

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SHENZHEN ROOT TECHNOLOGY CO., LTD.,
Petitioner,

v.

CHIARO TECHNOLOGY LTD.,
Patent Owner.

IPR2024-01296
Patent 11,413,380 B2

Before MEREDITH C. PETRAVICK, GRACE KARAFFA OBERMANN,
and AMEE A. SHAH, *Administrative Patent Judges*.

SHAH, *Administrative Patent Judge*.

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

I. INTRODUCTION

Shenzhen Root Technology Co., Ltd. (“Petitioner”) filed a Petition (Paper 3 (“Pet.”)) on August 14, 2024, which was accorded a filing date of August 14, 2024 (Paper 5), per 35 U.S.C. §§ 311–319, for *inter partes* review of claims 1–46 (“the Challenged Claims”) of U.S. Patent No. 11,413,380 B2 (Ex. 1001, “the ’380 patent”). Chiaro Technology Ltd., (“Patent Owner”) filed a Preliminary Response (Paper 6 (“POPR”)).

Petitioner also filed a “Notice Ranking and Explaining Material Differences Between Petitions for *Inter Partes* Review of U.S. Patent No. 11,413,380.” Paper 2 (“Notice of Ranking” or “Exp.”). In the Notice of Ranking, Petitioner indicates that it previously filed a first petition in IPR2024-00953 against the ’380 patent challenging all claims. Exp. 2. Petitioner also requests that we consider the instant Petition “as a higher priority due to the pertinence of the Fang publication, which highlights the [E]xaminer’s mistaken belief regarding the state of the art when the ’380 patent was allowed.” *Id.*

On December 16, 2024, we denied institution of IPR2024-00953 in favor of this proceeding with no determinations on the merits of this proceeding. IPR2024-00953, Paper 18.

A. *REAL PARTIES IN INTEREST*

Petitioner identifies “Shenzhen Root Technology Co., Ltd., which was also known as Shenzhen Lutejiacheng Network Technology Co., Ltd., which changed its name to Shenzhen Lute Innovation Technology Co., Ltd., in September 2023.” Pet. 87. Petitioner also identifies the following entities: Hong Kong Lute Technology Co., Ltd., Shenzhen Conglin E-Commerce

Co., Ltd., Shenzhen Jinruihang Technology Co, Ltd., Shenzhen Xitao Network Technology Co., Ltd., ROOT Technology Ltd. *Id.*

Patent Owner identifies itself, Chiaro Technology Ltd., as the only real party in interest. Paper 4, 1.

B. RELATED MATTERS

In addition to the IPR2024-00953 petition, the parties identify the following lawsuits in which the '380 patent is asserted: *Shenzhen Root Technology Co., Ltd. v. Chiaro Technology, Ltd.*, Case No. 2:23-cv-00631 (W.D. Wash.) (“the *Shenzhen Root* case”)¹, and *Willow Innovations, Inc. v. Chiaro Technology, Ltd.*, Case no. 2:23-cv-00229 (E.D. Tex.) (to which Petitioner is not a party) (“the *Willow* litigation”). Pet. 87; Paper 4, 1.

C. THE '380 PATENT

The '380 patent is titled “BREAST PUMP SYSTEM” and issued August 16, 2022, from Application No. 17/203,327, filed on March 16, 2021 (“the '327 Application”). Ex. 1001, codes (21), (22), (45), (54). The '380 patent refers back to two applications, the earliest of which was filed on June 15, 2018 and issued as Patent No. 10,926,011. *Id.* at code (63). The '380 patent is directed “a wearable breast pump system including a housing shaped at least in part to fit inside a bra and a piezo air-pump” that is fitted in the housing. *Id.* at code (57).

The '380 patent seeks to addresses prior art breast pump systems' disadvantages of a user being tethered to a wall, indiscreet use, noise, discomfort, difficulty in cleaning, collection bag issues regarding difficulty

¹ In its Mandatory Notice, Patent Owner lists this case as “*Shenshen Root Technology Co., Ltd. v. Chiaro Technology, Ltd.*, 1–23-cv-00631.” Paper 4, 1. We consider this a minor typographical error.

in extracting all the milk from the bag, the recurring cost, small bag size, and the large size and bulkiness of prior wearable breast pump systems.

Ex. 1001, 1:65–67, 2:2–4, 2:19–30, 2:38, 53–55. It does so by providing “a breast pump system that is, at least in part, wearable inside a bra” and comprises a breast shield, a housing and a milk collection container. *Id.* at 5:40–45. Figure 1, reproduced below, depicts the breast pump,

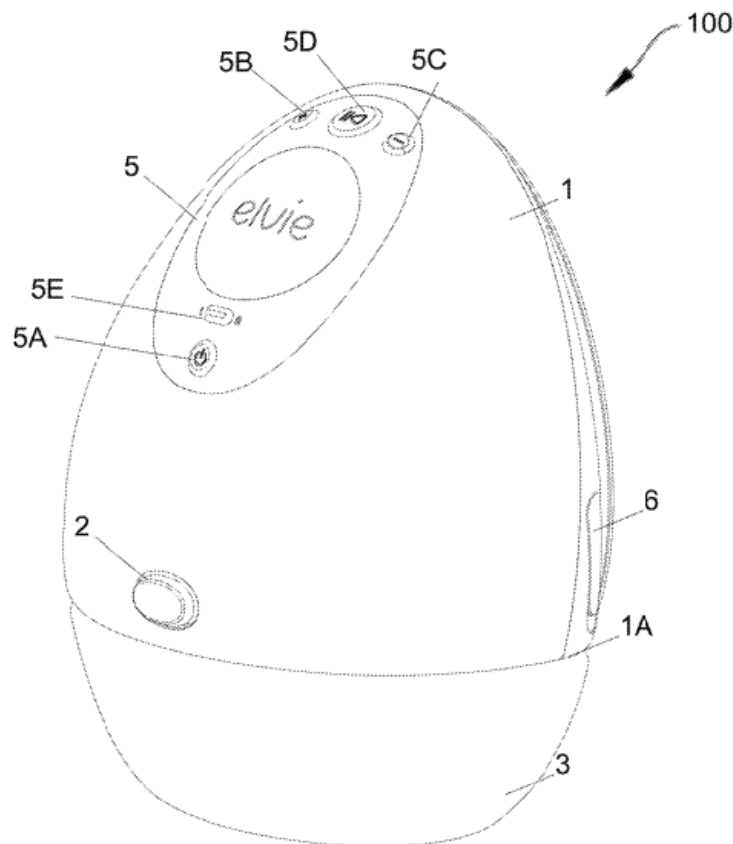


Figure 1 is “a front view of an assembled breast pump system.” Ex. 1001, 4:3–4. The breast pump system 100 of the ’380 patent comprises the main components of a breast shield 7, housing 1, and milk collection container 3. Ex. 1001, 5:40–47, 5:56–60. Figure 3, reproduced below, depicts “a partially disassembled breast pump 100 of the present invention.” Ex. 1001, 9:63–64.

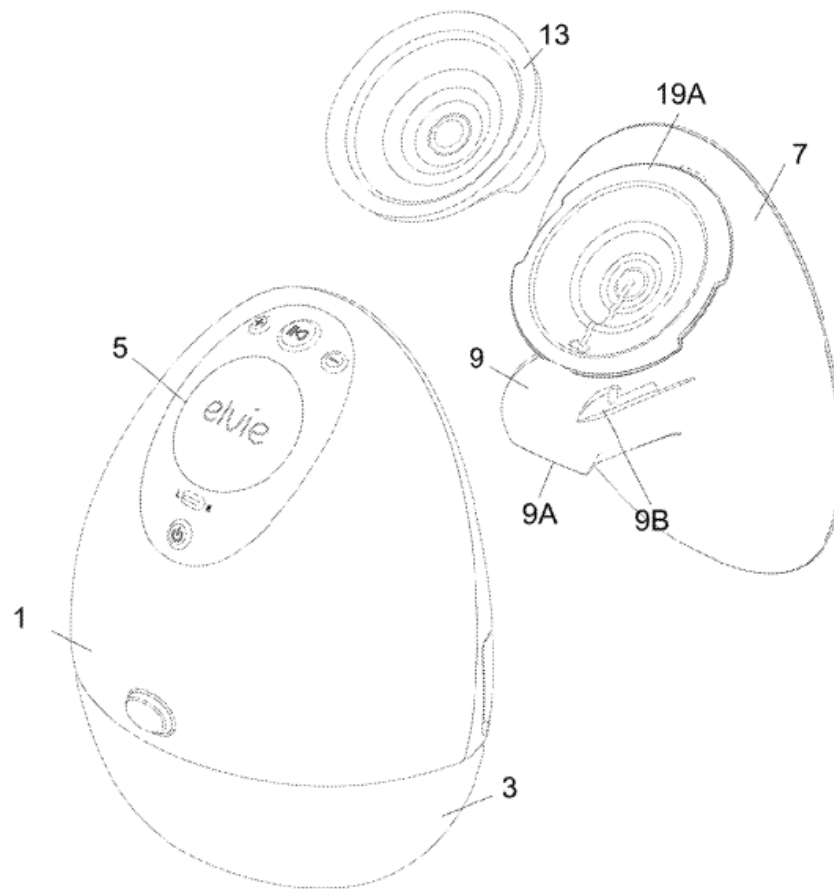


Figure 3 “is a front view of a partially disassembled breast pump system.” Ex. 1001, 4:7–8.

Breast shield 7 is “for engagement with the user’s breast” and comprises a flexible diaphragm “for transferring the pressure from the pump to the milk-collection side of the system,” an inner flange, an elongated nipple tunnel, and a curved section. *Id.* at 5:41, 6:14–15, 8:62–64, 9:27–32, 10:25–29. Housing 1 is “for receiving at least a portion of the breast shield” and comprises a pump “for generating a negative pressure in the breast shield,” a battery, control electronics, user interface 5, and a region for receiving the nipple tunnel 9 of breast shield 7, breast shield 7 being held in place by channels 9B. *Id.* at 5:42, 5:47–49, 9:66–10:4. The milk collection

container is rigid, detachable, and “attachable, in use, to a lower face of the housing and connected to the breast shield for collecting milk expressed by the user, with a milk-flow pathway defined from an opening in the breast shield to the milk collection container.” *Id.* at 5:38–47. Diaphragm 13 transfers pressure from the pump to the milk-collection side and is seated into diaphragm housing 19A. *Id.* at 10:25–29. Figure 7, reproduced below, shows a front view of the breast pump system 100 with the outer surface drawn as translucent to show the inside components. *Id.* at 13:9–11.

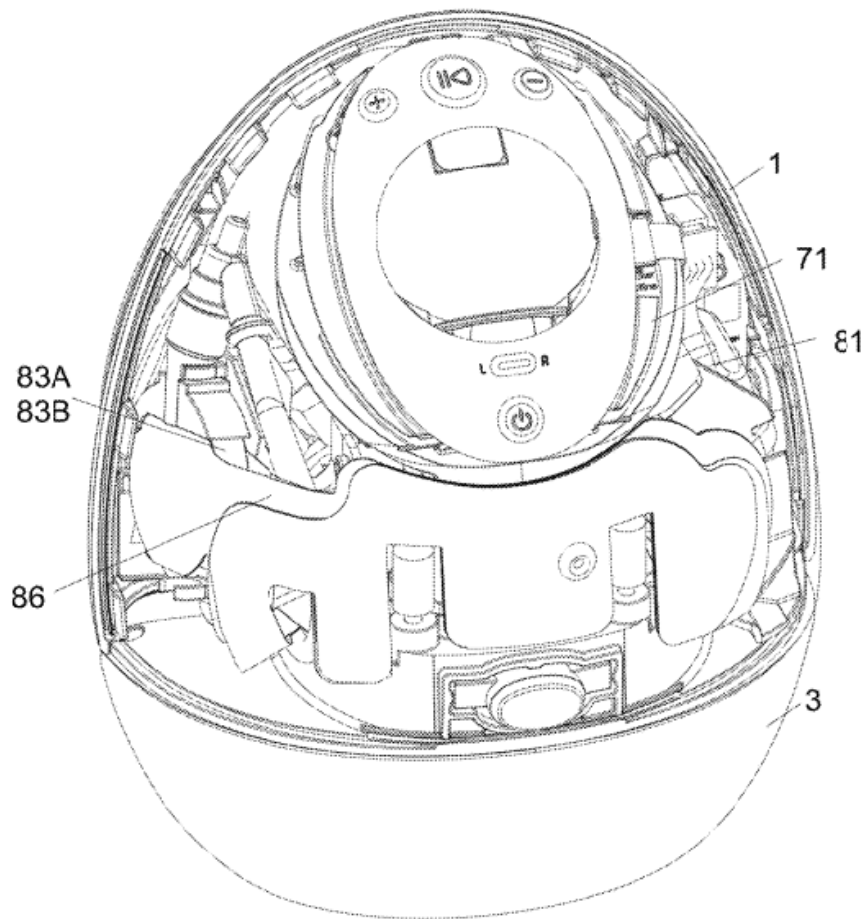


Figure 7 “is a front view of the breast pump system of FIG. 1, with the outer shell translucent for ease of explanation.” Ex. 1001, 4:15–16. Control circuitry 71 within housing 1 has a power charging means for charging

battery 81. *Id.* at 13:29–30. Pumps 83A and 83B are mounted in series inside housing 1 with air filter 86 at the output of the pumps and are preferably piezoelectric air pumps “which operate nearly silently and with minim vibrations.” *Id.* at 13:37–44. However, the invention may have a single pump. *Id.* at 13:38–41.

In the ’380 patent’s breast pump, “the only parts of the system that come into contact with milk in normal use are the breast shield and the milk container; milk only flows through the breast shield and then directly into the milk container,” such that there is no milk flow through any parts of the housing thereby achieving “maximum hygiene and ease of cleaning.” *Id.* at 5:50–55.

