

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NESPRESSO USA, INC.,
Petitioner,

v.

K-FEE SYSTEM GMHB,
Patent Owner.

IPR2022-01574
Patent 11,254,491 B2

Before GRACE KARAFFA OBERMANN, JAMES J. MAYBERRY, and
ERIC C. JESCHKE, *Administrative Patent Judges*.

MAYBERRY, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Nespresso USA, Inc. (“Petitioner”) filed a Petition (“Pet.”) requesting *inter partes* review of claims 1–13 (“Challenged Claims”) of U.S. Patent No. 11,254,491 B2 (Ex. 1001, the “’491 patent”). Pet. 1. K-fee System GmbH (“Patent Owner”) owns the ’491 patent. Paper 4, 1.

For the reasons provided below, we conclude that Petitioner has not proven, by a preponderance of the evidence, that any of the Challenged Claims are unpatentable.

A. *Procedural History*

Upon review of the Petition, Preliminary Patent Owner Response (Paper 8), Petitioner’s Preliminary Reply (Paper 10), and Patent Owner’s Preliminary Sur-reply (Paper 11), and evidence in the record, we instituted an *inter partes* review proceeding on all challenges in the Petition. Paper 12 (“Inst. Dec.”); *see* 37 C.F.R. § 42.108(a) (2023) (“When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”).

Patent Owner filed a Response to the Petition. Paper 17 (“PO Resp.”). Petitioner filed a Reply to the Patent Owner Response. Paper 19 (“Pet. Reply”). Patent Owner filed a Sur-reply to the Reply. Paper 21 (“PO Sur-reply”).

An oral hearing was held on January 12, 2024, and a transcript is included in the record. Paper 28 (“Tr.”).

B. *Real Parties-in-Interest*

Petitioner identifies itself and Nestle USA, Inc., Nestle Nespresso SA, and Societe Des Produits Nestle SA as the real parties-in-interest. Pet. 82.

Patent Owner identifies itself as the sole real party-in-interest. Paper 4, 2. Patent Owner adds that it “is a wholly owned subsidiary of Kruger GmbH & Co. KG, along with Kruger North America, Inc.” *Id.*

C. Related Matters

The ’491 patent is the subject of litigation in the U.S. District Court for the Central District of California, in a case styled *K-Fee System GmbH v. Nespresso USA, Inc.*, Case No. 2:22-cv-00525-GW. Pet. 82; Paper 4, 2; *see* Ex. 1048 (identifying the court as the U.S. District Court for the Central District of California).

D. The ’491 Patent

The ’491 patent, titled “Portion Capsule Having an Identifier,” issued February 22, 2022, from an application filed July 23, 2021, and ultimately claims priority to three German patent applications, the earliest of which was filed July 22, 2010. Ex. 1001, codes (54), (45), (22), (30). The application that matured into the ’491 patent is related, through a series of continuation and divisional applications, to application No. PCT/EP2011/003677, filed on July 22, 2011. *Id.* at code (60).

The ’491 patent is directed to “a portion capsule for producing a beverage.” Ex. 1001, 1:6–7. We reproduce Figure 2A from the ’491 patent below.

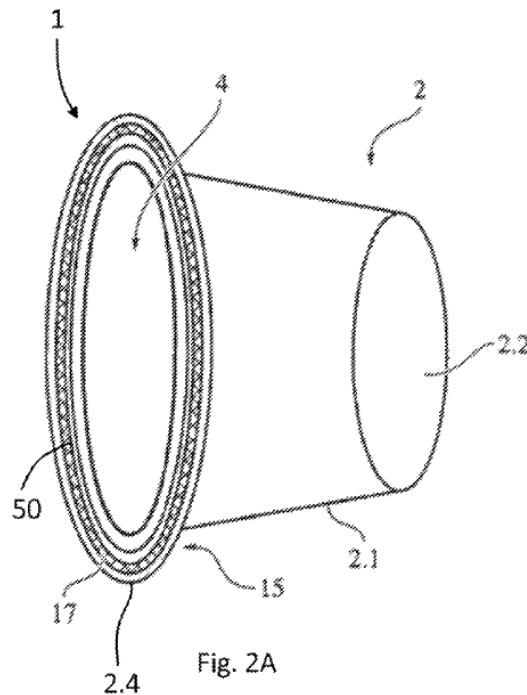


Figure 2A depicts “a portion capsule containing a barcode.”

Ex. 1001, 7:31–32. Portion capsule 1 includes base element 2 with wall region 2.1 and bottom area 2.2. *Id.* at 8:44–47. Portion capsule 1 includes barcode 50 on the top surface of membrane 4. *Id.* at 8:47–48. Alternatively, barcode 50 could be placed on the edge region of flange 17, opposite membrane 4, as indicated by arrow 15. *Id.* at 8:54–56. “Such a barcode is read out by a detector 13 placed, for example, in the media chute. The barcode represents the identifier according to [the] invention.” *Id.* at 8:57–59.

We reproduce Figures 16A and 17A from the ’491 patent below.

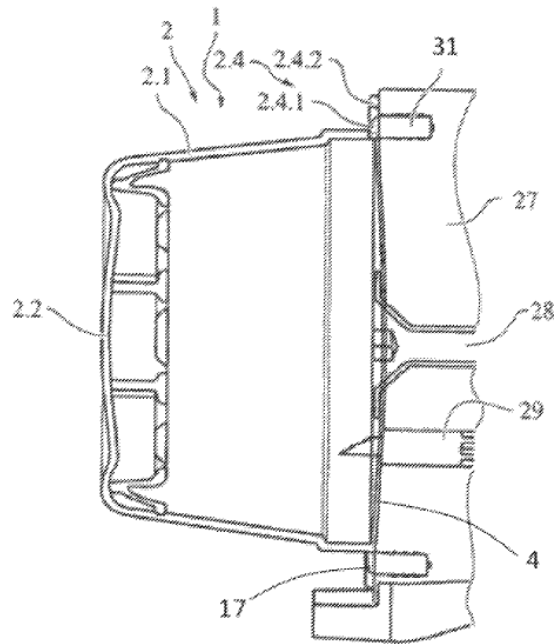


Fig. 16A

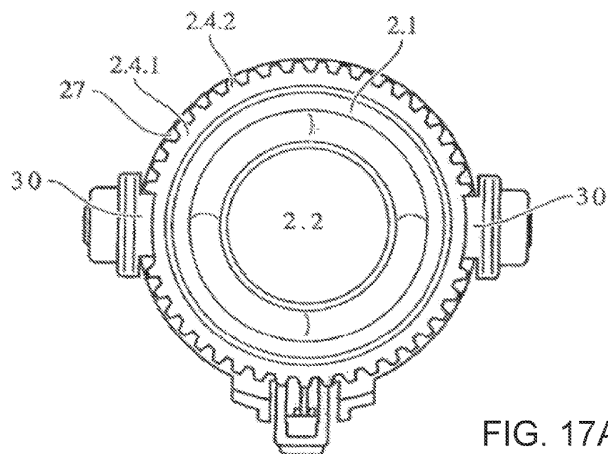


FIG. 17A

Figure 16A depicts “a portion capsule with a gearwheel placed in the brewing chamber,” and Figure 17A depicts an embodiment of the portion capsule of Figure 16A. Ex. 1001, 7:58–61. These figures show flange 17/edge region 2.4 that includes a structure for fit locking, friction locking and/or detection 2.4.2 in the outer area (that is, the outer circumference of flange 17/edge region 2.4). *Id.* at 10:19–24. In this example, the structure is a gearwheel that is formed by several recesses/bulges evenly arranged in the edge region. *Id.* at 10:24–28. As

seen in Figure 16A, seal 31, which is attached to brewing chamber 27, interacts with seal surface 2.4.1. *Id.* at 10:28–31. “[S]eal 31 makes sure that the water coming from . . . water inlet 28 flows through the portion capsule by passing an opening, which is made by . . . mandrel 29, [rather] than around” the outside of the capsule. *Id.* at 10:31–34. As seen in Figure 16A, seal 31 rests within a groove (not labeled).

As seen in Figure 17A, portion capsule 1 is held by two holding arms 30, which interact with the gearwheel structure. Ex. 1001, 10:42–45. Without this structure, the holding arms do not hold the portion capsule and the portion capsule is not inserted into the brewing chamber. *Id.* at 10:45–48. According to the written description of the invention, the portion capsule “has only one identifier” to ensure that hot water will not “be discharged under high pressure” to “compromise the user’s safety” or damage the coffee machine, as may happen when “the wrong portion capsule” is inserted into the machine. *Id.* at 8:17–27.

E. Illustrative Claim

Of the Challenged Claims, claims 1, 7, and 10 are independent claims. Claim 1 is representative and we reproduce it below.

1. A beverage system for making a beverage, comprising:
 - A) a single-serve capsule comprising:
 - i) a base element with a cavity, in which a beverage material is provided, the base element being symmetrical about a central longitudinal axis thereof and having a rounded bottom portion;
 - ii) a flange extending outwardly from the base element, the flange comprising a top side and an opposing bottom side;
 - iii) a cover fastened to the top side of the flange, the cover is bowed outwardly in a central region of the cover relative to a peripheral region of the cover, the cover includes a region

configured to be pierced at a location that is offset from the central longitudinal axis;

iv) a barrier layer to prevent moisture or aroma from escaping out of the single-serve capsule; and

v) an identifier, which includes a repeat pattern, provided on the bottom side of the flange;

B) a beverage machine comprising:

i) a sensor/detector;

ii) a receptacle configured to receive the single-serve capsule;

iii) a pump controlled to supply water into the single-serve capsule only upon detection of the identifier by the sensor/detector and a determination by the beverage machine that the single-serve capsule is suitable for use with the beverage machine;

iv) a chamfered mandrel that is configured to pierce the cover at the location that is offset from the central longitudinal axis;

v) *a groove that is laterally offset from the chamfered mandrel*; and

vi) *a seal that is at least partially seated in the groove* and configured to bear against a top side of the cover in a region between a peripheral edge of the cover and the region of the cover that is pierced by the chamfered mandrel.

