relevant part, “a reciprocation assembly coupled to the rotatable shaft [of the motor], the reciprocation assembly including a piston, the reciprocation assembly configured to reciprocate the piston along a reciprocation axis in response to rotation of the rotatable shaft, the reciprocation assembly positioned within the cavity of the main enclosure.” Ex. 1001, 23:1–6 (the “reciprocation assembly” limitation of claim 1). Petitioner contends that Jingwen teaches the subject matter of this limitation. Pet. 54–58. Specifically, Petitioner explains and illustrates how Jingwen’s handheld massager translates rotational action of its motor to reciprocating action of its piston. *See id.*

In contending that Jingwen satisfies the “reciprocation assembly” limitation of claim 1, Petitioner explains that Jingwen’s pendulum 40¹¹ is rotatably coupled to the engine shaft of Jingwen’s motor, and that passive assembly 70 corresponds to the recited piston. Pet. 54; *see also id.*

¹¹ The Petition appears to contain a typographical error, as the Petition identifies “[p]endulum 62.” *See* Pet. 54; *see also id.* at 56 (quoting Jingwen, paragraph 45, which identifies the reference number for the pendulum as “40”).

(identifying item 72 of passive assembly 70 as the piston). Petitioner also identifies the recited reciprocating assembly as corresponding to Jingwen’s “body part 61, of the slider group 60, a toggle portion 62, a striking head portion 63, a striking tail 73, passive assembly 70, and several springs 64, 74 and 90.” *Id.* (referencing Ex. 1002 ¶ 179).

Petitioner then provides annotated versions of Jingwen’s Figures 5–8 and language taken directly from Jingwen to illustrate and describe how rotational action is translated to reciprocating action in Jingwen’s massager. Pet. 55–57. Relevant to our analysis here, Petitioner illustrates and describes how pendulum 40 acts on toggle portion¹² 62 to cause slider group 60 and, ultimately, passive assembly 70 and massage head 80, to reciprocate. *See id.* Significantly, as Jingwen’s motor rotates, pendulum 40 intermittently contacts toggle portion 62, forcing toggle portion 62 towards the rear of the massager. *See id.* at 56 (showing an annotated version of Figure 8, with pendulum 40 forcing toggle portion 62 rearward, and quoting Jingwen’s paragraph 45: “the pendulum 40 is driven to rotate by the electric motor 30, and the shifting portion 62 of the slider group 60 is shifted to the rear end on a rotational path, so that the slider group 60 is pulled back, and the stretching spring 90 is stretched”). As motor 30 continues to rotate, pendulum 40 disengages from toggle portion 62, causing stretching spring 90 to act on slider group 60, causing it to move forward to ultimately drive massage head 80. *See id.* (quoting Jingwen’s paragraph 45: “after the pendulum 40 passes through the shifting portion 62 of the slider group 60, the stretching spring 90 pulls the slider group 60 to the front end, so that the body part 61 of the

¹² Jingwen’s translation also refers to item 62 as “shifting portion.” *See* Ex. 1008 ¶ 45.

slider group 60 slides along the sliding rail 50 and is displaced to the front”); *see also id.* at 55 (providing annotated versions of Jingwen’s Figures 5–7, showing the movement of sliding group 60, passive assembly 70, and massage head 80 when pendulum 40 releases toggle portion 62); *cf.* Prelim. Resp. 29–30 (describing the operation of Jingwen).

Patent Owner argues that the structure for which Petitioner contends corresponds to the “reciprocation assembly” is not “coupled to” the rotatable shaft of Jingwen’s motor 30 as required by claim 1. Prelim. Resp. 29. Patent Owner explains the operation of Jingwen’s massager to produce reciprocating action. *Id.* at 29–31 (including Petitioner’s annotated versions of Jingwen’s Figures 5–8). Patent Owner concludes, based on its characterization of Jingwen’s operation, that “the ‘reciprocation assembly’ of Jingwen as defined by Petitioner is not ‘coupled to the rotatable shaft [of the motor]’ as recited in claim 1 because the pendulum 40 and, by extension, the motor shaft, at most only intermittently contact (*i.e.*, ‘toggles’) the toggle portion 62.” *Id.* at 31–32 (alteration in original).

Patent Owner argues that Petitioner fails to satisfy its burden to show with particularity how Jingwen teaches the subject matter of the “reciprocation assembly” limitation of claim 1. Prelim. Resp. 32 (citing 37 C.F.R. § 42.104(b)(4); *Harmonic Inc. v. Avid Tech. Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016)). Patent Owner argues that Petitioner does not identify pendulum 40 as part of the reciprocating assembly. *Id.* Patent Owner adds that Petitioner does not analyze the “coupled to” language at all—instead Petitioner copies a large amount of text from Jingwen and then concludes, without further support, that “Jingwen discloses a reciprocation assembly coupled to the rotatable shaft.” *Id.* at 32–33. Patent Owner

concludes that such an approach cannot satisfy Petitioner's burden. *Id.* at 33.