D. ILLUSTRATIVE CLAIMS

Petitioner challenges claims 1–46 of the ’380 patent. Pet. 2. Claims 1 and 29 are independent claims. Claims 2–28 and 30–46 depend from claims 1 and 29, respectively. Claim 1 is illustrative of the claimed subject matter and is reproduced below with bracketed labels as added by Petitioner:

1[pre]. A breast pump device comprising:

1[a] a self-contained, in-bra wearable device comprising:

1[b] a pump housing that includes:

1[b][i] a rechargeable battery,

1[b][ii] a power charging circuit for controlling charging of the rechargeable battery,

1[b][iii] control electronics powered by the rechargeable battery,

1[b][iv] a pump powered by the rechargeable battery and configured to generate negative air pressure,

1[b][v] a Universal Serial Bus (USB) charging socket for transferring power to the power charging circuit and the rechargeable battery, and

1[b][vi] a recess or cavity that defines a pumping chamber;

1[c] a breast shield made up of a breast flange and a nipple tunnel;

1[d] a milk container that is configured to be attached to and removed from the pump housing; and

1[e] a diaphragm that is configured to prevent milk from reaching the pump, the diaphragm being seated against a diaphragm housing that is fixed to a recessed surface of the pump housing, and the diaphragm being a membrane that deforms in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel.

Ex. 1001, 71:9–33.

E. ASSERTED GROUNDS OF UNPATENTABILITY

Petitioner asserts that claim 1–46 of the '380 patent are unpatentable based on the following grounds:

Claims Challenged	35 U.S.C. §	References/Basis
1–8, 11, 13–23, 25, 29–35, 37, 39–41, 43	103(a)	Chang, ² Fang, ³ Yuen ⁴
1–11, 13–23, 25–37, 39–41, 43–46	103(a)	Chang, Fang, Yuen, Khalil ⁵
12, 24, 38, 42	103(a)	Chang, Fang, Yuen, Khalil, Park ⁶

² US Patent App. Pub. No. 2018/0333523 A1, filed July 31, 2018, published Nov. 22, 2018 (Ex. 1007 (“Chang”)).

³ CN Utility Model CN205913571U, published Feb 1, 2017 (Ex. 1008) and Certified English Translation (Ex. 1009) (“Fang”).

⁴ PCT Patent Publication No. WO 2017/190678, published Nov. 9, 2017 (Ex. 1011 (“Yuen”)).

⁵ US Patent App. Pub. No. 2013/0023821 A1, published Jan. 24, 2013 (Ex. 1010 (“Khalil”)).

⁶ PCT Publication No. WO 2016/186452, published Jan. 24, 2013 (Ex. 1013), and Certified English Translation (Ex. 1014) (“Park”).

Claims Challenged	35 U.S.C. §	References/Basis
20	103(a)	Chang, Fang, Yuen, Khalil, Chen ⁷

Petitioner also relies on the Declaration of Ryan Bauer. Ex. 1003.

Patent Owner also relies on the following references:

- Weniger, US Publication. No. 2004/0087898 A1 (Ex. 2008)
("Weniger")
- Luzbetak et al., US Patent No. 8,187,227 B2 (Ex. 2009)
("Luzbetak")
- Yuen, US Patent No. 7,641,629 B2 (Ex. 2010) ("Yuen '629")
- Makower et al., US Publication No. 2017/0072118 A1
("Makower")
- Yodfat US. Publication No. 2011/0009824 A1 ("Yodfat")

II. DISCRETIONARY DENIAL

A. 35 U.S.C. § 314(A) – DISTRICT COURT PROCEEDING

Patent Owner argues that we should exercise discretion under 35 U.S.C. § 314(a) to deny the Petition based on the involvement of the '380 patent in District Court of the *Shenzhen Root* case and the *Willow* litigation. POPR 58–67. Institution of *inter partes* review is discretionary. 35 U.S.C. § 314(a); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140 (2016).

Institution of an *inter partes* review is discretionary. *See Harmonic v. Avid Tech.*, 815 F.3d at 1367; *see also* 35 U.S.C. § 314(a). In exercising the Director's discretion under § 314(a), the Board may consider "events in other proceedings related to the same patent, either at the Office, in district court, or the ITC." Patent Trial and Appeal Board Consolidated Trial

⁷ U.S. Patent App. Pub. No. 2017/0080135 A1, filed Mar. 15, 2016, published Mar. 23, 2017 (Ex. 1015 ("Chen")).

Practice Guide, 58 & n.2 (Nov. 2019) (“CTPG”). The Board’s precedential order in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 5–16 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*” or “the *Fintiv* Order”) identifies several factors for analyzing issues related to the Director’s discretion to deny institution in view of related litigation, with the goal of balancing efficiency, fairness, and patent quality.

When considering related litigation, the Board evaluates the following factors (“*Fintiv* factors”):

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court's trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board’s exercise of discretion, including the merits.

Fintiv Order at 5–6. In considering these factors, we apply the guidance set forth in a Memorandum regarding the “Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation” issued by the Director of the United States Patent and Trademark Office (hereinafter, “Guidance Memo”).⁸

⁸ Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf.

In its arguments that we should exercise discretion to deny institution based on parallel proceedings, Patent Owner discusses both the *Shenzhen Root* case and the *Willow* litigation. POPR. 59. Accordingly, we focus on those proceedings when analyzing the *Fintiv* factors. Upon consideration of these factors, we do not exercise our discretion to deny the Petition.

1. *First Factor – Likelihood of Stay*

Petitioner contends that, in the *Shenzhen Root* case, “[n]o motion to stay has been filed. This factor is neutral or favors institution.” Pet. 79.

Patent Owner argues that, in the *Shenzhen Root* case, “Petitioner has presented no evidence nor represented in any way that it may seek a stay, let alone evidence that the Court would grant such a stay.” POPR 60. Further, Patent Owner argues, “the only evidence in this case indicates that Judge Evanson would be unwilling to grant a stay in the *Shenzhen Root* case” as “Judge Evanson’s June 28 Order indicates a desire to have the case proceed ‘efficiently.’” *Id.* And, Patent Owner asserts that no stay, nor evidence that one would be requested, in the *Willow* case where trial was scheduled for March 2025.

According to Petitioner, the *Willow* litigation “was stayed on February 3, 2025 after those parties notified the district court that they reached a ‘settlement of all matters in controversy between the Parties related thereto.’” Paper 7, 1. However, Patent Owner contends that “[o]n January 31, 2025, the Court granted a stay of 30 days after the parties informed the Court that the parties had reached an agreement in principle to resolve the litigation, and that the parties were working to finalize and implement the terms of this settlement in principle.” Paper 8, 3. Patent

Owner also says that “the parties have not yet finalized settlement or filed dismissal papers with the Court.” *Id.*

We decline to speculate about how the District Court might rule on a motion in the *Shenzhen Root* case that has not been filed. Further, the *Willow* litigation has been stayed. On this record, the first factor is neutral. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15 at 12 (PTAB May 13, 2020) (informative) (“We decline to infer . . . how the District Court would rule should a stay be requested by the parties in the parallel case here.”).

2. Second Factor – District Court Trial Date

The Guidance Memo provides that “when analyzing the proximity of the court’s trial date under factor two of *Fintiv*, when other relevant factors weigh against exercising discretion to deny institution or are neutral, the proximity to trial should not alone outweigh all of those other factors,” and the Board may consider “evidence regarding the most recent statistics on median time-to-trial for civil actions in the district court in which the parallel litigation resides.” Guidance Memo, 8–9.

Petitioner contends that in the *Shenzhen Root* case, “[a]ll dates subsequent to the claim construction briefing, including a trial date, remain undefined and will not be scheduled until after the *Markman* hearing (which itself has an undefined date sometime in 2025).” Pet. 80 (citing Ex. 1026, 3–5; Ex. 1027, 11–12). Thus, Petitioner contends, “Factor 2 heavily favors institution,” because “[t]he District Court then essentially reset the schedule [for the *Shenzhen Root* case] in June 2024—striking the existing schedule in its entirety.” Pet. 80 (citing Ex. 1026, 3–5; Ex. 1027, 11–12). Petitioner also asserts that “the average time to trial from initial complaint (30.8

months) has limited bearing where, as here, the trial date and case schedule was essentially reset more than a year after the initial complaint in order to accommodate newly-added Patents,” and “this average time should be applied from the starting point of the counterclaims introduced in 2024.” *Id.* at 80 (citing Ex. 1026, 3).

Patent Owner argues that Petitioner’s position “is incorrect,” because “the District Court’s modified schedule merely moved dates by approximately 2–3 months.” Prelim. Resp. 61. Patent Owner submits evidence that jury selection for the *Shenzhen Root* case in the District Court is scheduled for September 2, 2025, and opines that “it appears likely the trial date in the *Shenzhen Root* case will be set for December 2025.” POPR 61 (citing Ex. 1016, 29–30). Patent Owner does not contest Petitioner’s statistic of average time to trial being 30.8 months.

Were we to institute *inter partes* review in this proceeding, our Final Written Decision would be issued within one year of institution (i.e., February 2026). *See* 35 U.S.C. § 316(a)(11). On June 28, 2024, the District Court adopted Shenzhen’s proposed schedule that had a *Markman* hearing scheduled for December 16, 2024, and struck the trial date of September 2, 2025. Ex. 1026, 5; Ex. 1027, 7–8. Petitioner states, “[r]ecently, all parties in the *Shenzhen Root* case agreed to extend the scheduled deadlines in the district court’s scheduling order by another 45 day [sic], so the deadlines (e.g., *Markman* briefing, etc.) are now extended even further beyond the original dates listed on pages 11-12 of EX1027,” that had the date of the claim construction hearing changed from December 16, 2024 to a date to be set by the court. Paper 7, 1 n, 1; Ex. 1027, 8. However, Patent Owner points out that “Shenzhen TPH Technology Co., Ltd. (“TPH”), a party named in Elvie’s counterclaims filed on August 14, 2023, recently made an

appearance on January 14, 2025, reiterating counterclaims of patent non-infringement and invalidity as previously asserted by Petitioner.” Paper 8, 2. Patent Owner also points out that “[i]n view of TPH’s appearance, the parties agreed to a one-month extension of the case deadlines, which would permit the parties to negotiate and propose a revised case schedule to the Court,” but *all* parties did *not* agree to extend the deadlines in the district court’s scheduling order. *Id.*; *see also id.* n.1 (arguing that Petitioner separately negotiated with THS for the extension to respond to the cross-claims).

Based on the record, the *Markman* hearing has not been held and no trial date has been set in the *Shenzhen Root* case. Therefore, it is uncertain whether the Board’s final decision will precede the *Shenzhen Root* case trial in District Court. Even if we were to assume that Patent Owner’s speculative December 2025 trial date is correct, it is only two months prior to our projected February 2026 deadline for a final written decision. And there is some evidence that the trial date is in flux. *See* Guidance Memo 8 (“Stakeholders correctly noted that scheduled trial dates are unreliable and often change. A court’s scheduled trial date, therefore, is not by itself a good indicator of whether the district court trial will occur before the statutory deadline for a final written decision.”). Given the late appearance of the third party counterclaims in the *Shenzhen Root* case and the average time to trial from initial complaint, we are not persuaded by Patent Owner that trial will occur before we issue our final written decision.

Patent Owner points out that for the related *Willow* case, discovery “is nearly complete,” jury selection is scheduled to begin March 17, 2024, and “[a] *Markman* hearing was held on September 24, 2024.” POPR 61–62 (citing Ex. 2006, Docket Nos. 37–39, 42, 46, 95–99, 107, 109–113). Thus,

Patent Owner argues, “the validity of the ’380 patent will be adjudicated in the Willow case well before the statutory deadline for a final written decision in this IPR, which similarly weighs in favor of denial” *Id.* at 62 (citing *TCO AS v. NCS Multistage Inc.*, PGR2020-00077, Paper 16 at 11-12 (PTAB Feb. 18, 2021)). However, as discussed above, the *Willow* litigation has been stayed due to an expected settlement between the parties, and there will likely be no trial.

On this record, we determine that this factor weighs against discretionary denial.

3. *Third Factor – Investment in Related District Court Litigation*

The more pretrial activities that have been completed in any parallel district court proceedings, the more this factor weighs in favor of denial, and vice-a-versa. *See Fintiv*, Paper 11 at 9–10. In evaluating this factor, “[i]f the evidence shows that the petitioner filed the petition expeditiously, such as promptly after becoming aware of the claims being asserted, this fact has weighed against exercising the authority to deny institution under *NHK*.” *Id.* at 11 (footnote omitted) (citing *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 20 (PTAB Sept. 12, 2018) (precedential)).

In the *Shenzhen Root* case, Petitioner contends that “[n]either [party] has invested in *Markman* briefing, and discovery remains in its infancy,” and that “Petitioner diligently filed this petition” such that “the investment ‘in the []lawsuit, particularly as related to any validity issues, has not been substantial.’” Pet. 80 (quoting *Illumina, Inc. v. Ravgen, Inc.*, IPR2021-01271, Paper 12, 27 (Jan. 26, 2022)).

Patent Owner contends that “Factor 3 strongly favors denial because, by the Board’s February 26, 2025 deadline for issuing an institution

decision, the district court litigation will have been ongoing for nearly two years.” POPR 63. Patent Owner also asserts that “the validity of the ’380 patent will be adjudicated by a district court well before the statutory deadline for a final written decision in this IPR” in the *Willow* litigation. *Id.* at 64.

The evidence of record indicates that, at this time, the District Court and the parties have invested some resources in the *Shenzhen Root* case as to the issues of unpatentability involving the ’380 patent, but that much work remains as it relates to invalidity. The scheduled deadlines in the *Shenzhen Root* case are uncertain, and the district court has not yet held a *Markman* hearing nor issued any substantive orders as to the patentability of the challenged claims. Paper 7, 1; Paper 8, 2. These facts do not favor denial. *Fintiv*, IPR2020-00019, Paper 11 at 10 (“If, at the time of the institution decision, the district court has not issued orders related to the patent at issue in the petition, this fact weighs against exercising discretion to deny institution . . .”).

Additionally, *Fintiv* directs us to consider whether “the petitioner filed the petition expeditiously.” *Fintiv*, Paper 11 at 11.

If the evidence shows that the petitioner filed the petition expeditiously, such as promptly after becoming aware of the claims being asserted, this fact has weighed against exercising the authority to deny institution under *NHK*. If, however, the evidence shows that the petitioner did not file the petition expeditiously, such as at or around the same time that the patent owner responds to the petitioner's invalidity contentions, or even if the petitioner cannot explain the delay in filing its petition, these facts have favored denial.

Fintiv, Paper 11 at 11–12.