Ex. 1001, 12:59–13:30 (emphasis added). Relevant to this Final Written Decision, all three independent claims include the groove/seal configuration shown in italics above. *See id.* at 13:64–14:13–15, 14:54–15:5.

F. Prior Art and Asserted Grounds

Petitioner asserts that the Challenged Claims are unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §¹	References/Basis
1, 4–6	103(a)	Yoakim, ² Jarisch '929, ³ Rossi ⁴
2, 3, 7–13	103(a)	Yoakim, Jarisch '929, Rossi, Castellani ⁵

Pet. 30.

Petitioner also relies on the declaration testimony of Mr. Michael Jobin in support of its challenges. *See* Ex. 1003 (providing the Declaration). Patent Owner challenges the asserted grounds and includes declaration testimony from Dr. Laurens Howle. *See* Ex. 2021 (providing the Declaration).

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

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 296–07 (2011), took effect on September 16, 2011, and the changes to 35 U.S.C. §§ 102 and 103 in the AIA do not apply to any patent application filed before March 16, 2013. Because neither party disputes that the application that matured into the '491 patent has an effective filing date before March 16, 2013, we refer to the pre-AIA version of the statute. *See* Pet. 35 (arguing that the earliest possible priority date for the '491 patent is July 22, 2011); PO Resp. 1, 17–45 (arguing that the priority date for the '491 patent is September 2, 2010).

² US 2010/0239734 A1, published September 23, 2010 (Ex. 1004, “Yoakim”).

³ US 2013/0064929 A1, published March 14, 2013 (Ex. 1006, “Jarisch '929”). Petitioner includes “929” when referring to Exhibit 1006, to distinguish it from Exhibit 1005, where Jarisch is also the first named inventor. We adopt this convention for our Decision.

⁴ WO 2010/099806 A1, published September 10, 2010 (Ex. 1041, “Rossi”).

⁵ US 2008/0105131 A1, published May 8, 2008 (Ex. 1009, “Castellani”).

1. Yoakim

Yoakim, titled “Method for Preparing a Beverage or Food Liquid and System Using Brewing Centrifugal Force,” published September 23, 2010, from an application filed May 7, 2010. Ex. 1004, codes (54), (43), (22). Yoakim “relates to a capsule, device, system and method for preparing a beverage or food liquid from a food substance which is brewed or extracted by using centrifugal forces exerted on a capsule which contains the substance.” *Id.* ¶ 2.

Yoakim’s device identifies different capsules and operates its beverage device based on predetermined parameters for the identified capsule. Ex. 1004 ¶ 25; *see, e.g., id.* ¶ 192 (“[T]he control unit may be associated to a capsule recognition system enabling to recognize the types of capsules, i.e., espresso, lungo, cappuccino, long coffee (e.g., 180-400 ml), latte, tea, etc., and to adjust the speed and/or other brewing parameters (e.g., water temperature) according the capsule which is inserted in the device.”). “A recognition system uses a code on the capsule and recognized by the device, such as a color, a barcode, an RFID, a magnetic code, ferromagnetic micro-wires or labels, shapes and combinations thereof.” *Id.* ¶ 192.

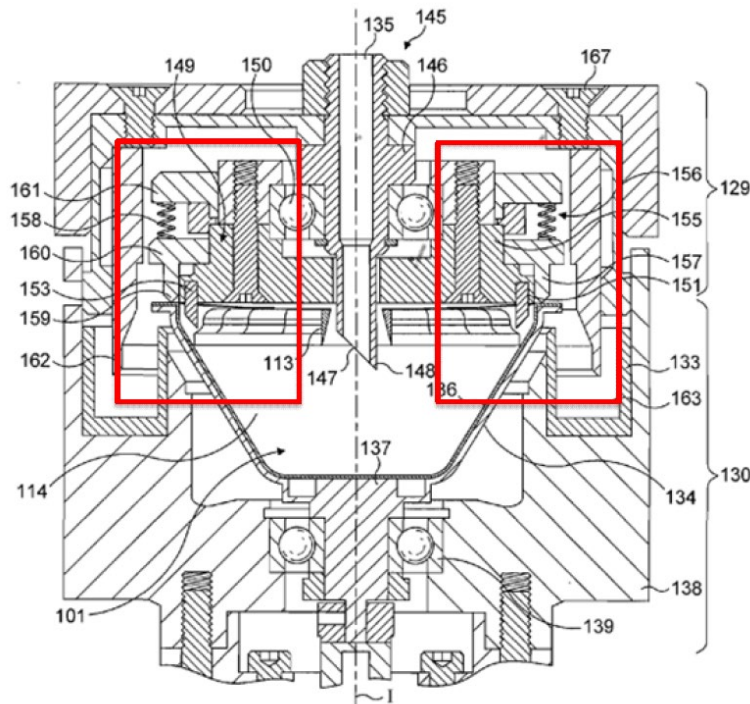


FIG. 35

Pet. 68. Figure 35 is an enlarged version of Yoakim's Figure 34, which is a cross-sectional view of a beverage production module. Ex. 1004 ¶¶ 63–64. Petitioner annotates the figure with two rectangular boxes to emphasize Yoakim's flow restriction means. See Pet. 68. Yoakim describes that annular engaging portion 157 is biased under the force of elastic loading means 158, which can be a spring. Ex. 1004 ¶ 436. Spring 158 interacts with base portion 160 of annular engaging portion 157 and counter-force portion 161 to force pressing peripheral surface 159 against the rim of a capsule. *Id.*; see also *id.* at Fig. 35 (showing spring 158, annular engaging portion 157, with pressing peripheral surface 159 and base portion 160, and counter-force portion 161).

2. Jarisch '929

Jarisch '929, titled "Support and Capsule for Preparing a Beverage by Centrifugation, System and Method for Preparing a Beverage by

Centrifugation,” published March 14, 2013, from an application filed May 12, 2011. Ex. 1006, codes (54), (43), (22). Jarisch ’929 “relates in particular to coding supports adapted to store information related to a capsule, capsules associated with/or embedding coding supports, reading and processing arrangements for reading and using such information for preparing a beverage.” *Id.* ¶ 1.

Jarisch ’929’s Figure 2 is relevant to Petitioner’s unpatentability positions and is reproduced below.

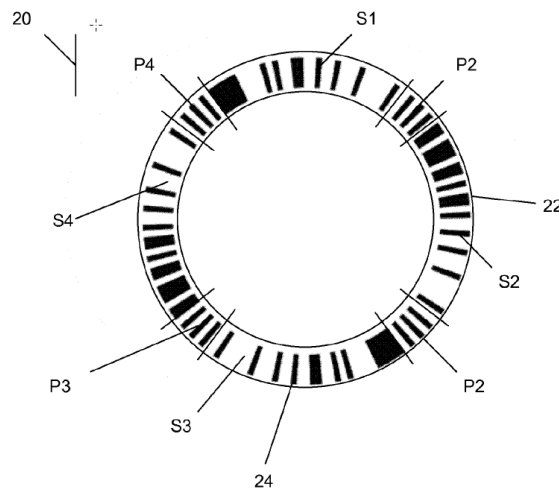


Fig. 2

Figure 2 depicts support 20, which is part of the beverage capsule. Ex. 1006 ¶ 51. Support 20 includes “section 22 on which at least one sequence S1, S2, S3, S4 of symbols 24 is represented so as that each symbol is sequentially readable, by a reading arrangement of an external device,” with “each sequence coding a set of information related to the capsule.” *Id.* The information may include “information related to parameters for preparing a beverage with the capsule,” “information for retrieving locally and/or remotely parameters for preparing a beverage with the capsule,” “information related to the manufacturing of the capsule,” or “information

for retrieving locally and/or remotely information related to the manufacturing of the capsule.” *Id.* ¶¶ 52–55. “The sequence is preferably repeated along the circumference in order to ensure a reliable reading.” *Id.* ¶ 68.

“The support can be part of, or be formed directly on, the body of the capsule. The support can also be disposed on the bottom side of the rim of the capsule.” Ex. 1006 ¶ 64; *see, e.g., id.* ¶ 90 (“[C]apsule 7 may comprise a support mounted having at least one sequence 70, and mounted on the bottom side 72 of the rim 73 of the capsule.”).

3. *Rossi*

Rossi, titled “System of Edible-Product Making Machine and Load Element and Process for Control of Machine,” published September 10, 2010. Ex. 1041, codes (54), (43). Rossi “relates to a system of an edible-product making machine and a load element [(e.g., a capsule containing coffee powder)], and a process for controlling the operation of the edible-product making machine.” Ex. 1041, 1.⁶

Relevant to Petitioner’s unpatentability positions, Rossi states that using the wrong capsule or operating conditions “may cause the machine to malfunction and can prejudice the safety and integrity of the machine and . . . may harm the user.” Ex. 1041, 3. To address this and other concerns, Rossi discloses a process for controlling the operation of an edible-product making machine, with a first step of recognizing an identifying element and a validation element, a second step of validating the validation element, and a third step of operating the machine only if the identifying element is

⁶ Consistent with Petitioner, we reference the pagination for the WO document, rather than the exhibit. For example, we cite to “Ex. 1041, 1” for page 1 of the publication, which appears on page 3 of the exhibit.

recognized and the validation element is validated. *Id.* at 4. Rossi explains that

The use of an identification element and recognition means, as well as the step of recognising the identification element allows the machine to recognise the load element and, hence, its contents. This in turn enables the machine to automatically select the operating conditions appropriate for that specific load element. This prevents the user from having to verify the contents of the load element, and from having to know and select the operating conditions appropriate therefor. It also helps to prevent the safety hazard associated with the use of inappropriate operating conditions.