We agree with Patent Owner that Petitioner has not met its burden to demonstrate sufficiently that Jingwen teaches “a reciprocation assembly coupled to the rotatable shaft” of the motor as required by the “reciprocation assembly” limitation of claim 1. As an initial matter, we agree with Patent Owner that Petitioner does not contend that pendulum 40 is part of the structure that Petitioner alleges corresponds to the recited reciprocation assembly. Petitioner expressly states that “[t]he reciprocating assembly of Jingwen includes body part 61, of the slider group 60, a toggle portion 62, a striking head portion 63, a striking tail 73, passive assembly 70, and several springs 64, 74 and 90.” Pet. 54. And pendulum 40 is the only structure that Petitioner contends is “coupled to” the rotating shaft of Jingwen's motor 30.

Also, Petitioner does not provide us with any construction of the term “coupled to” that would encompass the intermittent contact between pendulum 40 and toggle portion 62. Petitioner merely states “that each claim term in the Challenged Claims [should] be given its plain and ordinary meaning in this proceeding.” Pet. 24. Neither Petitioner nor its declarant provides any additional analysis as to what the plain and ordinary meaning of “coupled to” is, or how that meaning would encompass components that are not physically coupled throughout the complete rotation of the motor shaft, such as Jingwen's pendulum 40 and toggle portion 62. *See* Pet. 54–58; *see also* Ex. 1002 ¶¶ 179–184 (describing how Jingwen generates reciprocating action and not identifying how the “coupled to” language is satisfied). For example, Mr. Howell opines, after describing Jingwen's operation, that “it would have been obvious to a [person having

ordinary skill in the art] at the time of the invention that utilizing an eccentric rotating mass in conjunction with a rotary electric motor is a common method to convert rotary motion to linear reciprocating motion to drive a ram or piston and is found in consumer products.” Ex. 1002 ¶ 184. But claim 1 does not require using an eccentric mass to convert rotational motion to reciprocating motion—it requires a rotating shaft that is *coupled to* the reciprocating assembly.

Without any analysis as to how Jingwen’s structure satisfies the “coupled to” language of the “reciprocation assembly” limitation of claim 1, or a proposed construction for the claim term, explaining what the scope of the “coupled to” language is, even under the plain and ordinary meaning, we are left to speculate Petitioner’s position as to how to construe the claim and how the teachings of Jingwen satisfy that construction. Our rules, however, place the burden of production of sufficient arguments and evidence to demonstrate unpatentability on Petitioner. *See* 37 C.F.R. §§ 104(b)(3) (requiring a petition to identify “[h]ow the challenged claim is to be construed”), 104(b)(4) (requiring a petition to identify “[h]ow the construed claim is unpatentable,” and requiring that “[t]he petition . . . specif[ies] where each element of the claim is found in the prior art patents or printed publications relied upon”); *see also* 35 USC § 312(a) (2011) (“A petition . . . may be considered only if . . . the petition identifies, in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim . . .”).

For the reasons above, we determine that Petitioner has not demonstrated a reasonable likelihood that claim 1 is unpatentable over Jingwen, Horie, Huang, and Srinivasan.¹³

2. *Independent claim 7*

Independent claim 7 recites similar subject matter as the “reciprocation assembly” limitation of claim 1. *See* Ex. 1001, 23:56–61. Petitioner incorporates its contentions for claim 1 into the Petition’s analysis of this subject matter of claim 7. Pet. 74. Accordingly, for the reasons discussed above in connection with our analysis of claim 1 under this ground, we determine that Petitioner has not demonstrated a reasonable likelihood that claim 7 is unpatentable over Jingwen, Horie, Huang, and Srinivasan.

3. *Dependent claims 2–6 and 8–12*

Dependent claims 2–6 and 8–12 depend, directly or indirectly, from either independent claim 1 or independent claim 7. Petitioner does not provide any arguments or evidence directed to these dependent claims to overcome the deficiency we identify in Petitioner’s position with respect to claims 1 and 7. Accordingly, for the reasons discussed above in connection with our analysis of independent claims 1 and 7 under this ground, we determine that Petitioner has not demonstrated a reasonable likelihood that

¹³ As was the case for Ground A, Patent Owner provides other arguments directed to the combination of teachings of Huang and Srinivasan with the teachings of Jingwen and Horie for other subject matter of claim 1 under Ground B. Because we determine Petitioner’s position with respect to the subject matter of the “reciprocation assembly” limitation of claim 1 is insufficient for institution, we need not address Patent Owner’s other arguments.

claims 2–6 and 8–12 are unpatentable over Jingwen, Horie, Huang, and Srinivasan.

III. CONCLUSION

Based on the information presented, we determine Petitioner has not established a reasonable likelihood that it would prevail with respect to any of the Challenged Claims. Accordingly, we do not institute an *inter partes* review.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), the Petition is *denied*.

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Patent 10,912,708 B2

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