Patent Owner contests that Petitioner has been diligent and argues that “Petitioner has been aware of the detail of Patent Owner’s infringement allegations relating to the ’380 patent since at least August 14, 2023.” POPR 62 (citing Pet. 80; Ex. 2003 ¶ 154). Rather, Patent Owner argues, Petitioner “wait[ed] nearly nine months, and despite being aware that Patent Owner’s contentions were due in a *mere ten days* on June 10, 2024, Petitioner decided to submit a first petition challenging all claims of the ’380 patent on May 31, 2024.” *Id.* at 62–63 (citing Ex. 1016, 29–30). Patent Owner also refers to Petitioner’s request that the first petition, IPR2024-00953, be “administrative[ly] dismiss[ed]” and subsequent filing of this proceeding almost three months later. *Id.* at 63 (citing Ex. 2004, 2, 3; Ex. 2005, 7:9–15, 10:16–11:4).

Petitioner was served with the complaint in the *Shenzhen Root* case on August 14, 2023, and filed the Petition on August 14, 2024. *See* Pet. 1, 90. Petitioner does not sufficiently explain its failure to act expeditiously in filing the Petition. However, this does not outweigh the fact that much work remains to be done in the *Shenzhen Root* case.

As discussed above, the *Willow* litigation has been stayed due to an expected settlement between the parties, and there will likely be no more substantial work by the parties and district court.

Considering the facts as a whole, we determine that this third factor weighs against denial.

4. Fourth Factor – Overlap of Issues

“[I]f the petition includes the same or substantially the same claims, grounds, arguments, and evidence as presented in the parallel proceeding, this fact has favored denial.” *Fintiv*, Paper 11 at 12. “Conversely, if the

petition includes materially different grounds, arguments, and/or evidence than those presented in the district court, this fact has tended to weigh against exercising discretion to deny institution under *NHK*.” *Id.* at 12–13.

Petitioner contends that the fourth factor is “neutral or favor[s] institution.” Pet. 81. According to Petitioner, “[r]esolution by the Board is expected in advance of a decision in the district court, which mitigates against duplication of effort and serves efficiency and integrity goals.” *Id.*

Patent Owner contends that Petitioner’s proposed grounds of unpatentability in this proceeding are not “materially different” as they are based on the combination Chang, Fang, Yeun, Khalil, Chen, and Park and “are cumulative of the grounds that Petitioner asserts against the ’380 patent in the District Court litigation.” POPR 64–65 (citing Ex. 2001, 20:1–2). Further, Patent Owner points out that “Petitioner has not provided, or indicated a willingness to provide, a *Sotera* stipulation or to agree to any other stipulation regarding the grounds raised in the Petition.” *Id.* at 65. Patent Owner acknowledges that “a lack of such stipulation does not necessarily weigh against a petitioner,” but argues that “this Petitioner’s willingness to litigate the same patent in multiple parallel proceedings and based on substantially the same grounds should weigh in favor of denying institution of this Petition.” *Id.*

In the *Shenzhen Root* case, there is a complete overlap between the claims asserted by Petitioner in the Petition and the claims that Petitioner asserted in its invalidity contentions in District Court. POPR 65; Ex. 2001, 1, 20 (asserting claims 1–13, 15–24, and 26–46 of the ’380 patent as invalid over “**Chang**, alone or in view of Willow, Myers ’386, Park, Khalil, Weber, Kurihara, Guthrie ’166, Makower, Hu, Jian, Fang, Alvarez, Phillips, Tack, Yuen, Chen ’135, Schlensog, and/or Miller.”). As Patent

Owner points out, Petitioner does not stipulate that it will not raise at the parallel proceeding any ground raised or that could have been reasonably raised in this IPR, a stipulation similar to that in *Sotera Wireless, Inc. v. Masimo Corporation*, IPR2020-01019, Paper 12 at 13–14 (PTAB Dec. 1, 2020) (precedential as to Section II.A)). POPR 65.

There is a concern of duplicative efforts and conflicting decisions between the district court and the Board. But, as Petitioner points out, this concern is mitigated because of the timing of our projected issuance of a final written decision and an uncertain trial date in the *Shenzhen Root* case.

The *Willow* litigation has been stayed due to an expected settlement between the parties and, thus, there is little concern of duplicative efforts and conflicting decisions.

Under these circumstances, we determine the facts underlying this fourth factor weigh slightly in favor of discretionary denial.

5. *Fifth Factor – Defendant in District Court*

Petitioner contends that the fifth factor is “neutral or favor[s] institution.” Pet. 81. According to Petitioner, “[r]esolution by the Board is expected in advance of a decision in the district court, which mitigates against duplication of effort and serves efficiency and integrity goals.” *Id.*

Patent Owner contends that “Factor 5 strongly favors denial because Petitioner in this IPR — Shenzhen Root Technology Co., Ltd. — is a party to the *Shenzhen Root* case.” POPR 66. Patent Owner contends that “the Board’s binding authority holds that when the petitioner and the defendant in the parallel proceeding are the same party, *Fintiv* factor 5 weighs in favor of denying institution.” *Id.* (citing *NHK Spring*, Paper 8 at 20; *Sotera Wireless*, Paper 12 at 19; *Fintiv*, Paper 15 at 15; *Sand Revolution II, LLC v. Cont’l*

Intermodal Group-Trucking LLC, IPR2019-01393, Paper 24 at 12–13 (PTAB June 16, 2020) (informative).

The parties are the same in both this *inter partes* proceeding and in the *Shenzhen Root* case. POPR 66; Ex. 2001, 1. Our precedent takes varying approaches on how to weigh the fifth *Fintiv* factor when the parties in the two proceedings are the same. In *Snap, Inc. v. SRK Tech. LLC*, IPR2020-00820, Paper 15 (PTAB Oct. 21, 2020) (precedential as to Section II.A), the panel held that “we regard the consideration of the fifth *Fintiv* factor as neutral or, at most, weighing slightly in favor of exercising discretion to deny institution.” *Id.* at 16. In *Sotera Wireless*, the panel held that the fifth *Fintiv* factor “supports denying institution.” Paper 12 at 19; *see also Nokia v. Soto*, IPR2023-00680, Paper 30 at 13 (PTAB Dec. 3, 2024) (in which the Director held that “I agree with the parties that *Fintiv* factor 5 is neutral.”).

Under these circumstances, the fifth *Fintiv* factor’s weight is neutral.

6. *Sixth Factor – Other Circumstances, Including the Merits*

Petitioner contends that “[t]he merits of this Petition are compelling as demonstrated by Grounds 1A-1D” and “Factor 6 weighs heavily in favor of institution.” Pet. 81.

Patent Owner argues that “Factor 6 strongly favors denial due to the Petitioner’s parallel petitions without a showing of cause, as explained below, and the strong implication of 35 U.S.C. § 325(d), as explained in Section VI *supra*.” Prelim. Resp. 67 (referring to Patent Owner’s arguments for discretionary denial under 325(d) and *General Plastic*).

On balance, we determine that *Fintiv* factors 1–5 do not favor discretionary denial of institution. In particular, we determine that factors 1 and 5 are neutral, factors 2 and 3 weigh against denial, and factor 4 is

slightly in favor of denial. Factor 4, which is the lone factor favoring denial of institution, does not outweigh factors 1–3 and 5. As a result, we need not and, therefore, do not decide whether Petitioner presents a compelling unpatentability challenge. *See CommScope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 at 4–5 (PTAB Feb. 27, 2023) (decision on Director review) (precedential) (“[I]n circumstances where the Board determines that the other *Fintiv* factors 1–5 do not favor discretionary denial, the Board shall decline to discretionarily deny under *Fintiv* without reaching the compelling merits analysis.”).

7. *Fintiv Determination*

The balance of all *Fintiv* factors do not favor the exercise of our discretionary powers to deny institution. Therefore, we determine that discretionary denial is not appropriate in this case.

B. 35 U.S.C. § 314(A) – PARALLEL PETITION

The Petition seeks *inter partes* review of the same claims of the ’380 patent that Petitioner previously requested review of in IPR2024-00953. Pet. 1. Patent Owner argues that the Petition should be discretionarily denied under § 314(a) for failure to show good cause for a second petition. Prelim. Resp. 67–73. The Board denied institution in IPR2024-00953, exercising discretion under § 314(a) based on the existence of the petition in this proceeding. IPR2024-00953, Paper 18. We thus decline to deny institution based on a parallel petition.

C. 35 U.S.C. § 325(D)

The Patent Office may deny institution under 35 U.S.C. § 325(d), which provides, in pertinent part, that “[i]n determining whether to institute

or order a proceeding under this chapter . . . the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.”

Patent Owner asserts that we should discretionarily deny the Petition under § 325(d). POPR 33–58. Specifically, Patent Owner asserts that we should exercise our discretion under 35 U.S.C. § 325(d) to deny the petition because “[t]he Petition relies upon references and subject matter already considered, and applied or rejected, or otherwise cumulative to references considered by the Examiner during the prosecution of the application that resulted in the ’380 patent.” *Id.* at 33.

1. Framework

35 U.S.C. § 325(d) states, in relevant part: “In determining whether to institute or order a proceeding under this chapter, chapter 30, or chapter 31, the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” The Board uses a two-part framework for evaluating arguments under § 325(d):

(1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and

(2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential). “[T]he

Becton, Dickinson factors provide useful insight into how to apply the framework under 35 U.S.C. § 325(d).” *Id.* at 9 (footnote omitted). The non-exclusive *Becton, Dickinson* factors are:

(a) the similarities and material differences between the asserted art and the prior art involved during examination;

(b) the cumulative nature of the asserted art and the prior art evaluated during examination;

(c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;

(d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art;

(e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and

(f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson & Co. v. B. Braun Melsungen AG, IPR2017-01586, Paper 8, 17–18 (PTAB Dec. 15, 2017) (precedential as to § III.C.5, first paragraph). *Becton, Dickinson* factors (a), (b), and (d) relate to the first part of the *Advanced Bionics* framework (whether the same or substantially the same art or arguments previously were presented to the Office), and *Becton, Dickinson* factors (c), (e), and (f) relate to the second part of that framework (previous Office error). *Advanced Bionics*, IPR2019-01469, Paper 6 at 9–11.

Under the first part of the *Advanced Bionics* framework, we consider whether *Becton, Dickinson* factors (a), (b), and (d) indicate that “the same or substantially the same art previously was presented to the Office” or that “the same or substantially the same arguments previously were presented to

the Office.” Previously presented art includes art made of record by the Examiner, and art provided to the Office by an applicant, such as on an Information Disclosure Statement (“IDS”), in the prosecution history of the challenged patent. *Becton*, Paper 8, 22–23. Under the second part of the *Advanced Bionics* framework, we consider whether evidence of material error is shown.

2. Petitioner’s Contentions

Under the first part of the framework, Petitioner contends “[t]his petition presents references that were not previously considered (e.g., Fang, Yuen, Park, and Chen) and highlights pertinent disclosures that disclose the very features that formed the Examiner’s stated reasons for allowance.” Pet. 81 (citing *SHDS, Inc., et al. v. Truinject Corp.*, IPR2020-00935, Paper 12 at 9-12 (PTAB Nov. 17, 2020)). Petitioner directs attention to “Fang’s straightforward description of diaphragm housing features identified as Examiner’s reasons for allowance.” *Id.* at 82. Further, Petitioner notes “Khalil was applied during prosecution of the ’380 patent in a different manner, and without the benefit of Fang and the other references of the Grounds herein.” *Id.* n. 3 (citing Ex. 1002, 550).

Under the second part of the framework, Petitioner contends that the “original examination involved multiple material errors in failing [to] consider relevant disclosures of Chang, Fang, Yuen, Khalil, Park, and Chen, and other pertinent prior art.” Pet. 82. Petitioner asserts “[t]his Petition presents pertinent teachings from the references in unexamined manners never contemplated in any office action or response.” *Id.* (citing *Advanced Bionics*, Paper 6 at 8 n.9). Further, Petitioner relies on the explanation “above” and on “the pertinent testimony of Mr. Bauer” for “amply

demonstrat[ing] the examiner overlooked or otherwise erred in the reasons for allowance.” *Id.* (citing Ex. 1003).

3. Patent Owner’s Contentions

Under the first part of the framework, Patent Owner contends “Chang and Khalil were previously before the Examiner, and the Examiner considered those references.” POPR 35 (citing Ex. 1002, 599–611, 853–54. Regarding Chang, Patent Owner notes that Chang was cited in the September 5, 2021, Information Disclosure Statement (“IDS”) as one of five references, and the Examiner’s signing of that IDS is “indication alone [that] is enough to show that the Examiner considered Chang.” *Id.* at 38–39 (citing Ex. 1002, 615, 776, 853; *SolarEdge Techs. Ltd. v. SMA Solar Tech. AG*, IPR2020-00021, Paper 8 (PTAB April 10, 2020)). Patent Owner further asserts that during the Examiner’s search, Chang was retrieved multiple times. POPR 39 (citing Ex. 1002, 790–852).

Regarding Khalil, Patent Owner contends that Khalil was “thoroughly considered and applied by the Examiner,” because the Examiner applied Khalil as the primary reference, “rejected nearly all of the originally filed claims over Khalil in combination with various secondary references,” and found that the ’380 patent’s independent claims 1 and 29 were allowed over Khalil. POPR 40–41 (citing Ex. 1002, 546, 781, 1056).

Patent Owner also contends that Fang and Yeun “which purportedly have not been before the Office . . . are each cumulative of the art that was considered by the Examiner during prosecution.” *Id.* at 35–36. Regarding Fang, Patent Owner first contends that its “remov[al of] the air line so that the external pump is directly connected to the diaphragm, is cumulative to Yuen ’629 (Exhibit 2010), which was considered by the Examiner, and to

Khalil.” POPR 43. Patent Owner also contends that Fang’s arrangement of diaphragm 7 “to a breast shield and milk container is cumulative to each” of Weniger, Luzbetak, and Yeun ’629 that were considered by the Examiner. *Id.* at 42 (citing Exs. 2008, 2009); *see also id.* at 45.

Regarding Yuen, Patent Owner contends that Petitioner relies on Yuen “only to teach a power charging circuit and a USB charging socket,” components that were before the Examiner “in various forms.” POPR 54 (citing Pet. 23–24). Specifically, Patent Owner argues “the Examiner considered at least U.S. Publication No. 2017/0072118 to Makower et al. and U.S. Publication No. 2011/0009824 to Yodfat with respect to such features.” *Id.* at 54–55 (citing Ex. 1002, 550–51). Thus, Patent Owner contends, “Yeun is relied on merely for teachings that are cumulative to the art already considered by the Examiner during prosecution of the ’380 patent.” *Id.* at 55.