Id. at 5.

4. *Castellani*

Castellani, titled “Delivery Head for Espresso Coffee Machines,” published May 8, 2008. Ex. 1009, codes (54), (43). Relevant to Petitioner’s unpatentability positions, Castellani provides “a delivery head, in which the single-use or disposable capsule loading and unloading operations can be performed in a very easy and safe manner, from a user standpoint.” *Id.* ¶ 10. For example, during operation, “capsule 10 will slide on the fork element 21 and, after having passed the annular portion 22, will fall inside the fork element 21 and, through a specifically designed passage, will be collected in a collecting vessel.” *Id.* ¶ 54; *see, e.g., id.* Fig. 2 (depicting an embodiment of the delivery head in the capsule ejecting position).

II. ANALYSIS

A. *Legal Standards*

In *inter partes* reviews, a petitioner bears the burden of proving unpatentability of the challenged claims, and the burden of persuasion never shifts to the patent owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*,

800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail in this proceeding, Petitioner must support its challenge by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). Accordingly, all of our findings and conclusions are based on a preponderance of the evidence standard.

Petitioner’s two asserted grounds are based on obviousness. Section 103(a) forbids issuance of a patent when “the differences between the subject matter sought to be patented 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 question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when available, evidence such as commercial success, long felt but unsolved needs, and failure of others.⁷ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *see KSR Int’l Co.*, 550 U.S. at 407 (“While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”). The Court in *Graham* explained that these factual inquiries promote “uniformity and definiteness,” for “[w]hat is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context.” 383 U.S. at 18.

The Supreme Court made clear that we apply “an expansive and flexible approach” to the question of obviousness. *KSR Int’l Co.*, 550 U.S. at 415. Whether a patent claiming the combination of prior art elements

⁷ The parties do not direct us to any objective evidence of non-obviousness.

would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 417. To support this conclusion, however, it is not enough to show merely 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 (Fed. Cir. 2011). Rather, obviousness additionally requires that a person of ordinary skill at the time of the invention “would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention.” *Id.*

“[O]bviousness must be determined in light of *all the facts*, and . . . a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine” teachings from multiple references. *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (emphasis added); *see also PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1196 (Fed. Cir. 2014) (“The presence or absence of a motivation to combine references in an obviousness determination is a pure question of fact.”). As a factfinder, we also must be aware “of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.” *KSR Int’l Co.*, 550 U.S. at 421.

B. Level of Ordinary Skill in the Art

1. The parties’ contentions and our findings

The level of skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). “This reference point prevents . . . factfinders from using their own insight or, worse yet, hindsight, to gauge obviousness.” *Id.* Factors pertinent to a determination of the level of ordinary skill in the

art include: (1) educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of workers active in the field. *Env't Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696–97 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case. *Id.* Moreover, “[t]hese factors are not exhaustive but are merely a guide to determining the level of ordinary skill in the art.” *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007). In determining a level of ordinary skill, we also may look to the prior art, which may reflect an appropriate skill level. *Okajima*, 261 F.3d at 1355.

Petitioner contends that a person of ordinary skill in the art would have had “a bachelor’s degree in engineering plus five years of experience in design of mechanical beverage systems, or similar products.” Pet. 27 (referencing Ex. 1003 ¶ 40).

Patent Owner contends that a person of ordinary skill in the art would have had

a bachelor’s degree in engineering plus five years of experience in design of mechanical beverage systems, or similar products, as well as experience with sensors for recognizing an identifier. Additional education might substitute for some of the experience, and substantial experience might substitute for some of the educational background.

PO Resp. 9. Patent Owner does not provide any support for this contention.

See id. Dr. Howle, Patent Owner’s declarant, testifies that

I have reviewed the qualifications that Petitioner contends that a person having ordinary skill in the art . . . in the ’491 Patent

would have. I note that the Board, in its Decision Granting Institution, adopted Petitioner’s definition of the level of ordinary skill, which requires a [person of ordinary skill in the art] to have a bachelor’s degree in engineering plus five years of experience in design of mechanical beverage systems, or similar products, as well as experience with sensors for recognizing an identifier. *Additional education might substitute for some of the experience, and substantial experience might substitute for some of the educational background.* For the purposes of this Declaration, I adopt this definition with respect to the ’491 Patent.

Ex. 2021 ¶ 24 (citing Inst. Dec. 14–15) (emphasis added). We note that the italicized text in the quoted testimony regarding additional education as a substitute for some of the experience was not either Petitioner’s proposed characterization of the level of ordinary skill or our adopted characterization in the Institution Decision. *See* Pet. 27; Inst. Dec. 14–15.

In our Institution Decision, we adopted Petitioner’s definition of the level of ordinary skill, but included that a person having ordinary skill in the art would have had experience with sensors for recognizing an identifier. Inst. Dec. 14–16. First, the Challenged Claims, and many of the prior art references, are directed to beverage systems. *See, e.g.,* Ex. 1001, 12:59–13:30 (providing claim 1, which is directed to a “beverage system” and recites limitations directed to “a single-serve capsule” and “a beverage machine”); Ex. 1004 ¶ 2 (relating to “a capsule, device, system and method for preparing a beverage or food liquid from a food substance which is brewed or extracted by using centrifugal forces exerted on a capsule which contains the substance”); Ex. 1006 ¶ 1 (relating “to a capsule, capsules associated with/for embedding coding supports, reading and processing arrangements for reading and using such information for preparing a beverage”); Ex. 1041, 1 (relating “to a system of an edible-product making

machine and a load element, and a process for controlling the operation of the edible-product making machine”).

Second, the ’491 patent, as well as the prior art of record, includes systems that use identifiers on a capsule read by the beverage machine to control the operation of the machine. *See, e.g.*, Ex. 1001, 1:28–34 (“[T]he present invention . . . has an identifier, which allows to individualize the respective portion capsule.”); Ex. 1004 ¶ 25 (discussing the system’s “identification means”); Ex. 1006 ¶ 1 (“The present invention relates in particular to coding Supports adapted to store information related to a capsule, capsules associated with/for embedding coding supports, reading and processing arrangements for reading and using such information for preparing a beverage.”); Ex. 1041, code (57) (“The process for controlling the operation of an edible-product making machine [includes] . . . recogni[zing] an identifying element . . .”).

As for Patent Owner’s addition that “[a]dditional education might substitute for some of the experience, and substantial experience might substitute for some of the educational background,” we find that this characterization is too vague. *See* PO Resp. 9. Patent Owner contends that the additional education (the length of time and type of which is not defined) may be substituted for “some of the experience” (which, presumably, means not all of the experience, but at what level is undefined), and that “substantial experience” (which is not defined) may be substituted for “some of the” education (which, presumably, means not all of the education, but at what level is undefined). *See id.*

Accordingly, we find that the level of ordinary skill in the art for the ’491 patent is a bachelor’s degree in engineering plus five years of

experience in design of mechanical beverage systems, or similar products, as well as experience with sensors for recognizing an identifier.

2. *Dr. Howle*

Petitioner argues that Dr. Howle does not qualify as a person having ordinary skill in the art. Pet. Reply 2. Petitioner argues that Dr. Howle “purports to have ‘1,300 hours’ designing and analyzing coffee systems in patent litigations, only approximately 100 hours relate to design.” *Id.* (referencing Ex. 1058, 49:23–50:8); *cf.* Ex. 2021 ¶ 12 (“I have accumulated more than 1,300 hours designing, analyzing, and evaluating single-serve beverage brewing systems.”).

Patent Owner responds that “there is no requirement for experts to fall squarely within the definition of a [person having ordinary skill in the art] or to have specific design experience in the claimed technology by the priority date of the asserted patent.” PO Sur-reply 9 (citing *SEB S.A. v. Montgomery Ward & Co.*, 594 F.3d 1360, 1373 (Fed. Cir. 2010); *Bayerische Motoren Werke Aktiengesellschaft v. Paice LLC*, IPR2020-01386, Paper 37 at 73 (PTAB Jan. 31, 2022)). Patent Owner also argues that the standard of a person having ordinary skill in the art “is *not* the end-all-be-all—rather, courts assess whether the expert has ‘scientific, technical, or other specialized knowledge [that] will help the trier of fact to understand the evidence or to determine a fact in issue.’” *Id.* at 9–10 (citing *Terremark N. Am. LLC v. Joao Control & Monitoring Sys., LLC*, IPR2015-01466, Paper 23 at 5–6 (PTAB Dec. 29, 2016); *GoPro, Inc. v. Contour IP Hold. LLC*, IPR2015-01078, Paper 84 at 12 (PTAB July 31, 2019); *Endress + Hauser, Inc. v. Hawk Measurement Sys. Pty. Ltd.*, 122 F.3d 1040, 1042 (Fed. Cir. 1997)).

Patent Owner argues that

Dr. Howle . . . holds three relevant degrees, including a B.S.E. (1989), M.S. (1991), and Ph.D. (1993) degrees from Duke University in the field of Mechanical Engineering. Dr. Howle has “accumulated more than 1,300 hours designing, analyzing, and evaluating single-serve beverage brewing systems” and has considerable experience designing and using products that are similar to mechanical beverage systems and have similar parts therein such as “strain gauges, thermocouples, thermistors, photo emitter/detector circuitry, ultrasonic and inductive proximity sensors, Hall effect transducers, piezoelectric elements, pressure transducers, ultrasonic and impellor flow meters, acceleration gauges, and interferometers.”