According to Patent Owner, “[t]he art cited in the Petition is identical to, or substantially similar to, art already considered by the Examiner.” *Id.* at 36 (citing *Becton*, Paper 8 at 17–18). Patent Owner argues that any appearance that Petitioner’s arguments are “at all novel compared to the Examiner’s rejection over Khalil, . . . is because Petitioner has chosen a primary reference in Chang that is less similar to the features of the ’380 patent than Khalil.” *Id.*

Under the second part of the framework, Patent Owner contends “[t]he Petition fails to sufficiently identify any error material to the patentability of the challenged claims, instead incorrectly insisting that Fang and the other asserted art ‘highlight[] pertinent disclosures that disclose the very features that formed the Examiner’s stated reasons for allowance.’” POPR 56 (quoting Pet. 81). Further, Patent Owner argues that the Petition

does not provide support, such as “fact or evidence beyond what the Examiner considered during prosecution,” for the assertion that it “presents pertinent teachings from the references in unexamined manners never contemplated in any office action or response.” *Id.* at 58 (quoting Pet. 82).

4. Discussion

We agree with Patent Owner that Chang and Khalil were previously presented to the Office. The record supports Patent Owner’s position that Chang was previously presented to the Office as it was submitted in the Information Disclosure Statement of September 5, 2021, and indicated by the Examiner as considered on November 9, 2021. Ex. 1002, 376–377; *Becton*, Paper 8, 22–23.

There is no dispute that Khalil was among the closest prior art considered by the Examiner during prosecution. The Examiner cited Khalil as the closest prior art and discussed it in each communication. Ex. 1002, 24–25, 304, 499, 550–580. And, Petitioner uses Khalil for the same purpose as did the Examiner—to have a rigid milk container. Pet. 58–61; Ex. 1002, 550.

We also find that Yuen is cumulative of the art considered by the Examiner in prosecution. Petitioner relies on Yuen to teach the elements of a power charging circuit and a USB charging socket. Pet. 29–30, 33–34 (citing Ex. 1011, 14:14–20). The Examiner discussed and relied on Makower for teaching these elements. Ex. 1002, 550.

However, we find that Fang is not cumulative of the art considered by the Examiner in prosecution. Further, Patent Owner does not direct attention to, and we do not see, how or where the Examiner considered Khalil for teaching removing the air line for directly connecting the external pump to

the diaphragm. POPR 43–44. Although Khalil does teach “directly connecting a pump housing to a diaphragm housing” (POPR 50), the Examiner specifically found that Khalil did not teach the diaphragm housing being fixed to a recessed surface of the pump housing (Ex. 1002, 24), for which Petitioner relies on Fang (Pet. 37). And we note that Petitioner relies on Fang for the element the Examiner found was not taught by the prior art, including Khalil. Ex. 1002, 24; Pet. 37.

Accordingly, we determine that discretionary denial is not warranted because the asserted combinations, all of which include Fang, were not previously presented to the Office. Because we determine that part one of the framework is not satisfied, we need not, and therefore do not, turn to part two of the analysis, which concerns whether Petitioner demonstrates that the Office erred in a manner material to the patentability of the challenged claims.

5. Conclusion Regarding Discretionary Denial under § 325(d)

The *Advanced Bionics* framework “reflects a commitment to defer to previous Office evaluations of the evidence of record unless material error is shown.” *Advanced Bionics*, IPR2019-01469, Paper 6 at 9. Under the present circumstances, we determine that the same or substantially the same prior art combinations or arguments were not previously presented to the Office. Accordingly, we decline to exercise our discretion to deny institution under § 325(d).

III. ANALYSIS

A. LEGAL STANDARDS

In an *inter partes* review, the petitioner has the burden of showing there is a reasonable likelihood that Petitioner would prevail with respect to at least one of the claims challenged in the Petition. 35 U.S.C. § 314. That burden never shifts to the patentee. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are “such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The legal 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 in evidence, objective evidence of obviousness or nonobviousness.⁹ *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966). One seeking to establish obviousness based on more than one reference also must articulate sufficient reasoning with rational underpinnings to combine teachings. *See KSR*, 550 U.S. at 418.

To show obviousness, it is not enough to merely show that the prior art includes separate references covering each separate limitation in a challenged claim. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360

⁹ The record at this time does not include allegations or evidence of objective indicia of obviousness or nonobviousness.

(Fed. Cir. 2011). “This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.” *KSR*, 550 U.S. at 418–419.

On the other hand, an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418; *accord In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007). However, a petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Instead, a petitioner must articulate a reason why a person of ordinary skill in the art would have combined or modified the prior art references. *In re NuVasive, Inc.*, 842 F.3d 1376, 1382 (Fed. Cir. 2016); *see also Metalcraft of Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1366 (Fed. Cir. 2017) (“In determining whether there would have been a motivation to combine prior art references to arrive at the claimed invention, it is insufficient to simply conclude the combination would have been obvious without identifying any reason why a person of skill in the art would have made the combination.”); *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.”) (citing *InTouch Techs., Inc. v. VGO Commc’ns, Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014)).

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

B. LEVEL OF ORDINARY SKILL IN THE ART

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted).

Petitioner contends that a person of ordinary skill in the art (“POSITA,” “POSA,” or “skilled artisan”) at the time of the invention “would have had at least a bachelor’s degree in mechanical engineering or a similar field and at least two years of experience designing human breast pump equipment” and that “[m]ore education could substitute for experience and vice versa.” Pet. 2 (citing Ex. 1003 ¶¶ 15–18).

Patent Owner states that “[f]or the purposes of this Preliminary Response, Patent Owner does not dispute the Petition’s definition of a POSITA.” Prelim. Resp. 19.

For purposes of this Decision, we find that the current record supports that the ’380 patent and the cited prior art references reflect the appropriate level of skill at the time of the claimed invention and that the level of appropriate skill reflected in these references and in the ’380 patent is consistent with the level of skill proposed by Petitioner. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Accordingly, for purposes of this Decision, we adopt Petitioner’s proposed definition for a person of ordinary skill in the art.

C. CLAIM CONSTRUCTION

In this *inter partes* review, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b). In applying this standard, we generally give claim terms their ordinary and customary meaning as would be understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

Petitioner notes that “[d]uring prosecution of the ’057 application, the Examiner construed the term ‘self-contained, in-bra wearable device’ to mean ‘complete, or having all that is needed, in itself’ and is capable of being worn in a bra.” Pet. 3 (citing Ex. 1005, 2290) (emphasis omitted). According to Petitioner, “PO did not dispute this construction, and Petitioner applies it herein.” *Id.* Petitioner also states that “[o]ther terms of the Challenged Claims should receive their plain and ordinary meaning, and no formal claim constructions are necessary in this proceeding because ‘claim terms need only be construed to the extent necessary to resolve the controversy.’” *Id.* (citing *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011); Ex. 1003 ¶¶ 69–70).

Patent Owner states that “[f]or purposes of this Preliminary Response, no claim terms require construction to resolve the prior art grounds raised in the Petition.” Prelim. Resp. 19. According to Patent Owner, “[t]o the extent the Board determines any claim terms require specific construction, any such terms should be accorded their plain and ordinary meaning in light of the specification.” *Id.*

Construction is needed only for those terms “that are in controversy, and only to the extent necessary to resolve the controversy.” *See Nidec*

Motor Corp. v. Zhongshan Broad Ocean Motor Co., 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). There are no claim terms in controversy at this stage of the proceeding. Consequently, we need not construe any terms for our analysis.

D. OVERVIEW OF CITED ART AND EVIDENCE

1. Overview of Chang – Exhibit 1007

Chang relates to “[s]ystems and methods for pumping milk from a breast, wherein the milk is expressed from the breast under suction and milk is expelled from the pumping mechanism to a collection container under positive pressure.” Ex. 1007, code (57). By way of background, Chang explains that “[a]lthough a variety of breast pumps are available, a number are awkward and cumbersome, requiring many parts and assemblies and being difficult to transport.” *Id.* at ¶ 3. Chang explains that “[s]ome systems are battery driven, but draw down the battery power fairly rapidly as the motorized pump continuously operates to maintain suction during the milk extraction process.” *Id.* Chang also discloses that “[t]o ensure that the nursing baby is receiving adequate nutrition, it is useful to monitor the baby’s intake.” *Id.* ¶ 5. Thus, Chang provides that it would be desirable to have a breast pump system that “easily and accurately monitors the volume of milk pumped by the system,” “make[s] it convenient for the nursing mother to know how much milk has been extracted by breast pumping,” and “track[s] milk volume pumped per session, so that the volume of milk contained in any particular milk collection container can be readily known.” *Id.*

To address these issues and desires, Chang discloses a breast pump system that “includes breast contacting structure and a collection or storage container or assembly, and structure that delivers milk from a breast to the collection assembly.” *Id.* ¶ 7. Chang also discloses a method that “involves pumping milk from a breast and delivering the pumped milk into the collection assembly or storage container.” *Id.* Chang also teaches that “[i]n one particular aspect, the breast pump system responds in real time to optimize pumping action for a particular user during a particular pumping session.” *Id.*

In Chang’s breast pump system has a housing “can be shaped and configured to be contoured to the breast of a user and to thus provide a more natural appearance when under the clothing of the user” and a flange “which is sized and shaped to engage a breast of a user.” Ex. 1007 ¶ 71. The housing comprises a chassis, a circuit board, a rechargeable battery, pump components comprising motors, motor mountings, pumps, a conduit or flex tube, recesses, and compression and expansion members. *Id.* at ¶¶ 68, 71–73, 80. Petitioner provides an annotated version of Chang’s Figure 1A, which is reproduced below. Pet. 13.

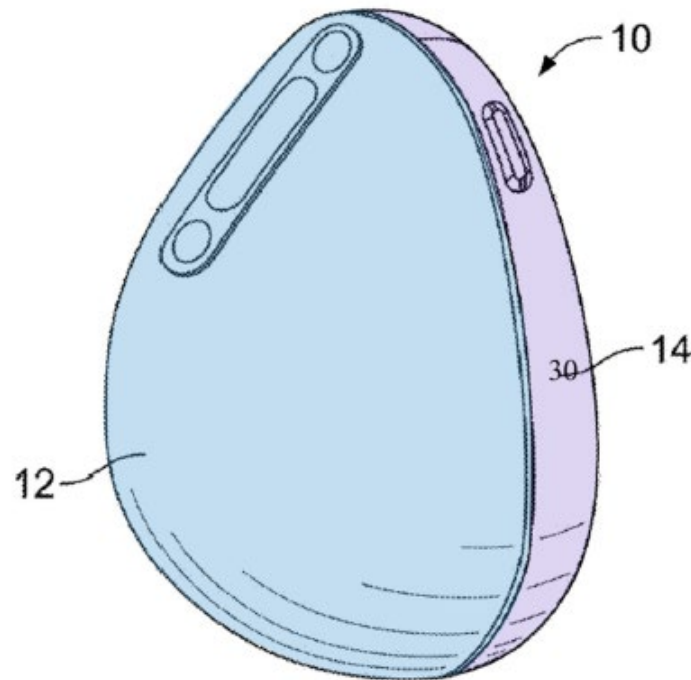
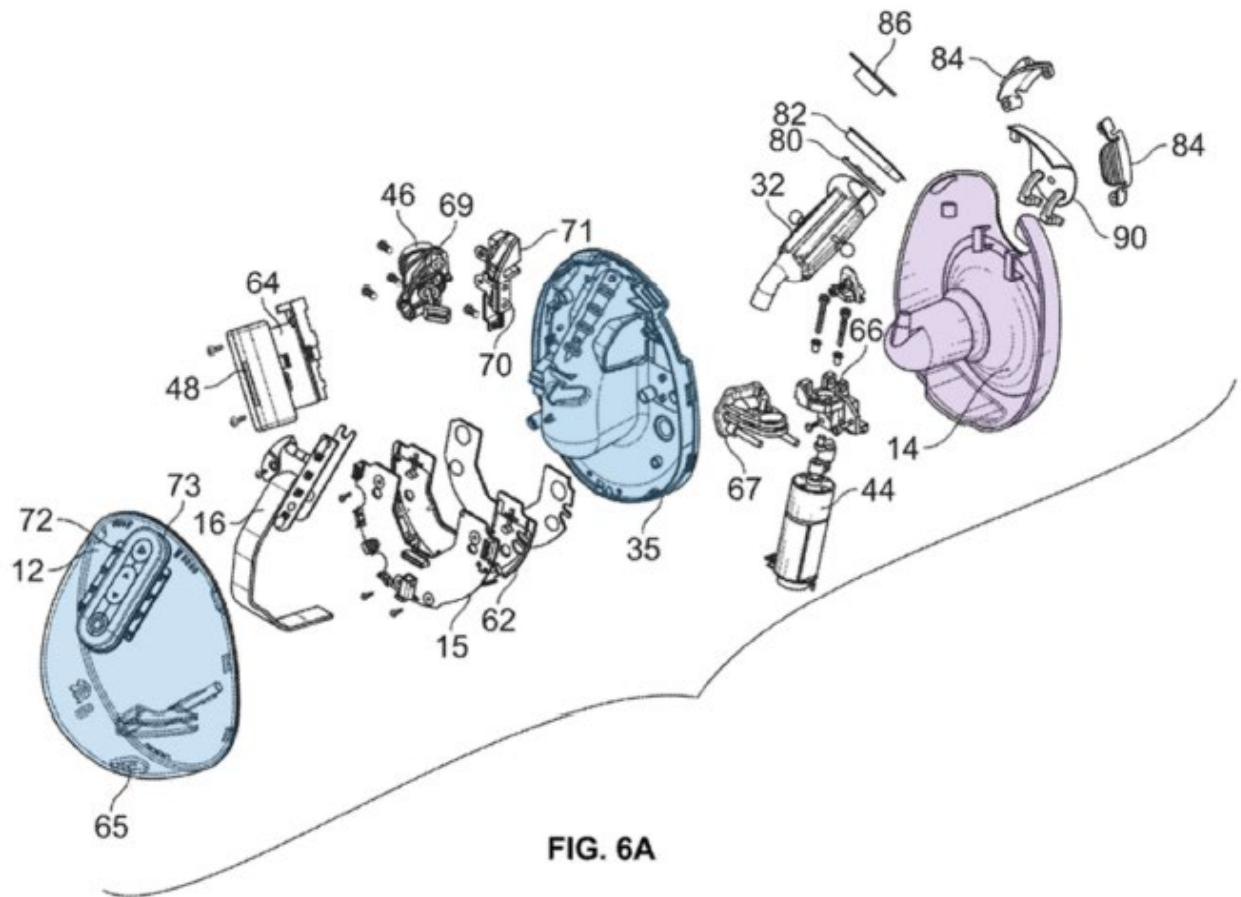


FIG. 1A

Chang's Figure 1A "shows a perspective view of a breast pump system." Ex. 1007 ¶ 30. Breast pump system 10 includes "housing or outer shell 12" that "can be shaped and configured to be contoured to the breast of a user and to thus provide a more natural appearance when under the clothing of the user" (blue in Petitioner's annotated version) and "flange 14 which is sized and shaped to engage a breast of a user" (purple in Petitioner's annotated version). *Id.* ¶ 71.

Petitioner provides an annotated version of Chang’s Figure 6A, which is reproduced below. Pet. 4.



Chang’s Figure 6A “is an exploded view of the system of [Figure] 1, depicting mechanical components of the system.” Ex. 1007 ¶ 36. As shown in Figure 6A, chassis 35 (blue in Petitioner’s annotated version) “can be configured to snap into engagement with the housing 12” (also blue in Petitioner’s annotated version) and, in a preferred embodiment, “supports directly or indirectly all of the pump components.” *Id.* ¶ 80. Chang teaches that “PCB controller mount 62 is supported by the chassis 35 and is configured to be connected to and support the circuit board 15” and “battery bracket 64 is also supported by the chassis 35 and is sized and shaped to receive a rechargeable battery 48 assembly that powers the system 10.” *Id.*

Chang further discloses that “[m]otor mounting 66 and motor receiver structure 67 is also supported by the chassis 35 and are configured to receive and support the system motor which is powered by the battery and which functions to move actuators operating on the conduit or flex-tube 32.” *Id.*

2. Overview of Fang – Exhibits 1008 and 1009 (English)

Fang relates to “[a]n electric breast pump convenient for both separate and combined configurations includes a three-way connector, a first end of the three-way connector is connected to a suction head, and a second end of the three-way connector is connected to a container.” Ex. 1009, code (57). By way of background, Fang explains that “[a] common electric breast pump in the prior art is formed by connecting a suction head to an air pump main unit and a milk bottle by a three-way connector.” *Id.* ¶ 2. According to Fang, “[t]here are usually two ways to connect the air pump main unit to the three-way connector.” The first way to connect the air pump “is to use an air pipe to connect to the three-way connector,” which has the advantages of “fewer handheld parts and the equipment is relatively light, while the disadvantage is that a platform is required to place the air pump main unit.” *Id.* “The other way is to fix the air pump main unit directly onto the three-way connector,” which has the disadvantage of the equipment being relatively heavy. *Id.* To address these issues, Fang discloses “an electric breast pump convenient for both separate and combined configurations.” *Id.* ¶ 3.

Figure 1 of Fang, which is reproduced below, is a schematic diagram of an electric breast pump. Ex. 1009 ¶¶ 11, 19.

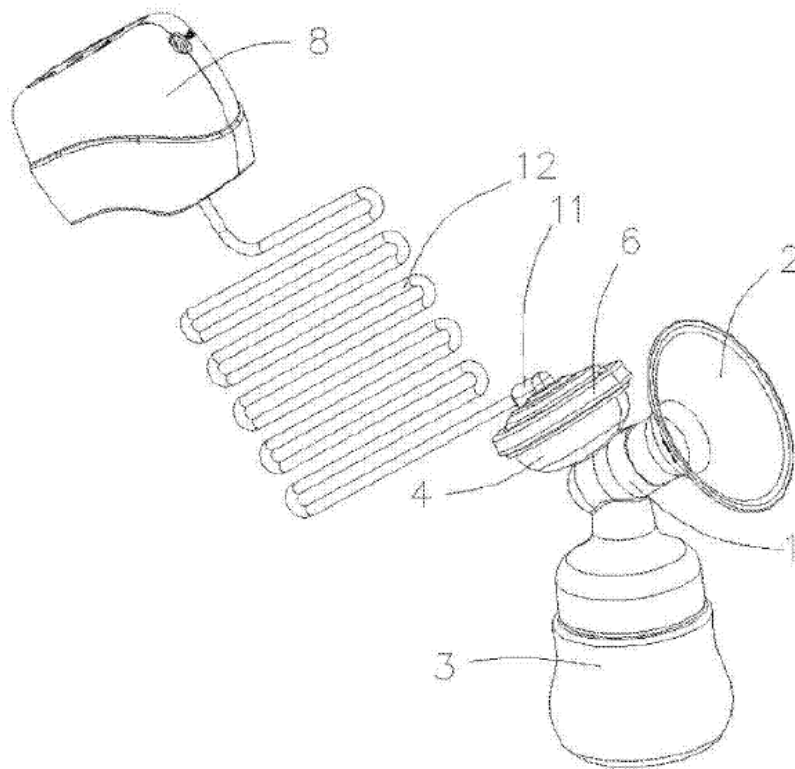


FIG. 1

As shown in Figure 1 of Fang, the electric breast pump comprises three-way connector 1 with a first end connected to suction head 2, and a second end connected to container 3. *Id.* ¶ 19. Fang discloses that “[a] third end of the three-way connector 1 is provided with an expansion opening 4” that is connected to annular edge 5 on which connection cover 6 is “detachably provided.” *Id.* Fang also teaches that elastic diaphragm 7 “separates the third end of the three-way connector 1 into an inner cavity and an outer cavity is provided within the annular edge 5.” *Id.* Fang’s electric breast pump also includes air pump main unit 8 configured to be detachably mounted on annular edge 5 with an upper airflow opening 10 of air pump main unit 8 located inside protruding edge 9. *Id.* “The elastic diaphragm 7 is used to prevent milk from flowing into the air pump main unit 8.” *Id.*

Figure 7 of Fang, which is reproduced below, “is a cross-sectional schematic diagram of an air pump main unit directly connected to a three-way connector.” Ex. 1009 ¶ 17.

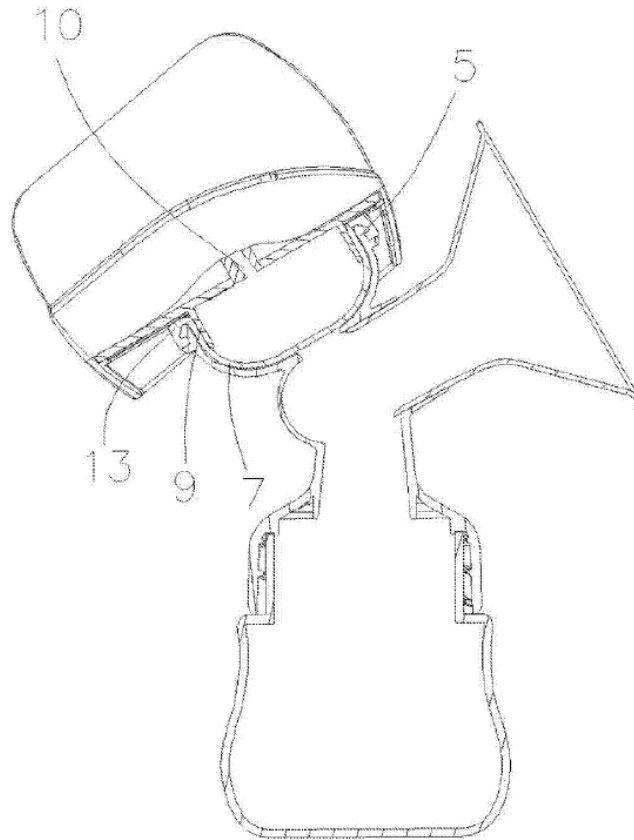


FIG. 7

As shown in Figure 7 of Fang, elastic diaphragm 7 has circular wrapping edge 13 sleeved on annular edge 5, and connection cover 6 pressing wrapping edge 13 against annular edge 5. *Id.* ¶20. Fang discloses that “[w]hen the air pump main unit 8 is installed on the three-way connector 1, the protruding edge 9 presses the wrapping edge 12 of the elastic diaphragm 7 against the annular edge 5.” *Id.*

3. Overview of Yuen – Exhibit 1011

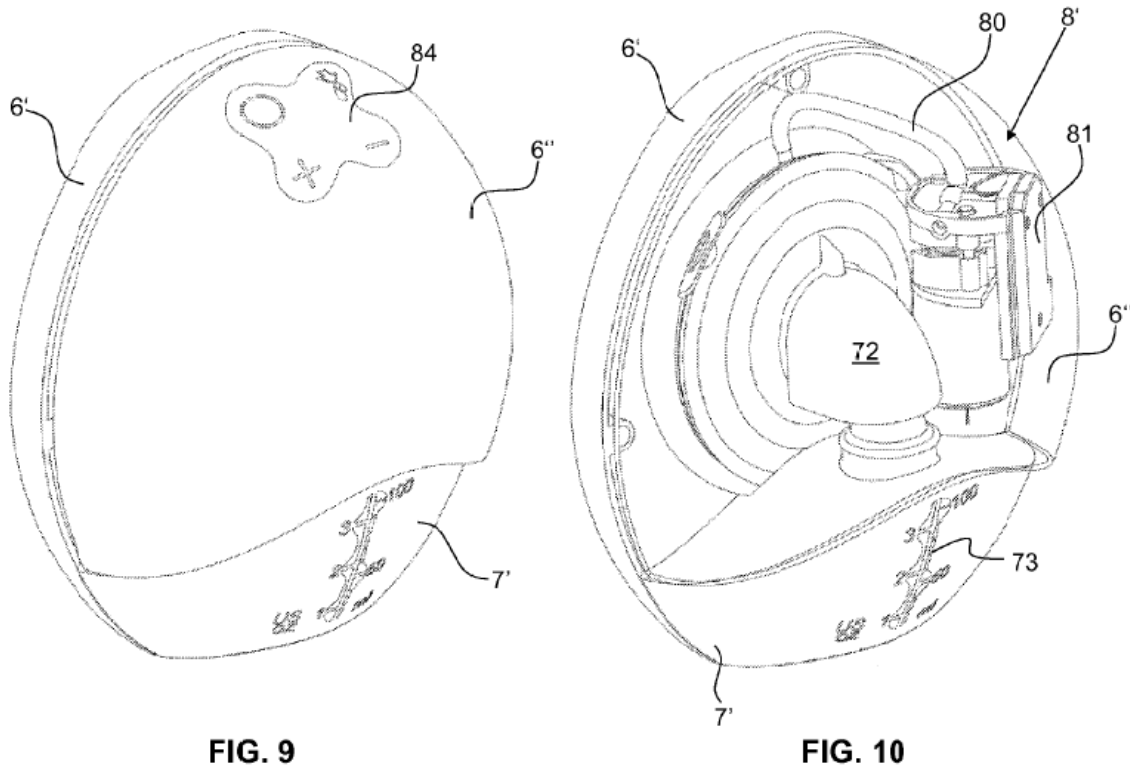
Yuen relates to “[a]n apparatus for receiving a container, comprising: a weighing unit arranged to measure the mass of the container provided thereon during a predetermined interval.” Ex. 1011, code (57). The apparatus also comprises “a processor arranged to [process] the measured mass during the predetermined interval to provide information relating to the consumption of the content stored in the container.” *Id.* Yuen’s apparatus is powered by a rechargeable battery charged by a power supply through a charging port such as a micro-USB port. *Id.* at 16:14–16.¹⁰

4. Overview of Khalil – Exhibit 1010

Khalil relates to “[a] breastshield unit for expressing human breastmilk.” Ex. 1010, code (57). The breastshield unit has “a receiving part for receiving a human nipple, an underpressure chamber for applying an under-pressure to the nipple, wherein the receiving part opens into this underpressure chamber, and a membrane for generating an underpressure in the underpressure chamber.” *Id.*

Figures 9 and 10 of Khalil, which are reproduced below, show a perspective view of a breast pump with breast shield unit with (Fig. 9) and without (Fig. 10) a cover, respectively. Ex. 1010 ¶¶ 44–45.

¹⁰ For the Yeun reference, we refer to the Exhibit page number and not the application page number.



Figures 9 and 10 depict an embodiment wherein “the breastshield unit is designed as a complete breastpump with an integrated suction pump unit [8’].” Ex. 1010 ¶ 66. As shown in Figures 9 and 10, “shell ring 6’ has an opening with a circumferential securing flange 62 for securing the breast interface 1.” *Id.* ¶ 67. “A rear face, i.e., the face directed away from the breast, is partially closed by a cover [6’],” and “[a] pump seat 82, in which a vacuum pump 81 is held, is formed integrally in this cover [6’].” *Id.*

Khalil’s Figure 11, reproduced below, shows an exploded view of the breast pump according the embodiment of Figure 9. Ex. 1010 ¶ 46.

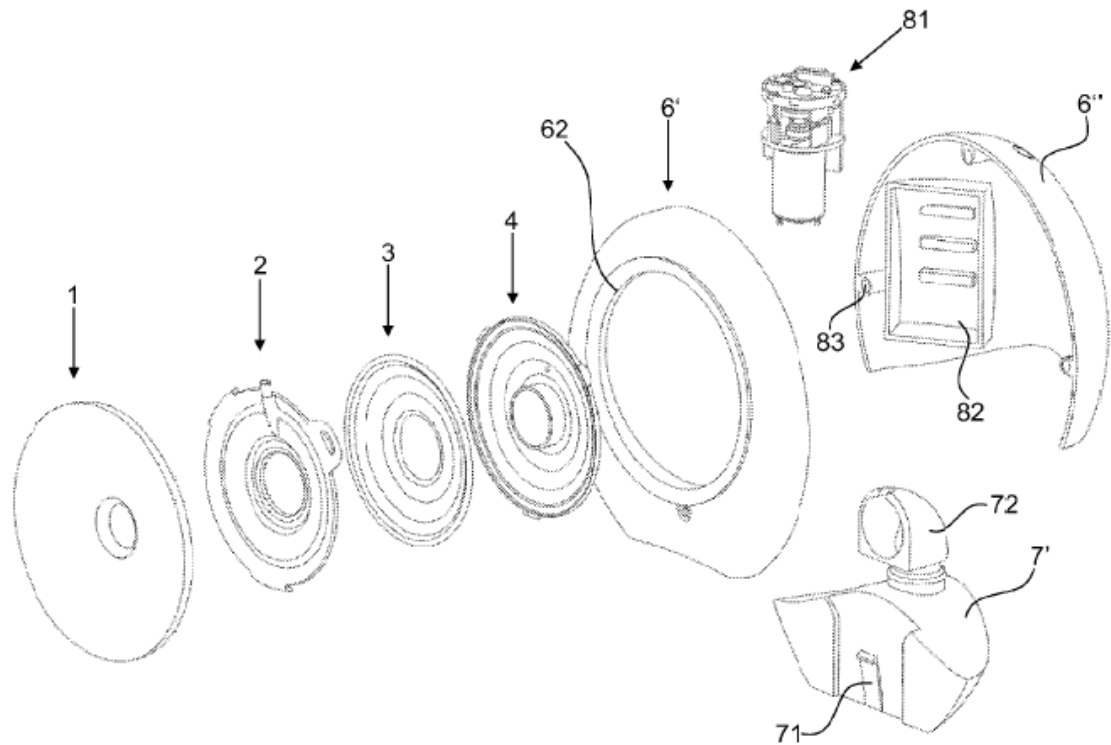


FIG. 11

Figure 11 of Khalil shows an embodiment “in which the breastshield unit is designed as a complete breastpump with an integrated suction pump unit 8'.” Ex. 1010 ¶ 66. Depicted in Figure 11 are breast interface 1, membrane housing parts 2 and 4, membrane 3, shell ring 6' with circumferential securing flange 62, a rear face partially closed by cover 6', pump seat 82 in which diaphragm vacuum pump 81 is held and formed integrally with cover 6''. *Id.* at ¶¶ 66–67. Milk collection container 7' is in the lower area adjoining cover 6''. *Id.* ¶ 69. “A locking lug 71 is integrally formed on this milk collection container 7' and can engage in a corresponding recess (not shown in the Figures) of the shell ring 6',” such that container 7' is releasably connected to shell ring 6'. *Id.* Container 7' has coupling part 72 to plug into the milk port of membrane housing part 4 facing away from the breast “such that the expressed milk can flow from the

underpressure chamber 40 into the interior of milk collection container 7’.”
Id.