PO Sur-reply 11; *see also* Tr. 41:6–45:16 (providing Patent Owner’s arguments at oral hearing concerning Dr. Howle), 57:16–60:9 (providing Petitioner’s rebuttal at oral hearing concerning Dr. Howle), 73:10–74:7 (providing Patent Owner’s sur-rebuttal at oral hearing concerning Dr. Howle).

The Federal Circuit has made clear that, “[t]o offer expert testimony from the perspective of a skilled artisan in a patent case—*like for claim construction, validity, or infringement*—a witness must at least have ordinary skill in the art.” *Kyocera Senco Indus. Tools Inc. v. Int’l Trade Comm’n*, 22 F.4th 1369, 1376–77 (Fed. Cir. 2022) (emphasis added). “Without that skill, the witness’[s] opinions are neither relevant nor reliable.” *Id.* at 1377. The Federal Circuit reasons that “[a]dmitting testimony from a person . . . with no skill in the pertinent art serves only to cause mischief and confuse the factfinder.’ . . . That testimony would ‘amount[] to nothing more than advocacy from the witness stand.’” *Id.* (quoting *Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1362, 1364–65 (Fed. Cir. 2008)).

We find that Patent Owner has not established that Dr. Howle possesses at least the level of ordinary skill in the art. Our level of ordinary skill in the art requires a bachelor's degree in engineering *plus five years of experience in design of mechanical beverage systems, or similar products, as well as experience with sensors for recognizing an identifier*. Patent Owner does not persuasively account for how Dr. Howle's experience, extensive as it may be, includes five years of experience in design of mechanical beverage systems, or similar products, as well as experience with sensors for recognizing an identifier. *Cf. Kyocera*, 22 F.4th at 1376 (“Dr. Pratt has advanced degrees in engineering and extensive experience in the design and manufacture of fastener driving tools. But he lacks experience in power nailer design.”).

Patent Owner's argument that Dr. Howle's advanced degrees qualifies him as having at least the skill level of a person having ordinary skill is unpersuasive. Although Patent Owner proposes a level of ordinary skill that credits additional education, as we discuss above, Patent Owner fails to provide sufficient explanation in support of that proposal. As such, we do not adopt that portion of the characterization of the level of ordinary skill.

Patent Owner's cited Federal Circuit cases and Board decisions are inapposite, for at least the reason that these decisions pre-date *Kyocera*. Also, to be clear, we are not saying that an expert must have satisfied the requirements of the level of ordinary skill in the art on or before the priority date of the challenged patent, which Patent Owner seems to understand was at issue here. *See* PO Sur-reply 9. Instead, we evaluate whether Dr. Howle had at least the requisite qualifications of a person having ordinary skill in the art by the time he rendered his opinions.

Accordingly, consistent with the requirement in *Kyocera*, we do not credit any of Dr. Howle’s testimony *offered from the perspective of a person having ordinary skill in the art*, including testimony regarding claim construction. To the extent that Dr. Howle offers other testimony as an engineering expert and not from the perspective of a person having ordinary skill in the art, we will weigh such evidence appropriately. For reasons that follow, however, Petitioner nevertheless does not demonstrate that any Challenged Claim is unpatentable on this record.

C. Claim Construction

We construe each claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b).” 37 C.F.R. § 42.100(b). Under this standard, claim terms are generally given their ordinary and customary meaning as would have been 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. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc) (“We have frequently stated that the words of a claim ‘are generally given their ordinary and customary meaning.’” (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996))).

Petitioner contends that it “applies, for purposes of this [*inter partes* review] petition, the apparent interpretations that Patent Owner offered in District Court in its infringement contentions.” Pet. 27–28. Petitioner then provides certain examples. *Id.* at 28–30. Petitioner concludes “that, for this proceeding, no claim terms require formal construction.” *Id.* at 30. Petitioner did not offer a construction for the limitations directed to the groove/seal configuration. *See id.* at 27–30.

Patent Owner states that, “[f]or purposes of this Response, Patent Owner believes claim construction is unnecessary presently to resolve the issues before the Board.” PO Resp. 9.

Although the parties contend that we need not expressly construe any claim term to resolve the parties’ disputes, we conclude that we must construe one term: “a groove that is laterally offset from the chamfered mandrel” (the “groove” limitation), which appears in all three independent claims, at least to the extent necessary to resolve the dispute. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms that . . . are in controversy, and only to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

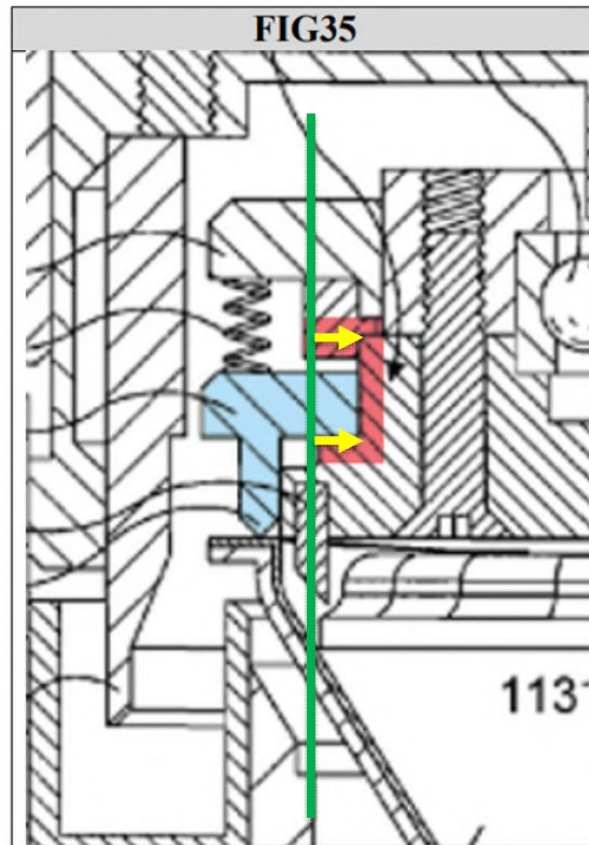
Although the parties may be applying what they each believe to be the ordinary and customary meaning for this claim term, those meanings differ. As such, we must construe the term expressly.

As an initial matter, we recognize that we “cannot, without notice and opportunity for the parties to respond, change theories midstream by adopting a claim construction in [this] final written decision that neither party requested *nor anticipated*.” *Google LLC v. EcoFactor, Inc.*, 92 F.4th 1049, 1057 (Fed. Cir. 2024) (emphasis added). As we will discuss in greater detail below, both parties extensively argued their implicit construction of the groove limitation. So, the fact of our expressly construing the term and the ultimate construction at which we arrive should have been anticipated by each party. *Cf. id.* (stating that “[t]he Board’s claim construction did not violate the [Administrative Procedure Act]” as “[t]he record establishes that the parties disputed the meaning and scope of the [1 m] limitation during the IPR proceeding”). Also, the parties cited evidence in support of their

implicit interpretations, and that evidence is relied upon below in our analysis.

1. *“a groove that is laterally offset from the chamfered mandrel”*

Each of independent claims 1, 7, and 10 recites “a beverage machine comprising: . . . a groove that is laterally offset from the chamfered mandrel.” Ex. 1001, 13:11–25, 13:64–14:13–14, 14:54–15:4. The independent claims also require the beverage machine to comprise “a seal that is at least partially seated in the groove and configured to bear against a top side of the cover in a region between a peripheral edge of the cover and the region of the cover that is pierced by the chamfered mandrel.” *Id.* at 13:11–30, 13:64–14:19, 14:54–15:8 (the “seal” limitation). Petitioner contends that Yoakim discloses a groove that is laterally offset from the chamfered mandrel, relying, in part, on the configuration depicted in Yoakim’s Figure 35. *See* Pet. 64 (reproducing Yoakim’s Figure 35); *id.* at 65 (showing an enlarged image of a portion of Yoakim’s Figure 35, annotated to show a seal in blue and a groove in red); Pet. Reply 19 (showing the enlarged image of a portion of Yoakim’s Figure 35 from Pet. 65, with further annotations). We reproduce Petitioner’s annotated image from Petitioner’s Reply below, which encapsulates Petitioner’s claim construction position.



Pet. Reply 19. Yoakim’s Figure 35 depicts an enlarged view of a cross-sectional view of a beverage production module closed about a beverage capsule. Ex. 1004 ¶¶ 63–64. The figure above shows a portion of Yoakim’s Figure 35, colorized to show a seal in blue, a groove in red, the centerline of a mandrel in green, and yellow arrows indicating that the groove is to the right side of the green line. Pet. Reply 18–19. Petitioner argues that this depiction illustrates that the groove is off to the side of the mandrel.⁸ *Id.* at 19. Petitioner adds that Mr. Jobin testified that “laterally” means “off to the side, for example, of the central axis.” *Id.* (quoting

⁸ Petitioner states that Patent Owner “is not offering a construction” of “laterally.” Pet. Reply 19.

Ex. 2012, 36:11–13). Mr. Jobin’s definition appears to be the definition upon which Petitioner relies.

We note from the reproduced figure above, however, that a small portion of the groove (that is, of the red highlighted structure), is over, or to the left of, the centerline. Also, at oral hearing, Petitioner argued that “in particular, the area where the butt end of the seal is engaging with the groove on all sides is completely offset from the mandrel.” Tr. 61:9–11. As such, Petitioner appears to imply a construction that requires only some or most of the groove to be laterally offset (or perhaps the part of the groove that seats the seal must be laterally offset) from the centerline of the mandrel.