5. Overview of Park – Exhibits 1013 and 1014 (English)

Park “relates to a breast pump, and more particularly, to a breast pump configured to enable a lactating woman to freely use both hands during milking and to prevent breast milk from flowing backward.” Ex. 1014 ¶ 1. Petitioner provides an annotated version of Park’s Figure 5. Pet. 72. Figure 5 “is an exploded cross-sectional view of a breast pump” and is reproduced below as annotated by Petitioner. Ex. 1014 ¶ 27.

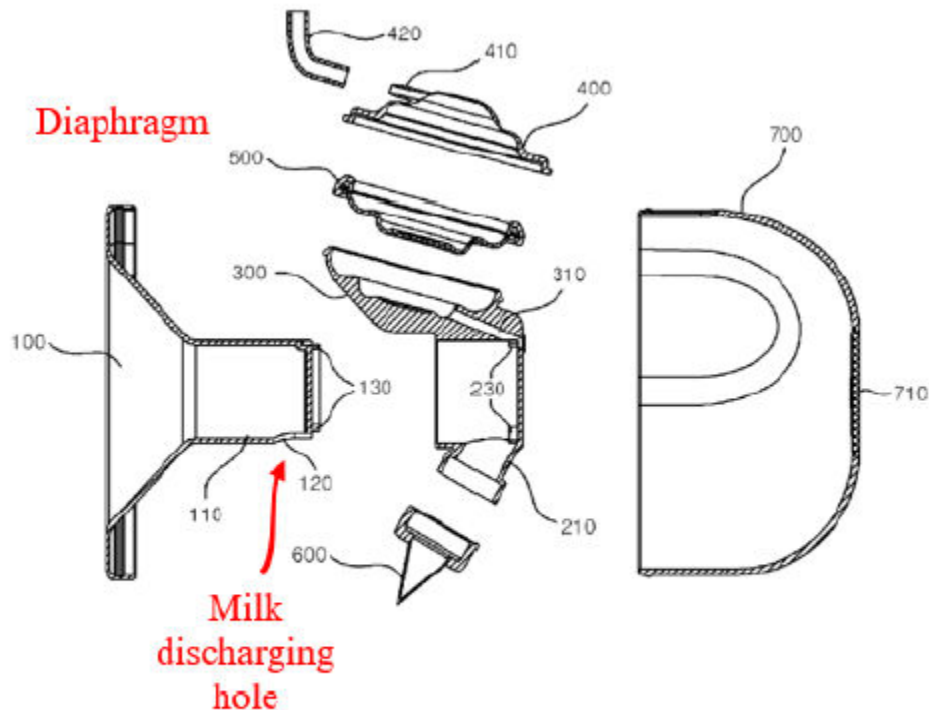


FIG. 5

Figure 5 of Park depicts “a close-contact housing 100 having a protruding part 110, which extends forward and is formed in the portion corresponding to a nipple of a lactating woman, and a breast milk discharging hole 120 formed on an end-side bottom surface of the protruding part 110.” *Id.* ¶ 37.

Also shown in Figure 5 is “a cover 400 coupled so as to cover the inner space of the funnel connector 300,” “a flow separation membrane 500 for vertically separating the space between the funnel connector 300 and the cover 400,” and “an air tube 420 for allowing air to flow into/out of the space between the cover 400 and the flow separation membrane 500.” *Id.*

6. Overview of Chen – Exhibit 1015

Chen “relates [to] the field of mother and baby products, in particular to a breast pump and components thereof.” Ex. 1015, code (57). According to Chen, “[t]he tee joint component is different from others in that the tee joint component is only provided with one negative pressure input interface.” *Id.*

Figure 2 of Chen, which is reproduced below, “is a sectional view of an electrical breast pump with the tee joint component of the present invention.” Ex. 1015 ¶ 17.

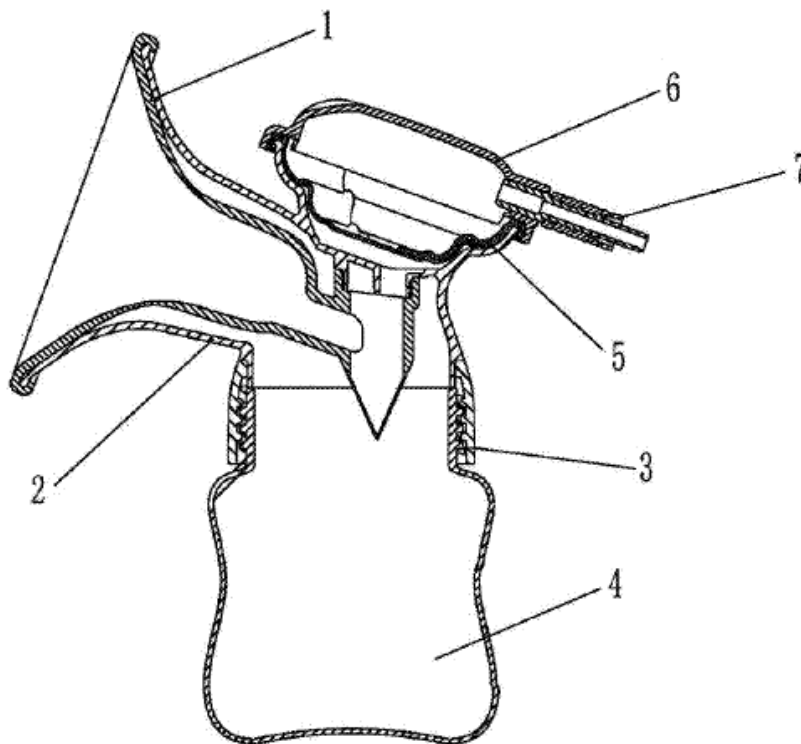


Figure 2 depicts: “1-tee joint component,” “3-tee joint adapter, 4-bottle, 5-air bag, 6-air bag cover,” and “7-straight through joint.” *Id.* ¶ 20.

E. GROUND 1A – ALLEGED OBVIOUSNESS OVER CHANG IN VIEW OF FANG AND YUEN – CLAIMS 1–8, 11, 13–23, 25, 29–35, 37, 39–41, AND 43

Petitioner challenges claims 1–8, 11, 13–23, 25, 29–35, 37, 39–41, and 43 as unpatentable under 35 U.S.C. § 103 over Chang in View of Fang and Yuen. Pet. 12–56. Petitioner provides a detailed explanation of its contentions in the Petition, including a clause-by-clause analysis specifying how the combination of Chang, Fang, and Yuen discloses each limitation of the challenged claims, and those contentions are supported by the testimony of Mr. Bauer. *Id.*; Ex. 1003 ¶¶ 119–179. Petitioner addresses independent claims 1 and 29 separately. Pet., e.g., 26, 38. We address them together with claim 1 representative and note where claim 29 differs.

Patent Owner contends that “Petitioner’s attempts to combine Chang with Fang and the other asserted art rely on hindsight reasoning.” POPR 21. Specifically, Patent Owner argues that Petitioner fails to show that a person of ordinary skill in the art would have been motivated to modify Chang in view of Fang and that there would have been a reasonable expectation of success to do so. *Id.* at 21–33.

1. Independent Claims 1 and 29

Petitioner alleges that “the Chang-Fang-Yuen combination” teaches all the limitations. Petitioner provides specific allegations of Chang teaching claim 1’s limitations 1(pre), 1(a), 1(b), 1(b)(i), 1(b)(iii), 1(c), and 1(d), and rendering obvious limitations 1(b)(ii) and 1(b)(iii), as well as the corresponding limitations for claim 29. Pet. 26–29, 31–36, 38. Petitioner also provides allegations of the combination of Chang and Yuen rendering

obvious limitations 1(b)(ii) and 1(b)(v) (*id.* at 29, 33–34) and the combination of Chang and Fang rendering obvious limitations 1(b)(iv), 1(b)(vi), and 1(e) and the corresponding limitation of claim 29. *Id.* at 29, 33–34, 37–38.

Patent Owner contends that Petitioner does not show that a person of ordinary skill in the art “Would Have Been Motivated to Modify Chang in view of Fang” and that “there would have been a Reasonable Expectation of Success in Modifying Chang in view of Fang.” POPR 21–33.

After considering the parties’ arguments and evidence, we determine that at this stage, Petitioner has demonstrated a reasonable likelihood of establishing obviousness of at least independent claim 1 over Chang, Fang, and Yuen to support institution of Ground 1. We turn now to detailed discussions of the challenged claims.

a) Petitioner’s Contentions

(1) *Limitation 1[pre]/29[pre] –
“A breast pump device comprising:”;
“A breast pump device that is
configured as a self-contained, in-bra
wearable device, the breast pump
device comprising:”*

Petitioner contends Chang’s “portable breast pump systems” meets the preamble. Pet. 26, 38 (citing Ex. 1007, Abstr., ¶ 1, Figs. 1–21; Ex. 1003 ¶¶ 117–119, 136, 137).

(2) *Limitation 1[a]/29[a] –
“a self-contained, in-bra wearable
device comprising:”*

Petitioner contends that Chang’s “small, portable, self-powered, energy efficient, wearable breast pump system” fits into a bra of the user is

“complete, or having all that is needed, in itself” meets this limitation.

Pet. 26, 38 (citing Ex. 1007 ¶¶ 4, 11, 19; Ex. 1003 ¶¶ 119–132, 138–146).

(3) *Limitation 1[b]29[b] –
“a pump housing that includes:”;
“a housing that includes:”*

Petitioner contends that Chang discloses housing or outer shell 12 and recessed pump chassis 35 that together form a pump housing. Pet. 27–28, 38 (citing Ex. 1007 ¶¶ 71, 73, Figs. 1A, 6A; Ex. 1003 ¶¶ 119–132, 138–146).

(4) *Limitation 1[b][i]/29[b][i] –
“a rechargeable battery,”*

Petitioner contends that Chang’s battery 48 that provides a rechargeable power source and plugs into a power source for charging meets the claimed rechargeable battery. Pet. 28, 38 (citing Ex. 1007 ¶¶ 20, 72, 80, Fig. 6A; Ex. 1003 ¶¶ 119–132, 138–146).

(5) *Limitation 1[b][ii]/29[b][ii] –
“a power charging circuit for
controlling charging of the
rechargeable battery,”*

Petitioner first contends that it one of ordinary skill in the art “would have understood, and found it obvious, from Chang’s description” of “a breast pump device with a rechargeable battery ‘configured to be plugged into a power source for charging,’” to have Chang’s device include the claimed power charging circuit “in order to achieve Chang’s express objective of battery charging via an external power source.” Pet. 29 (citing and quoting Ex. 1007 ¶¶ 4, 20, 72; citing Ex. 1003 ¶¶ 122–124). Petitioner asserts that such a circuit was conventional for rechargeable devices such as breast pumps and “would have been predictably implemented to include

power charging circuitry electrically between the “power connector” and the “rechargeable battery” to provide for charging of the battery via power from the external power source.” *Id.* (citing Ex. 1007 ¶¶ 80, 111; Ex. 1003 ¶ 122).

Alternatively, Petitioner contends that it would have been obvious to a skilled artisan to combine Yuen’s circuitry that “monitor[s] the charging current and overall progress” with Chang’s circuit to “monitor the incoming ‘charging current,’ thereby ensuring proper current for safe and effective charging” and would have done so “to facilitate safe and consistent control of charging the battery, and/or to facilitate use of power supplies of varying characteristics while allowing for effective charging.” Pet. 28–30 (citing Ex. 1011, 14:14–20; Ex. 1003 ¶¶ 123–124); *see also id.* at 38 (citing Ex. 1003 ¶¶ 119–132, 138–146).

(6) *Limitation 1[b][iii]/29[b][iii] –
“control electronics powered by the
rechargeable battery,”*

Petitioner contends that this limitation is met by Chang’s battery 48 and a user interface panel that can include a button membrane 72 and a button membrane housing 73 supported on the housing 12, placed in engagement with the flex-circuit 16, and providing the user with system control. Pet. 31, 38 (citing Ex. 1007 ¶¶ 72, 80; Ex. 1003 ¶¶ 125).

Petitioner alternatively contends that a person of ordinary skill in the art “would have found it obvious, from Chang’s description, that the control electronics are powered by the rechargeable battery” as Chang’s system is battery-powered. Pet. 32 (citing Ex. 1007 ¶¶ 20, 72; Ex. 1003 ¶ 126). Petitioner asserts that one of ordinary skill in the art would “have powered the control electronics via the ‘battery’ to utilize an existing battery (e.g.,

rather than an additional power source distinct from the battery), and to achieve the express functionality of the control electronics that Chang describes.” *Id.* at 32–33 (citing Ex. 1003 ¶ 126); *see also id.* at 38.