Patent Owner argues that “[r]ather than positioned laterally (to the side), the groove [upon which Petitioner relies] is almost directly above and to the medial direction of what Petitioner argues is the chamfered mandrel.” PO Resp. 53. That is, Patent Owner appears to imply a construction that requires the entirety of the groove to be laterally offset from any part of the chamfered mandrel. For the reasons provided below, we conclude that Patent Owner’s construction is correct and, accordingly, adopt that construction in our analysis.

We turn first to the intrinsic record. In construing the term, we start with the language of the claims. *See, e.g., Phillips*, 415 F.3d at 1314 (“[T]he context in which a term is used in the [claim at issue] can be highly instructive.”). The limitation recites “a groove that is laterally offset from the chamfered mandrel.” The issue centers on what is the plain and ordinary meaning of “laterally offset.” Both parties agree that laterally offset means to the side—the issue is to what extent. *See, e.g., Pet. Reply* 18 (“The Petition establishes that the groove in which a seal partially sits is *off to the side* from the chamfered mandrel.”); PO Resp. 53 (“However, the pictured

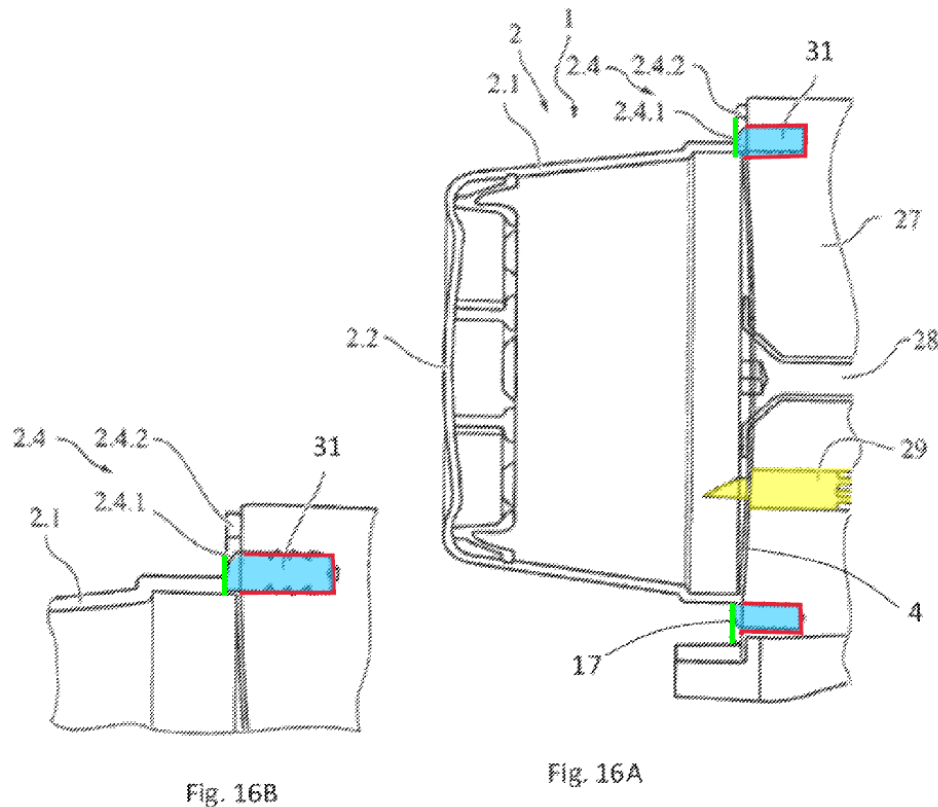
‘groove’ is not laterally offset, or off to the side, from the piercing spike (annotated in yellow). Rather than positioned laterally (to the side), the groove is almost directly above and to the *medial* direction of what Petitioner argues is the chamfered mandrel.”). The actual words of the limitation do not indicate how the term “laterally offset” is defined, other than the phrase indicating the special relationship between the chamfered mandrel and groove.

The language of other claims can also inform a construction. *See Phillips*, 415 F.3d at 1314 (“Other claims of the patent in question . . . can also be valuable sources of enlightenment as to the meaning of a claim term.”). The ’491 patent, however, does not further recite the “groove” or “seal” except for in the three independent claims and in the groove and seal limitations.

“[T]he specification ‘is always highly relevant to the claim construction analysis.’” *Phillips*, 415 F.3d at 1315. The Specification discusses a groove in the context of receiving a seal for one embodiment—the embodiment of Figures 16A and 16B. The Specification states that

Preferably, [portion cup 1] is provided that the edge region has a sealing surface 2.4.1, which sealingly interacts with the seal 31 attached to the brewing chamber 27, on the interior side of the gearwheel. The seal 31 makes sure that the water coming from a water inlet 28 flows through the portion capsule by passing an opening, which has been made by a mandrel 29, [rather] than around it.

Ex. 1001, 10:28–34. We provide versions of Figures 16A and 16B, annotated by us, below.



Figures 16A and 16B depict “a portion capsule with a gearwheel placed in the brewing chamber.” *Id.* at 7:57–58. We have colorized certain components depicted in the figures, including sealing surface 2.4.1 (green), seal 31 (blue), and mandrel 29 (yellow). We have also provided the outline of the groove in brewing chamber 27 (no reference number for the groove) in which seal 31 sits in red. To be clear, the ’491 patent does not identify the groove. Instead, it shows seal 31 “attached to” brewing chamber 27 in a shape that resembles a groove. *See id.* at 7:28–31.

The portion capsule and brewing chamber have been rotated 90 degrees in Figures 16A and 16B. As a result, for example, bottom portion 2.2 of portion capsule 1 is shown on the left side of Figure 16A. As such, the two portions of seal 31 shown in Figure 16A are off to either side of mandrel 29, that is, the two portions of seal 31 are laterally offset from mandrel 29. As the Specification explains, this configuration ensures that

water from water inlet 28 passes the hole formed by mandrel 29 and does not leak around the sides of the portion capsule. Ex. 1001, 10:31–34. So, in the '491 patent, the purpose of the groove/seal configuration is to ensure that water introduced by water inlet 28 enters the portion capsule. *Cf.* PO Resp. 52 (describing the function of the seal/groove configuration for the '491 patent).

From the single embodiment depicted in the '491 patent, the groove containing the seal is completely to the side of the chamfered mandrel.

In addition to consulting the Specification, we “should also consider the patent’s prosecution history, if it is in evidence.” *Phillips*, 415 F.3d at 1317. Although in evidence, we do not discern anything in the prosecution history that sheds additional light on the meaning of the subject limitation. The limitation was not at issue in the prosecution of the application that matured into the '491 patent. *See* Ex. 1002, 203–210 (providing new claims in a preliminary amendment, including claims 21, 29, and 32, which would issue as independent claims 1, 7, and 10), 221–227 (allowing claims 21, 29, and 32 in a first Office Action).

We now turn to the extrinsic evidence. Although extrinsic evidence, when available, may be useful when construing claim terms under our claim construction standard, extrinsic evidence should be considered in the context of the intrinsic evidence. *Phillips*, 415 F.3d at 1317. Mr. Jobin testifies that “‘laterally offset’ would mean off to the side, for example, of a central axis. So not on that axis but offset from that axis to the side of the axis.” Ex. 2012, 36:11–15 (cited at Pet. Reply 19).

Petitioner also entered into the record two dictionary definitions of the word “lateral.” *See* Ex. 1062; Ex. 1063 (both cited at Pet. Reply 19). These definitions are consistent with the intrinsic record. *See* Ex. 1062, 3

(providing definitions for “lateral” including “1: of or relating to the side 2: situated on, directed toward, or coming from the side”); Ex. 1063 (providing definitions for “lateral” including “1. of or pertaining to the side; situated at, proceeding from, or directed to a side”); *cf. Grace Instrument Indus., LLC v. Chandler Instruments Co., LLC*, 57 F.4th 1001, 1008 (Fed. Cir. 2023) (“A court . . . may rely on dictionary definitions, ‘so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents.’” (quoting *Phillips*, 415 F.3d at 1322–23)).

Based on the information above, we conclude that the limitation “a groove that is laterally offset from the chamfered mandrel” requires the groove to be entirely to the side of any part of the mandrel. This construction is consistent with the words of the claim—the claim states that the groove is laterally offset from, or to the side of, *the chamfered mandrel*, not merely offset from a portion of or the centerline of the mandrel. This construction is also consistent with the one embodiment describing the relationship between the mandrel and groove containing the seal, which depicts the groove entirely to the side of the chamfered mandrel.

We do not accept Mr. Jobin’s testimony that laterally offset is determined relative to the centerline of an object. Neither the intrinsic record nor other extrinsic evidence provides support for Mr. Jobin identifying the centerline of an object as the reference point for determining if a point is laterally offset from the object.

2. *Other terms*

We need not expressly construe any other claim terms to resolve the parties’ disputes. *See Realtime Data, LLC*, 912 F.3d at 1375.

D. Priority date for the '491 patent

“A petitioner in an inter partes review may request to cancel as unpatentable 1 or more claims of a patent . . . only on the basis of *prior art* consisting of patents or printed publications.” 35 U.S.C. § 311(b) (emphasis added). As such, whether an asserted reference qualifies as prior art is a threshold issue in evaluating a petitioner’s grounds of unpatentability. As will be evident from our analysis below, we need not reach this issue to decide Petitioner’s challenges in this proceeding, as we need not address Jarisch ’929, the reference at the center of the priority date issue. *See, e.g.*, PO Resp. 1 (“[T]he ’491 Patent is entitled to a priority date at least as early as September 2, 2010, which predates the Jarisch 929 reference (Ex. 1006) upon which Petitioner relies in both Grounds 1 and 2 of the Petition.”).

E. Ground 1: Claims 1 and 4–6 as unpatentable over Yoakim, Jarisch ’929, and Rossi and Ground 2: Claims 2, 3, and 7–13 as unpatentable over Yoakim, Jarisch ’929, Rossi, and Castellani

a) Petitioner’s contentions: groove and seal limitations

Each of independent claims 1, 7, and 10 recites “a beverage machine comprising: . . . a groove that is laterally offset from the chamfered mandrel.” Ex. 1001, 13:11–25, 13:64–14:13–14, 14:54–15:4. The independent claims also require the beverage machine to comprise “a seal that is at least partially seated in the groove and configured to bear against a top side of the cover in a region between a peripheral edge of the cover and the region of the cover that is pierced by the chamfered mandrel.” *Id.* at 13:11–30, 13:64–14:19, 14:54–15:8. Petitioner contends that Yoakim’s flow restriction means corresponds to the recited groove and seal. Pet. 67 (referencing Ex. 1004 ¶¶ 370–380, 382, 396–398; Ex. 1003 ¶ 269); *see also id.* at 78 (relying on contentions for the groove and seal limitations of

claim 1 for claim 7), 79 (relying on contentions for the groove and seal limitations of claim 1 for claim 10). Petitioner contends that “Yoakim discloses the brewing machine further comprising a sealing valve system 156, which is referred to as an annular engaging portion 157, and can be in the form of a cone or V ‘for increasing sealing pressure.’” *Id.* (referencing Ex. 1004 ¶¶ 388, 436, 446; Ex. 1003 ¶¶ 271–272); *see also id.* at 67–68 (describing Yoakim’s machine’s seal structures); *id.* at 69 (describing Yoakim’s grooves for receiving the seals); *id.* (showing an annotated version of enlarged portions of Yoakim’s Figures 35 and 38, illustrating the seal and groove structures). We reproduce Petitioner’s annotated versions of Yoakim’s Figures 35 and 38, below.

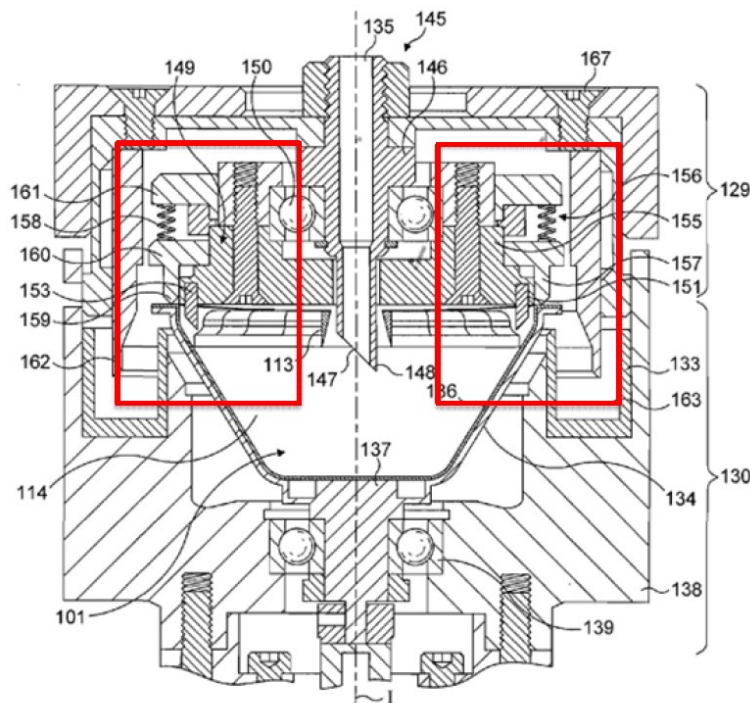
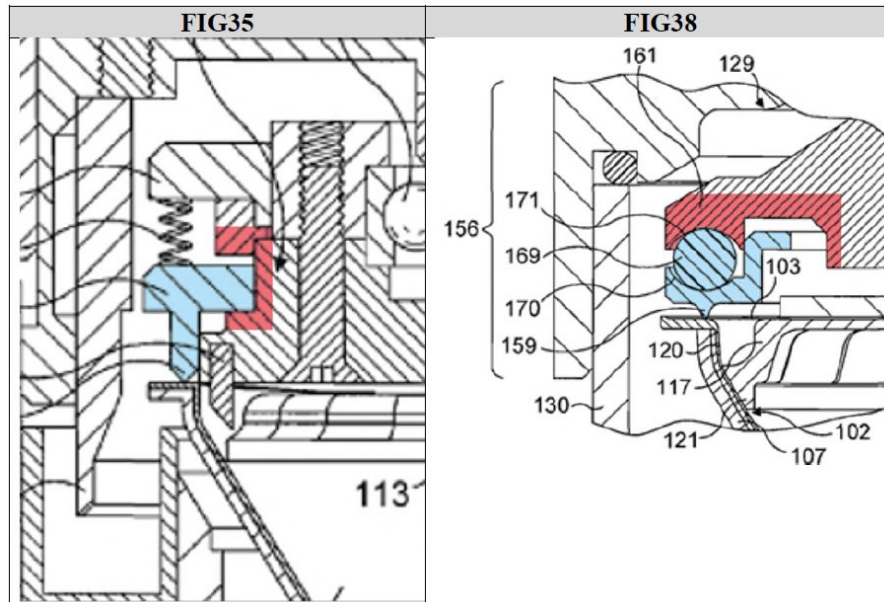


FIG. 35



Pet. 68, 69. Figure 35 is an enlarged version of Yoakim’s Figure 34, which is a cross-sectional view of a beverage production module. Ex. 1004

¶¶ 63–64. Figure 38 depicts “a detailed view of the [beverage production] module of” Figure 37. *Id.* ¶ 67. Above shows Figure 35 in its entirety, with red boxes added by Petitioner to emphasize the location of the alleged groove and seal. *See* Pet. 68. Beneath Figure 35 are annotated versions of a portion of Figure 35 and Figure 38, with added color to indicate the groove (red) and seal (blue).

Petitioner also contends that, “[t]o the extent [Figures 35] and 38 do not constitute a groove, it would have been obvious to a [person having ordinary skill in the art] to position a sealing member in a groove, in order to solidify the placement of the seal and improve its sealing stability and strength.” Pet. 70 (referencing Ex. 1003 ¶ 275);

Petitioner also contends that

It would also have been obvious to a [person having ordinary skill in the art] to utilize the claimed groove and seal configuration in the brewing head of the centrifugal brewing unit in order to achieve “the advantage of a control of the pressure of

liquid exerted in the capsule at the level of the device,” as well as “optimize interaction of water and the ground coffee particles to obtain a good extraction of the coffee and aroma compounds,” and “improve the creation of foam or coffee crema.”

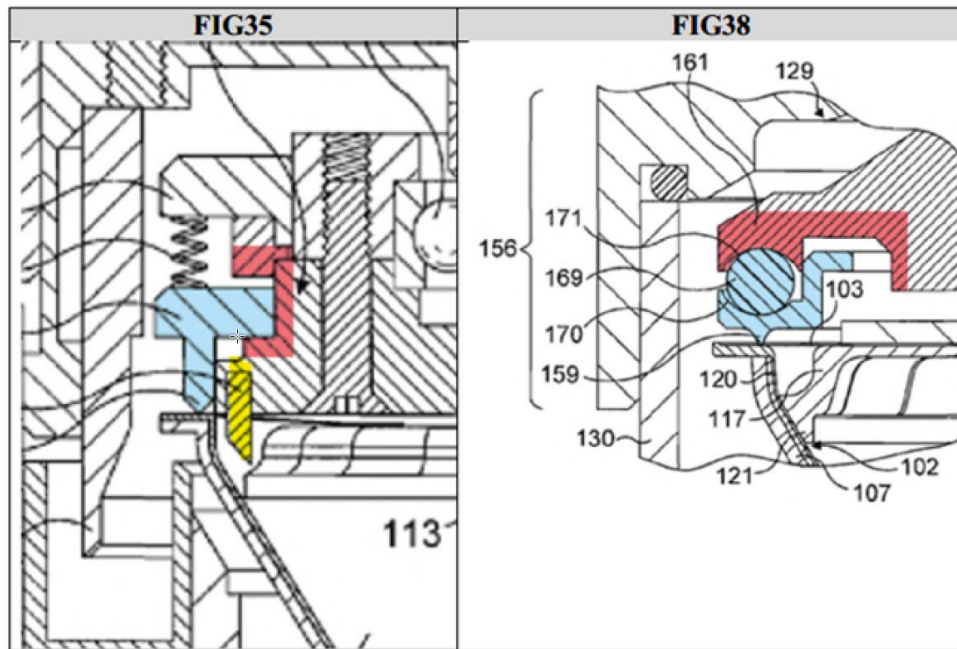
Id. (referencing Ex. 1004 ¶¶ 384–385; Ex. 1003 ¶¶ 275–276); *cf.* Tr. 62:6–9 (“[O]ne of the additional arguments we made is Yoakim, at a minimum, renders this obvious. And they’ve never really responded to that. They’ve never articulated any relevant technical distinction with this feature.”).

b) Patent Owner’s responsive arguments

Patent Owner explains that Yoakim’s flow restriction means includes a valve means that allows liquid to be released from the capsule and the machine. PO Resp. 52 (referencing Ex. 1004 ¶ 382). Patent Owner argues that the purpose of the flow restriction means differs from the seal in the ’491 patent, which helps to ensure that water from the water inlet flows through the portion cup and not around the outside of the cup. *Id.* (referencing Ex. 1001, 10:31–34).