(7) *Limitation 1[b][iv]/29[b][iv] –
“a pump powered by the
rechargeable battery and configured
to generate negative air pressure,”*

Petitioner contends that the combination of Chang and Fang teaches “the device includ[ing] a diaphragm pump that generates negative air pressure.” Pet. 33; *see also id.* at 38. Petitioner explains Chang’s pump “generates suction by cyclical compression and decompression of a conduit or flex-tube, and expressly notes that other configurations were known and suitable.” *Id.* at 17 (citing Ex. 1007 ¶¶ 22, 25, 28, 68, 79, 84–86). And, Petitioner contends, “Fang provides a straightforward suggestion of a diaphragm pump including a diaphragm housing component formed in a wall of the pump housing.” *Id.* at 18 (citing Ex. 1009 ¶¶ 24–25, Fig. 7; Ex. 1003 ¶ 97).

Thus, Petitioner asserts, Fang teaches “an ‘air pump’ in pneumatic connection with the diaphragm that serves to generate negative air pressure,” and Chang teaches “the location of pump components (e.g., ‘motor’ [46]).” Pet. 33 (citing Ex. 1007 ¶¶ 72, 80, Fig. 6A; Ex. 1009 ¶¶ 19, 24). Petitioner then asserts that “the ‘air pump’ components of the combined device are positioned within the pump housing,” and the air pump is powered by Chang’s rechargeable battery. *Id.* (citing Ex. 1007 ¶¶ 72, 80).

Petitioner contends (Pet. 17) that a person of ordinary skill in the art “would have been motivated to implement Chang’s breast pump device

using a pump system that utilizes a diaphragm to transmit negative pressure, as suggested by Fang” to achieve four benefits:

- (1) “to facilitate convenient cleaning and maintenance” (Pet. 19 (citing Ex. 1003 ¶ 102));
- (2) “to facilitate more rapid assembly and disassembly (e.g., during use)” (*id.* at 20–21 (citing Ex. 1003 ¶ 105));
- (3) “as a particularly effective and suitable option to generate negative pressure within a breast pump” (*id.* at 21 (citing Ex. 1003 ¶¶ 106, 107; *Intel Corporation v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1381 (Fed. Cir. 2023))); and
- (4) “because doing so was the application of a known technique (Fang’s diaphragm pump components for generating negative pressure in a breast pump. . .) to a known device (. . . Chang[‘s] breast pump device that generates negative pressure . . .) ready for improvement to yield predictable results (including several benefits articulated above)” (*id.* at 22 (citing Ex. 1003 ¶ 108; *KSR*, 550 U.S. at 416–417)).

(8) *Limitation 1 [b][v]/29 [b][v] –
“a Universal Serial Bus (USB)
charging socket for transferring
power to the power charging circuit
and the rechargeable battery, ”*

Petitioner contends that this limitation is met by the combination of Chang and Yuen. Pet. 33–34; *see also id.* at 38. Petitioner asserts “Chang describes its breast pump includes a ‘cover jack . . . for accepting a power cord connector’ for charging the rechargeable battery,” and when combined with Yuen, the power cord connector is implemented as a micro-USB charging socket that receives a micro-USB plug. *Id.* at 33 (citing Ex. 1007 ¶ 80; Ex.

1003 ¶ 129). The micro-USB socket thus, according to Petitioner, transfers power to the power charging circuit of the rechargeable battery. *Id.* at 34 (citing Ex. 1003 ¶ 129).

(9) *Limitation 1[b][vi] –
“a recess or cavity that defines a
pumping chamber;”*

Petitioner contends that this limitation is met by the combination of Chang and Fang. Pet. 34; *see also id.* at 38. Petitioner asserts that in the proposed combination of Chang and Fang, “a recess or cavity is defined between a pump housing wall (e.g., [Chang’s] “pump chassis 35”) and the flexible diaphragm” of Fang that defines a pump chamber. *Id.* (citing Ex. 1007, Figs. 3, 6A; Ex. 1009, Fig. 7; Ex. 1003 ¶ 130).

(10) *Limitation 1[c]/29[c] –
“a breast shield made up of a breast
flange and a nipple tunnel;”*

Petitioner contends that Chang’s breast contact portion and nipple receiving portion teach this limitation. Pet. 34–36 (citing Ex. 1007 ¶¶ 71, 90, Fig. 4; Ex. 1003 ¶ 131) *see also id.* at 38. Petitioner provides an annotated version of Chang’s Figure 4 to depict the breast contact portion (breast flange) and nipple contact portion (nipple tunnel), reproduced below.

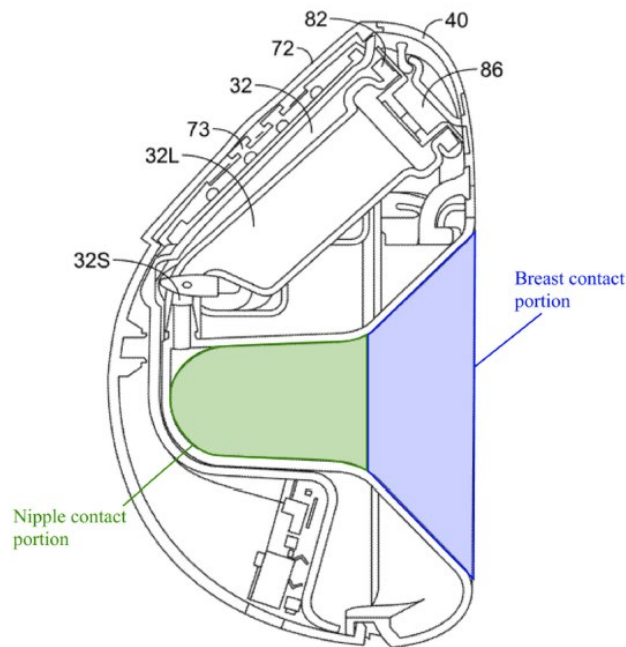


FIG. 4

Pet. 35. Petitioner’s annotated Figure 4 of Chang depicts a breast contact portion in blue and a nipple contact portion in green.

(11) *Limitation 1[d]/29[d] –
“a milk container that is configured
to be attached to and removed from
the pump housing;”*

Petitioner contends that Chang’s “milk container that is located within the device and configured to be attached to and removed from the pump housing” meets this limitation. Pet. 36 (citing Ex. 1007 ¶¶ 8, 10, 19, 21, 23, 81, 86, 92, 99, 100, 101, 106, 107, Figs. 11A–11E and reproducing Chang’s Fig. 11B); *see also id.* at 38.

*(12) Limitation 1[e]/29[e] –
“a diaphragm that is configured to prevent milk from reaching the pump, the diaphragm being seated against a diaphragm housing that is fixed to a recessed surface of the pump housing, and the diaphragm being a membrane that deforms in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel.”;*

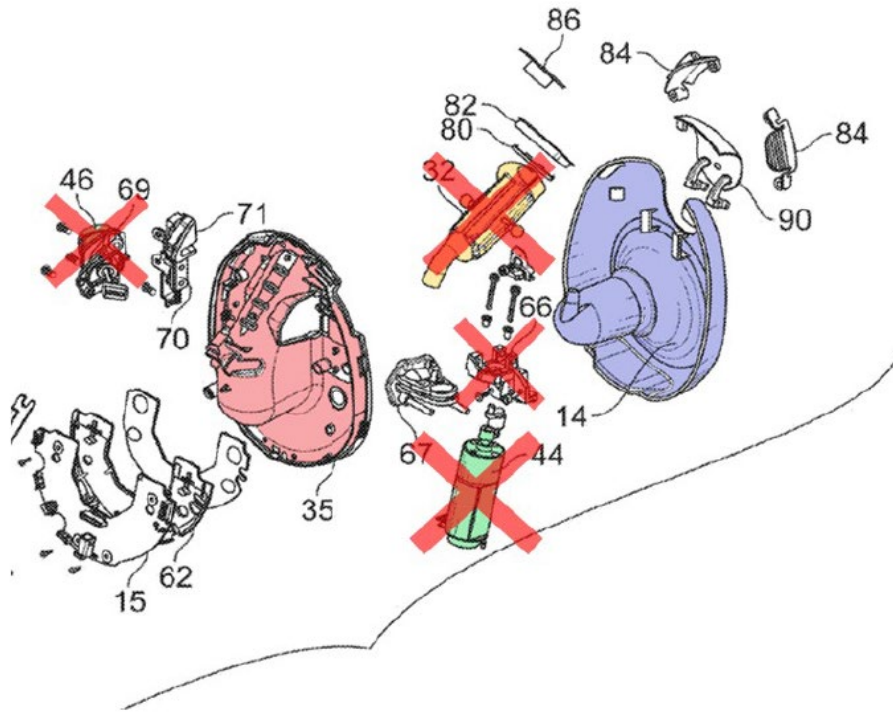
“a membrane that is configured to define a pumping chamber at least in part with an external surface of the housing, the membrane configured to deform in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel.”

Petitioner contends this limitation of claim 1 is met by the combination of Chang and Fang. Pet. 37. Petitioner asserts that Fang’s flexible diaphragm 7 is seated against a diaphragm housing that is fixed to a recessed surface of the pump housing. *Id.* (citing Ex. 1009, Fig. 7; Ex. 1003, ¶ 134). Petitioner also asserts that in the combined system of Chang and Fang, the “diaphragm housing features are fixed to a recessed surface of the pump housing wall (e.g., ‘chassis 35’).” *Id.* (citing Pet. 17–23; Ex. 1003 ¶ 134; Ex. 1012, 12:3–5). Petitioner argues “the prior art teachings here align with the preferred embodiment of the ’380 patent itself.” *Id.* (citing Ex. 1001, Fig. 4). Petitioner further contends that Fang’s elastic diaphragm deforms away from the nipple tunnel and creates negative air pressure when a vacuum is created on the pumping chamber. Pet. 37–38 (citing Ex. 1009 ¶¶ 16, 20–25; Ex. 1003 ¶ 135).

For the limitation in claim 29 that does not recite the diaphragm configured to prevent milk from reaching the pump and has a membrane defining a pumping chamber at least in part with an external surface of the device housing, Petitioner similarly relies on the combination of Chang and Fang. Pet. 38. Petitioner asserts that Fang teaches an elastic diaphragm configured to define a pumping chamber at in least in part with an exposed external surface of Chang's chassis 35 that houses pump components internally. *Id.* (citing Ex. 1007, Figs. 3, 6A; Ex. 1009 ¶ 24, Fig. 7).

b) Patent Owner's Contentions

Patent Owner contends that Petitioner's proposed combination of Chang is not obvious because "[m]odifying Chang's flex-tube based pump system in view of Fang's diaphragm and diaphragm pump, as proposed in the Petition, would completely change the principle of operation of Chang's device." POPR 22. Patent Owner argues that Petitioner recognizes that a person of ordinary skill "would not incorporate Fang's diaphragm alone into Chang's device," because "Chang's flex-tube 32 already acts as a barrier that separates liquid milk from the electric motors and is easily cleaned by the tip of a user's finger." *Id.* (citing Pet. 19; Ex. 1007 ¶ 79). Rather, Patent Owner argues, "Petitioner's proposed modification requires replacing nearly all of the active components of Chang's device with an entirely different pump system," as illustrated in Patent Owner's annotated version of Chang's Figure 6A, reproduced below:



POPR 23. Patent Owner’s annotated Figure 6A of Chang depicts the removal of Chang’s flex tube 32, motors 44 and 46, motor mounting 66, motor receiver structure 67, and actuator bracker 69.

Patent Owner further argues that Petitioner’s “attempt to justify this complete reworking of Chang’s device” by contending that “the ‘use of a diaphragm pump in breast pump devices was widely known, including in ‘in-bra’ devices’” “overlooks that such a modification would change the fundamental principle of operation of Chang’s device.” POPR 23 (citing and quoting Pet. 19).

Specifically, Patent Owner contends that “Chang’s device operates using ‘a driving mechanism configured to establish a vacuum profile within the conduit by cyclically compressing and allowing decompression of a portion of the conduit’” that has portions 32L and 32S that can each be closed off by compression members 36 and 38. POPR 23–24 (quoting Ex. 1007 ¶¶ 22, 25). Chang’s compression members are driven by motors

44 and 46 “to expand and compress flex-tube or conduit 32, to create latching and extracting of milk from the breast up to container 60 in a way “that is ‘more like natural nursing’ with ‘a more ‘natural’ feel to the user that more closely simulates the feel of a nursing baby.” *Id.* at 24–25 (citing Ex. 1007 ¶¶ 84–89 and quoting Ex. 1007 ¶¶ 87, 89). Patent Owner asserts that Chang’s mechanism “is completely different from that of a diaphragm pump” and “leads to a ‘reduced motion of the compression members when pumping’ that ‘allows for more quiet action of the pump motor, and a more quiet system overall.’” *Id.* at 25 (quoting Ex. 1007 ¶ 92). Further, Patent Owner argues that “Chang’s system ‘employs the milk expressed as the medium for system hydraulics,’ allowing for the milk itself to provide the vacuum medium that is ‘in direct contact with the user’s breast,’” as reflected in Chang’s claims 1 and 54. *Id.*

Thus, Patent Owner contends, “Petitioner’s proposed modification requires replacing Chang’s motors, compression members, and conduit or flex-tube with a completely new diaphragm and vacuum pump system” that “runs afoul of Chang’s disclosure—a system that provides quiet and efficient pumping using the expansion and contraction of a flex-tube—and the invention as set forth by Chang’s claims.” POPR 26. Patent Owner argues that “Petitioner’s proposed combination ‘would require a substantial reconstruction and redesign of the elements shown in’ Chang ‘as well as a change in the basic principles under which’ Chang ‘was designed to operate’” that “go to the heart of the operability of Chang’s ‘broadly claimed device’,” such that one of ordinary skill in the art would be unlikely to pursue the proposed combination. *Id.* (quoting *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959); *In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012);

Plas-Pak Industries, Inc. v. Sulzer Mixpac AG, 2014-1447, 7 (Fed. Cir. 2015)).