Patent Owner also responds that “the pictured ‘groove’” in the depicted portion of Yoakim’s Figure 35 “is not laterally offset, or off to the side, from the piercing spike.” PO Resp. 53. Patent Owner argues that the identified “groove is almost directly above and to the *medial* direction of what Petitioner argues is the chamfered mandrel.” *Id.*⁹ Patent Owner further annotates Petitioner’s annotated portion of Figure 35 from Yoakim, which we reproduce below.

⁹ Patent Owner references testimony in Dr. Howle’s declaration in support of its arguments. Because this testimony is directed to what a person having ordinary skill in the art would have understood from Yoakim’s disclosure, we do not consider it for the reasons discussed above in Section II.B.2.



PO Resp. 55. The above figure is identical to Petitioner's figure, which shows annotated versions of a portion of Figure 35 and Figure 38, with added color to indicate the groove (red) and seal (blue). Patent Owner adds color to outlet piercing member 153, the alleged chamfered mandrel. *Cf.* Pet. 65 (indicating that the chamfered mandrel corresponds to Yoakim's piercing elements 51, from the embodiment of Figure 4).

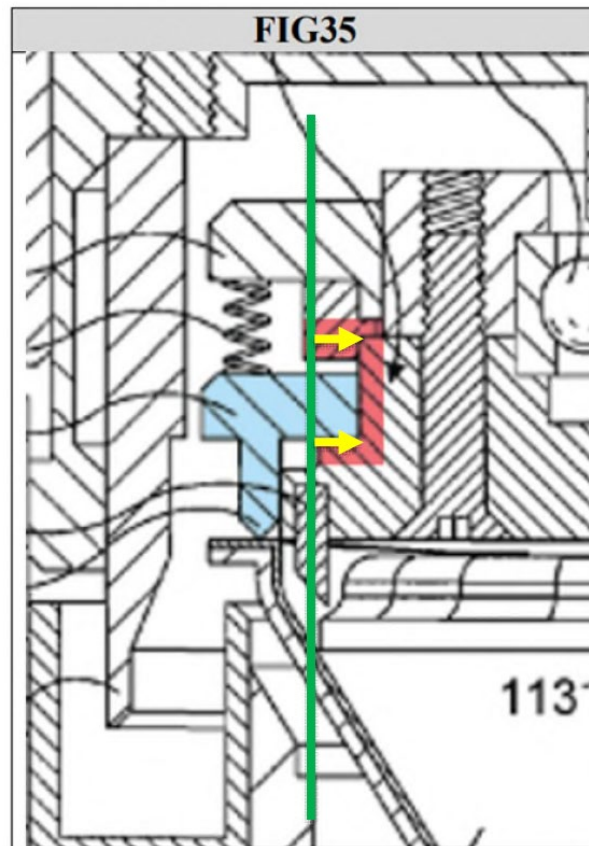
Finally, Patent Owner argues that Yoakim's Figure 38 does not teach the groove and seal limitation, as it has no mandrel. PO Resp. 54. Patent Owner also criticizes the embodiment of Figure 38 as not improving the seal's stability and strength as Petitioner reasons, because the seal moves. *See id.*

c) Petitioner's reply arguments and Patent Owner's sur-reply arguments

Petitioner replies that Patent Owner's argument concerning the function of Yoakim's flow restriction means improperly imports limitations into the claim. Pet. Reply 17. Petitioner adds that Yoakim's seal does

perform the function as argued by Patent Owner “because its ‘flow restriction means’ is designed ‘to exert a sufficient *sealing pressure* on the capsule.’ This sealing pressure *restricts the flow of liquid* and blocks liquid exit ‘until a certain pressure’ is reached.” *Id.* at 17–18 (referencing Ex. 1004 ¶¶ 385, 388, 436). Petitioner concludes that Yoakim’s configuration “ensures that water flows through the portion capsule instead of around it.” *Id.* at 18 (referencing Ex. 1004 ¶ 251).

Petitioner also replies that Yoakim’s groove is off to the side of the central axis of the chamfered mandrel. Pet. Reply 19. To illustrate its point, Petitioner provides a further annotated version of the enlarged portion of Yoakim’s Figure 35 upon which Petitioner relied in the Petition. We reproduce the new annotation from Petitioner’s Reply, below.



Id. at 19. Yoakim’s Figure 35 depicts an enlarged view of a cross-sectional view of a beverage production module closed about a beverage capsule.

Ex. 1004 ¶¶ 63–64. The figure above shows a portion of Yoakim’s Figure 35, colorized to show a seal in blue, a groove in red, the centerline of a mandrel in green, and yellow arrows indicating that the groove is to the right side of the green line. Pet. Reply 18–19. That is, Petitioner contends that Yoakim’s groove is lateral to (i.e., off to the side of) the centerline of outlet piercing member 153, shown by the green line. *Cf.* Tr. 26:11 (“But the groove is laterally offset. It is off to the side.”), 61:8–11 (“And that’s exactly what we have here is laterally offset. And in particular, the area where the butt end of the seal is engaging with the groove on all sides is completely offset from the mandrel.”).

Petitioner also replies that, “[t]o the extent there are any minor differences in the groove/seal configuration of Yoakim, they are trivial.” Pet. Reply 19–20 (citing *PlaSmart, Inc. v. Kappos*, 482 F. App’x 568, 573 (Fed. Cir. 2012)).

Finally, Petitioner criticizes Patent Owner for not responding to Petitioner’s argument that “it would have been obvious to utilize the claimed groove/seal configuration.” Pet. Reply 20 (citing to Pet. 70).

Patent Owner replies that the only support for Petitioner’s position is Yoakim’s Figure 35, as Figure 38 does not include a chamfered mandrel. PO Sur-reply 17. Patent Owner argues that “it remains apparent even from Fig[ure] 35 that the groove is not laterally offset from the chamfered mandrel and is instead above the chamfered mandrel. As such, [Petitioner] has not carried its burden by a preponderance of the evidence.” *Id.*

d) Analysis

For the reasons discussed below, we find that Petitioner has not proven, by a preponderance of the evidence, that Yoakim teaches a groove that is laterally offset from the chamfered mandrel as required by all of the Challenged Claims. We also conclude that Petitioner has not proven that it would have been obvious to modify Yoakim's configuration to have a groove as recited in the Challenged Claims. We take each of these issues in turn.

i. Yoakim teaching the recited groove/seal configuration

As an initial point, we agree with Petitioner that Yoakim teaches a seal configured to bear against a top side of the cover in a region between a peripheral edge of the cover and the region of the cover that is pierced by the chamfered mandrel, as required by the Challenged Claims. As Petitioner contends, the embodiment depicted in Yoakim's Figure 35 includes an annular engaging portion 157 with a pressing peripheral surface 159. *See* Pet. 67–68; *see also* Ex. 1004 ¶ 436 (describing valve system 156). Yoakim describes that annular engaging portion 157 is biased under the force of elastic loading means 158, which can be a spring. Ex. 1004 ¶ 436. Spring 158 interacts with base portion 160 of annular engaging portion 157 and counter-force portion 161 to force pressing peripheral surface 159 against the rim of a capsule. *Id.*; *see also id.* at Fig. 35 (showing spring 158, annular engaging portion 157, with pressing peripheral surface 159 and base portion 160, and counter-force portion 161). This configuration creates a seal until a threshold pressure is reached which would overcome the force of the spring. *See, e.g., id.* ¶ 396 (“Preferably, the flow restriction means comprises valve means which is arranged at or after at least one outlet of the

capsule for opening when a certain pressure is exerted thereon by the pressurized liquid for enabling the liquid to be released from the capsule.”).

Also, we agree with Petitioner that Patent Owner improperly attempts to limit the seal and groove limitations to the specific function these structures perform in the embodiment of Figure 16A of the ’491 patent. We note, however, that Yoakim expressly teaches that its system performs the function—“annular engaging portion 157 includes a pressing peripheral surface 159 which applies a closing force on the peripheral rim 104 of the capsule to be able to restrict the flow of liquid under the force of the elastic loading means.” Ex. 1004 ¶ 436.

We do not agree with Petitioner that Yoakim teaches a groove that is laterally offset from the chamfered mandrel. As we indicated in our claim construction section, we construe the claim term to require the groove to be entirely to the side of any part of the mandrel. We agree with Patent Owner that, as depicted in Yoakim’s Figure 35, the alleged groove is not entirely to the side of any part of the mandrel. *See* Pet. 69; *see also* Pet. Reply 19 (showing the alleged groove, in red, including a portion over the chamfered mandrel); PO Resp. 55 (same).