Moreover, Patent Owner argues that “there would have been no reasonable expectation that Fang’s diaphragm and diaphragm pump could have or would have been successfully incorporated into Chang’s device,” because “Chang, unlike Fang, teaches a compact device designed to be worn in-bra.” POPR 28. Patent Owner contends that “Petitioner attempts to satisfy this burden by asserting that diaphragm pumps were widely known in breast pump devices similar to Chang,” but does not show any art similar to Chang. *Id.* (citing Pet. 22). Patent Owner provides its reasons why Weber, Park, Tack, Hu, and Khalil do not support Petitioner’s position of them being similar devices to Chang. *Id.* at 28–33 (citing Exs. 1007, 1010, 1012, 1014, 1018, 1020; Ex. 1003 ¶¶ 108).

c) Analysis

Patent Owner does not provide argument against Petitioner’s assertions regarding limitations 1[pre] through 1[b][iii], 1[b][v], 1[c], and 1[d] for which the Petitioner relied on Chang alone or in combination with Yuen. *See* POPR 19–35. After considering the parties’ arguments and evidence as presented, we determine that at this stage Petitioner has demonstrated a reasonable likelihood of establishing that Chang alone or in combination with Yuen teaches limitations 1[pre] through 1[b][iii], 1[b][v], 1[c], and 1[d].

Patent Owner argues only against limitations 1[b][iv], 1[b][vi], and 1[e], for which Petitioner relies on the combination of Chang and Fang. *See* POPR 19–35. After considering the parties’ arguments and evidence as presented and for at least the reasons provided below, we determine that at

this stage and on this record, Petitioner has demonstrated a reasonable likelihood of establishing that the combination of Chang and Fang teaches limitations 1[b][iv], 1[b][vi], and 1[d].

Patent Owner's contention that Petitioner's proposed replacement of Chang's flex conduit pump mechanism with Fang's diaphragm pump mechanism would "run[] afoul of Chang's disclosure" (POPR 26) in rendering Chang's system to have a less natural nursing action and a louder system overall is not supported by evidence or explanation. For example, Patent Owner has not provided evidence or explanation as to why or how Fang's diaphragm pump would less simulate natural nursing and create more noise than Chang's flex conduit pump.

Also unsupported is Patent Owner's contention that Petitioner's proposed modification "would require a substantial reconstruction and redesign" of Chang's elements. POPR 26. Removing elements, as posited by Patent Owner, is not necessarily a substantial reconstruction. Patent Owner has not explained nor provided evidence supporting how or why removing things is a substantial redesign or reconstruction, i.e., what part of the removal makes it substantial.

Further, Patent Owner has not provided evidence or explanation supporting how or where Chang discloses or teaches that its flex conduit pump was specifically selected, designed, or made to function to be more like natural nursing and quieter than a diaphragm pump. *See* POPR 25, 29. Patent Owner asserts that Chang's device provides those benefits, but does not present evidence that Chang's flex conduit pump specifically was selected because it provided those benefits alone or in combination with other components of Chang's breast pump assembly. Nor has Patent Owner, on this record, sufficiently explained or provided evidence that Fang's

diaphragm pump, mounted in the same spot as Chang's flex conduit pump, would lead to Chang's breast pump device being unable to function in the same manner.

Patent Owner's arguments that "there would have been no reasonable expectation that Fang's diaphragm and diaphragm pump could have or would have been successfully incorporated into Chang's device" is not supported by sufficient evidence at this stage of the proceeding. POPR 28; *see also id.* at 29–33. Patent Owner argues that Petitioner's similar devices such as Fang are not actually similar because they are not in a compact form designed to be worn in bra, but does not provide evidence or explanation why not, such as why Fang's diaphragm pump cannot be sized to fit within a bra.

In sum, Patent Owner does not explain why or how one of ordinary skill in the art would not replace Chang's flex conduit pump with Fang's diaphragm pump, nor why the combination does not teach the diaphragm seated against a diaphragm housing fixed to a recessed surface of the pump housing. Patent Owner's arguments are not responsive to Petitioner's proposed combination. Rather, Patent Owner argues the overall devices are not similar and are designed differently without providing evidence or explanation why Fang's diaphragm pump is not an equivalent of Chang's flex conduit pump and why one of ordinary skill could not and would not put Fang's diaphragm pump into Chang's breast pump device.

After considering the parties' arguments and evidence as presented, we determine that, at this stage and based on the record here, Petitioner has demonstrated a reasonable likelihood of establishing that the combination of Chang and Fang teaches limitation 1[b][iv], 1[b][vi], and 1[e].

d) Summary of claims 1 and 29

Having considered the parties' arguments and evidence, we find, with the evidence presented at this stage of the proceeding and on this record, Petitioner has demonstrated a reasonable likelihood of prevailing on its assertion that independent claims 1 and 29 would have been obvious over Chang, Fang, and Yuen to support institution.

2. Dependent claims 2–8, 11, 13–23, 25, 30–35, 37, 39–41, and 43

Petitioner contends that dependent claims 2–8, 11, 13–23, 25, 30–35, 37, 39–41, and 43, each depending from one of claims 1 and 29, would have been obvious over Chang, Fang, and Yeun. Pet. 38–56. Given Petitioner's demonstration of a reasonable likelihood of demonstrating obviousness of independent claims 1 and 29, we find it warranted to institute inter partes review with respect to all claims challenged in Ground 1A. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

3. Conclusion of Ground 1A

Having considered the parties' arguments and evidence, we find, with the evidence presented at this stage of the proceeding and on this record, Petitioner has demonstrated a reasonable likelihood of prevailing on its assertion that claims 1–8, 11, 13–23, 25, 29–35, 37, 39–41, and 43 would have been obvious over Chang, Fang, and Yuen to support institution under Ground 1A.

F. GROUND 1B – ALLEGED OBVIOUSNESS OVER CHANG IN VIEW OF FANG, YUEN, AND KHALIL – CLAIMS 1–11, 13–23, 25–37, 39–41, AND 43–46

Petitioner challenges claims 1–11, 13–23, 25–37, 39–41, and 43–46 as unpatentable under 35 U.S.C. § 103 over Chang in view of Fang, Yuen, and Khalil. Pet. 56–71.

1. Independent claims 1 and 29

For independent claims’ limitations 1[pre] through 1[b] and 1[e], Petitioner relies on the combination of Chang, Fang, and Yuen as explained in Ground 1A. *Id.* at 62–63.

For limitation 1[d] regarding “a milk container that is configured to be attached to and removed from the pump housing,” Petitioner relies on Khalil’s milk collection container. *Id.* at 62 (citing Ex. 1010 ¶¶ 50, 67, 69¹¹; Ex. 1003 ¶¶ 132, 190, 202, 203). Petitioner contends that a person of ordinary skill would implement Khalil into the combination of Chang, Fang, and Yuen to achieve the known benefits of “further enhanc[ing] cleanability and assembly/disassembly in a wearable device having a diaphragm” and “enhanc[ing] the user experience during pump removal from the breast at the conclusion of a pumping session,” by avoiding spillage.” *Id.* at 60–61 (citing Ex. 1003 ¶¶ 183, 184). Petitioner further asserts that a skilled artisan “would have been motivated to avail the Chang-Fang-Yuen device of Khalil’s rigid milk container as a suitable option for collecting expressed milk within the device” and “because doing so was the application of a known technique (Khalil’s milk container as part of an integrated wearable diaphragm breast pump) to a known device (the primary Chang-Fang-Yuen

¹¹ Petitioner does not cite to a specific Exhibit for these citations. Pet. 65. We interpret the Petition to be citing to Exhibit 10, Khalil.

wearable breast pump) ready for improvement to yield predictable results (benefits articulated above).” *Id.* at 61 (citing Ex. 1003 ¶¶ 185, 186; *KSR* at 416–417).

For independent claim 29, Petitioner relies on the contentions made for claim 1. Pet. 63.

Patent Owner does not provide additional argument particular to Ground 1B. *See* POPR 19–33.

Thus, having considered the parties’ arguments and evidence, we find, with the evidence presented at this stage of the proceeding and on this record, for the same reasons as discussed regarding Ground 1A, Petitioner has demonstrated a reasonable likelihood of prevailing on its assertion that independent claims 1 and 29 would have been obvious over Chang, Fang, Yuen, and Khalil to support institution.

Given Petitioner’s demonstration of a reasonable likelihood of demonstrating obviousness of independent claims 1 and 29, we find it warranted to institute *inter partes* review with respect to all claims challenged in Ground 1B. *See SAS*, 138 S. Ct. at 1359–60; 37 C.F.R. § 42.108(a).

2. *Dependent claims 2–11, 13–23, 25–28, 30–37, 39–41, and 43–46*

Petitioner contends that dependent claims 2–11, 13–23, 25–28, 30–37, 39–41, and 43–46, each depending from one of claims 1 and 29, would have been obvious over Chang, Fang, Yeun, and Khalil. Pet. 64–71. Given Petitioner’s demonstration of a reasonable likelihood of demonstrating obviousness of independent claims 1 and 29, we find it warranted to institute *inter partes* review with respect to all claims challenged in Ground 1B. *See SAS*, 138 S. Ct. at 1359–60; 37 C.F.R. § 42.108(a).

3. Conclusion of Ground 1B

Having considered the parties' arguments and evidence, we find, with the evidence presented at this stage of the proceeding and on this record, Petitioner has demonstrated a reasonable likelihood of prevailing on its assertion that claims 1–11, 13–23, 25–37, 39–41, and 43–46 would have been obvious over Chang, Fang, and Yuen to support institution under Ground 1B.

G. *GROUND 1C – ALLEGED OBVIOUSNESS OVER CHANG IN VIEW OF FANG, YUEN, KHALIL, AND PARK – CLAIMS 12, 24, 38, AND 42*

Petitioner challenges dependent claims 12, 24, 38, and 42 as unpatentable under 35 U.S.C. § 103 over Chang in view of Fang, Yuen, Khalil, and Park. Pet. 71–76.

Claims 12 and 38 further defines the nipple tunnel of the breast pump devices of claims 1 and 29 as including an opening on a lower surface of the nipple tunnel “through which expressed milk flows under gravity into the milk container.” Ex. 1001, 72:6–9, 74:13–16. Claims 24 and 42 further define that the diaphragm/membrane is “flexible and generally circular . . . [and] that, in a relaxed state, includes an inner raised area and a concentric outer raised area.” *Id.* at 72:54–57, 74:27–31.

Petitioner contends that the Park teaches a flow separation membrane provides that “has a contoured shape that includes a central raised portion and a concentric raised portion.” Pet. 71 (citing Ex. 1014 ¶¶ 37–39, 54–56, Figs. 5, 7, 8; Ex. 1003 ¶ 91). Petitioner asserts that “[m]ultiple reasons would have prompted a POSITA to implement the Chang-Fang-Yuen-Khalil combination (from Ground 1B) in accordance with Park’s suggestions” for claims 12, 24, 38, and 42: (1) to “enhance[] system operation, driving out milk and air during each cycle;” (2) to “promotes assembly/disassembly and

cleaning;” and (3) “because doing so was the application of a known technique (Park’s diaphragm shape and lower nipple tunnel opening) to known systems having downward milkflow to a lower container, to yield predictable results (benefits articulated above).” Pet. 73–74 (citing Ex. 1003 ¶¶ 225–228).

Patent Owner does not provide additional argument particular to Ground 1C. *See* POPR 19–33.

Thus, having considered the parties’ arguments and evidence, we find, with the evidence presented at this stage of the proceeding and on this record, for the same reasons as discussed regarding Grounds 1A and 1B, Petitioner has demonstrated a reasonable likelihood of prevailing on its assertion that dependent claims 12, 24, 38, and 42 would have been obvious over Chang, Fang, Yuen, Khalil, and Park to support institution under Ground 1C.

H. GROUND 1D – ALLEGED OBVIOUSNESS OVER CHANG IN VIEW OF FANG, YUEN, KHALIL, AND CHEN – CLAIM 20

Petitioner challenges dependent claim 20 as unpatentable under 35 U.S.C. § 103 over Chang in view of Fang, Yuen, Khalil, and Chen. Pet. 76–78.

Claim 20 further defines the second diaphragm housing of claims 1 and 15 to be “an integral part of the breast shield.” Ex. 1001, 72:45–47; *see also id.* at 72:19–26.

Petitioner contends “Chen expressly describes that the breast shield and diaphragm housing are ‘integrally molded,’ [and] provides an express benefit of doing so to ‘make disassembly and assembly more convenient.’” Pet. 76 (quoting Ex. 1015 ¶ 115 and citing Ex. 1015 ¶ 3; Ex. 1003 ¶ 93, 94). Petitioner asserts that a person of ordinary skill in the art “would have been

prompted to combine Chen with Chang-Fang-Yuen-Khalil” for the following reasons: (1) to make disassembly and assembly more convenient,” as stated in Chen; (2) “to facilitate cleaning” due to having fewer interfaces between parts; and (3) “because doing so was the application of known techniques (Chen’s suggestion for an integral diaphragm housing and breast shield) to a known system (the Chang-Fang-Yuen-Khalil combination having a diaphragm housing attached with a breast shield) ready for improvement to yield predictable results.” Pet. 77–78 (citing Ex. 1003 ¶¶ 232, 233).

Patent Owner does not provide additional argument particular to Ground 1D. *See* POPR 19–33.

Thus, having considered the parties’ arguments and evidence, we find, with the evidence presented at this stage of the proceeding and on this record, for the same reasons as discussed regarding Grounds 1A and 1B, Petitioner has demonstrated a reasonable likelihood of prevailing on its assertion that dependent claim 20 would have been obvious over Chang, Fang, Yuen, Khalil, and Chen to support institution under Ground 1D.

IV. CONCLUSION

For the foregoing reasons, we determine that Petitioner demonstrates a reasonable likelihood of prevailing with respect to at least one of the claims challenged in the Petition. Accordingly, *inter partes* review of the ’380 patent shall proceed in this case on all of the grounds raised in the Petition. *See SAS*, 138 S. Ct. at 1359–60; *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018).

Our determination in this Decision is not a final determination on either the patentability of any Challenged Claims or the construction of any

claim term. The factual findings set forth in this Decision are preliminary and provided for the sole purpose of deciding whether to institute a review. Our final decision will be based on the record as fully developed during trial, including all arguments and evidence in the Patent Owner's Response, Petitioner's Prelim. Resp., Patent Owner's Sur-Prelim. Resp., or submitted otherwise during trial, as permitted by our rules. *See Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016) (noting that "there is a significant difference between a petitioner's burden to establish a 'reasonable likelihood of success' at institution, and actually proving invalidity by a preponderance of the evidence at trial") (quoting 35 U.S.C. § 314(a) and comparing *id.* with § 316(e)).

V. ORDER

Upon consideration of the record before us, it is:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–46 of U.S. Patent No. 11,413,380 B2 is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of U.S. Patent No. 11,413,380 B2 shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

IPR2024-01296
Patent 11,413,380 B2

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