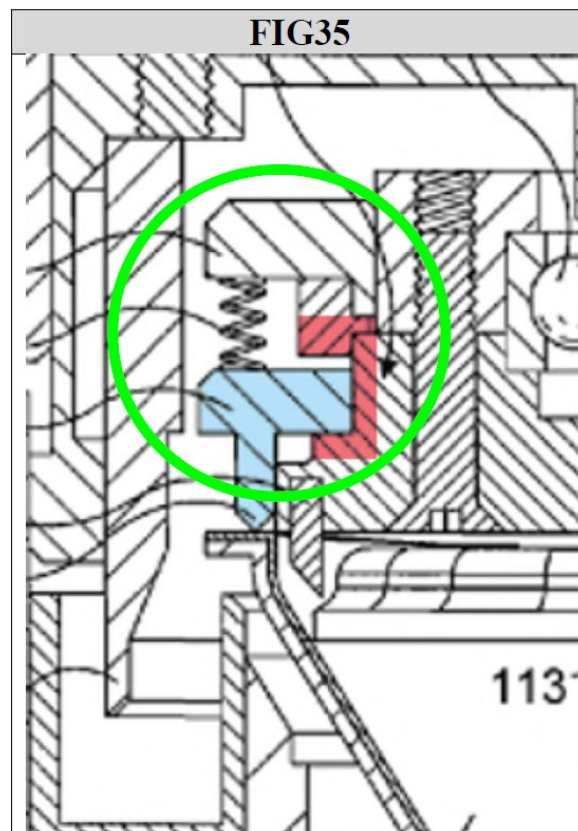
Even if Petitioner’s position is that all of the groove must be to the side of the centerline of the mandrel, Petitioner fails to prove that Yoakim teaches such a structure. As seen in Petitioner’s illustration at page 19 of Petitioner’s Reply (reproduced above), a small portion of the groove (which Petition colorizes in red) is to the left of the centerline (shown in green). *See* Pet. Reply 19.

Additionally, we find that Petitioner’s positions as to what structure in Yoakim corresponds to the groove are inconsistent. In the Petition, Petitioner contends that Yoakim further discloses *a groove that is laterally*

offset from the chamfered mandrel, which the seal at least partially sits in.” Pet. 69. To support this contention, Petitioner quotes paragraph 436 of Yoakim:

The elastic loading means 158 is thus inserted in a space located between the base portion 160 and a counter-force portion 161 for the engaging part 149. Therefore, at a rest position, the engaging portion 157 of the valve system keeps closing on the rim of the capsule under the compressive effect of the resilient means.

Id. That is, the Petition directs us to Yoakim’s teaching of engaging portion 157 having engaging part 149 and base portion 160, with elastic loading means inserted in the space between base portion 160 and counter-force portion 161. In colorizing a portion of Yoakim’s Figure 35, however, Petitioner identifies a smaller structure as the groove. We reproduce this image, with a further annotation added.



Id. (further annotation added). Figure 35 is an enlarged version of Yoakim’s Figure 34, which is a cross-sectional view of a beverage production module. Ex. 1004 ¶¶ 63–64. Petitioner provides an annotated version of a portion of Figure 35 showing engaging portion 157 having engaging part 149 and base portion 160, with elastic loading means 158 inserted in the space between base portion 160 and counter-force portion 161, with added color to indicate the groove (red) and seal (blue). We add a green circle to encompass a larger area, with elastic loading means 158 (the spring) engaging base portion 160 and counter-force portion 161.

Petitioner does not persuasively explain why the groove is not defined, at least in part, by the counter-force portion 161 and the space located between the base portion 160 and a counter-force portion 161 containing elastic loading means 158, as Petitioner appears to argue in the Petition. From the description in Yoakim, elastic loading means 158 is pivotal in the function of engaging portion 157—without elastic loading means 158, engaging portion 157 would not form a seal. *See, e.g.*, Ex. 1004 ¶ 436 (“Therefore, at a rest position, the engaging portion 157 of the valve system keeps closing on the rim of the capsule under the compressive effect of the resilient means 158.”); *cf.* PO Resp. 53 (“Indeed, the ‘groove’ identified by Petitioner permits the ‘seal’ to move within it to allow liquid to escape.”). More significantly, *Petitioner* relies on this structure in the Petition. *See* Pet. 69; *cf. In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (“[T]he Board must base its decision on arguments that were advanced by a party, and to which the opposing party was given a chance to respond.”). As such, based on the disclosure in Yoakim and the contentions in the Petition, the groove should include the structure of counter-force portion 161 and the space between counter-force portion 161

and engaging portion 157. When you consider that entire structure, we find that it is not laterally offset from Yoakim's mandrel.

Consequently, Petitioner's defined groove seems more the product of impermissible hindsight than a teaching in Yoakim—an attempt to selectively identify a portion of the structure that Petitioner contends is laterally offset from the mandrel. For these reasons, we find that Petitioner has not proven, by a preponderance of the evidence, that Yoakim teaches or suggests “a groove that is laterally offset from the chamfered mandrel, which the seal at least partially sits in,” as Petitioner contends. *See* Pet. 69 (emphasis omitted).

ii. Yoakim rendering obvious the recited groove/seal configuration

We find that Petitioner's statement that “[i]t would also have been obvious to a [person having ordinary skill in the art] to utilize the claimed groove and seal configuration” does not remedy the deficiency in Petitioner's position. *See* Pet. 70; Pet. Reply 20 (arguing that Patent Owner “never responded that it would have been obvious to utilize the claimed groove/seal configuration”). Petitioner reasons that the recited seal/groove configuration would have been obvious “to achieve ‘the advantage of a control of the pressure of liquid exerted in the capsule at the level of the device,’ as well as ‘optimize interaction of water and the ground coffee particles to obtain a good extraction of the coffee and aroma compounds,’ and ‘improve the creation of foam or coffee crema.’” Pet. 70 (referencing Ex. 1004 ¶¶ 384–385; Ex. 1003 ¶¶ 275–276). For the reasons discussed below, these contentions do not support *modifying the location of Yoakim's groove* to satisfy the groove limitations.

As an initial point, we do not read the Petition as expressly advocating modifying the location of Yoakim’s groove. *See* Pet. 69–70. Instead, the Petition provides a general obviousness contention directed to the “claimed groove and seal configuration.” *See* Pet. 70. The Petition does not provide any arguments about modifying the position of the groove. Indeed, the only specific obviousness argument is presented as an alternative in case we do not find that the embodiments of Figures 35 and 38 in Yoakim disclose a groove at all. *See id.* (“To the extent F[igure] 35 or 38 do not constitute a groove, it would have been obvious to a [person having ordinary skill in the art] to position a sealing member in a groove, in order to solidify the placement of the seal and improve its sealing stability and strength.”).

The reasons provided by Petitioner in support of its general obviousness position come directly from Yoakim and are directed to advantages from employing a valve means. *See* Ex. 1004 ¶¶ 384–385. But the embodiment of Figure 35 has the valve means. Petitioner does not persuasively explain why a person having ordinary skill in the art would have modified the valve means of the embodiment of Figure 35 to configure the groove to be laterally offset from the chamfered mandrel to achieve these advantages, which are present with the disclosed configuration. That is, although Petitioner’s reasoning may support why a person having ordinary skill in the art would have employed a groove/seal structure, Petitioner does not explain adequately why it would have been obvious to modify the configuration in Yoakim to arrive at the configuration recited in the Challenged Claims.

Further, it appears that the advantages touted in Yoakim come from the positioning of *the seal relative to the portion capsule*, not *the groove*. Yoakim describes that the valve means, as part of the flow restriction means,

remains in contact with the portion capsule until a certain pressure threshold is reached, when the device opens to allow the liquid to flow from the device. *See* Ex. 1004 ¶¶ 372, 382, 384, 396, 398. Yoakim teaches that it is the relative movement between the engaging portion of the device and that of the capsule that allows the liquid to escape. *See, e.g., id.* ¶ 398 (“[T]he valve means can be formed by at least one engaging portion of the device which is adapted to move relatively to an engaged portion of the capsule under the effect of the pressurized liquid exiting the capsule, for making a thin annular laminating passage for the liquid.”). As such, the touted advantages would not have led to any specific groove arrangement.

Petitioner’s reliance on *PlaSmart* is unpersuasive. In *PlaSmart*, the Federal Circuit, in a non-precedential decision, reversed the Board’s reversal of an examiner’s rejection in an *inter partes* reexamination. *PlaSmart, Inc.*, 482 F. App’x at 573. The Court stated that the Board relied on “minor distinctions” and these “distinction[s] read[] the teachings of [a prior art reference] too narrowly.” *Id.* Here, Petitioner does not explain how Yoakim’s teachings could be read more broadly to arrive at the claimed configuration. Indeed, Petitioner has contended throughout trial that Yoakim discloses the subject matter of the groove limitations.

iii. Other claims and references

We have reviewed the complete record, including Petitioner’s contentions directed to dependent claims and other prior art references. We do not discern any arguments and supporting evidence that the other prior art of record remedies the deficiency we identify above.

e) Conclusion

Having reviewed the complete record, we find that Petitioner does not demonstrate, by a preponderance of the evidence, that Yoakim teaches or

suggests the recited groove/seal configuration of the Challenged Claims. Accordingly, we conclude that Petitioner has not proven, by a preponderance of the evidence, that the Challenged Claims are unpatentable under 35 U.S.C. § 103(a) over the combination of Yoakim, Jarisch '929, and Rossi (claims 1, 4–6) or Yoakim, Jarisch '929, Rossi, and Castellani (claims 2, 3, and 7–13).

III. CONCLUSION

For the above reasons, we conclude that Petitioner has not proven, by a preponderance of the evidence, that the Challenged Claims are unpatentable under 35 U.S.C. § 103(a) over the combination of Yoakim, Jarisch '929, and Rossi (claims 1 and 4–6) or Yoakim, Jarisch '929, Rossi, and Castellani (claims 2, 3, and 7–13).

In summary:

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 4–6	103(a)	Yoakim, Jarisch '929, Rossi		1, 4–6
2, 3, 7–13	103(a)	Yoakim, Jarisch '929, Rossi, Castellani		2, 3, 7–13
Overall Outcome				1–13

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has not proven by a preponderance of the evidence that claims 1–13 of U.S. Patent No. 11,254,491 B2 are unpatentable; and

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

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Patent 11,254,491 B2

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