

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NESPRESSO USA, INC.,
Petitioner,

v.

K-FEE SYSTEM,
Patent Owner.

Case IPR2023-00485
U.S. Patent No. 11,230,430

**PATENT OWNER K-FEE SYSTEM GMBH'S
NOTICE OF APPEAL**

NOTICE OF APPEAL TO THE FEDERAL CIRCUIT

Notice is hereby given, pursuant to 35 U.S.C. §§ 141, 142, and 319 and 37 C.F.R. §§ 90.2 and 90.3(a)(1), that K-fee System GmbH (“Patent Owner”) hereby appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision entered on September 10, 2024 (Paper 26), and from all underlying orders, decisions, rulings, and opinions, regarding *inter partes* review of U.S. Patent No. 11,230,430 (“the ’430 Patent”) in Case No. IPR2023-00485. This appeal is timely under 35 U.S.C. § 142 and 37 C.F.R. § 90.3.

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), Patent Owner further states that the issues on appeal are anticipated to include, but are not limited to:

- (1) whether the United States Patent and Trademark Office (PTO) erred in determining that Patent Owner’s expert is not qualified to offer expert testimony from the perspective of a person having ordinary skill in the art;
- (2) whether the PTO erred in determining the priority date accorded to the ’430 Patent;
- (3) whether the PTO erred in determining that a person having ordinary skill in the art would have combined Yoakim, Jarisch, Rossi, and Castellani; and
- (4) whether the PTO erred in determining that the challenged claims are

unpatentable as obvious in light of Yoakim, Jarisch, Rossi, and Castellani.

Concurrently with this submission, in accordance with 37 C.F.R. § 90.2(a) and Federal Circuit Rule 15(a)(1), a copy of this Notice of Appeal is being filed with the Patent Trial and Appeal Board, and a copy is being filed electronically with the United States Court of Appeals for the Federal Circuit along with the required docketing fee.

Date: November 11, 2024

Respectfully submitted,

/Michael P. Chu/

Michael P. Chu, Lead Counsel

Registration No. 37,112

Attorneys/Agents for Patent Owner

CERTIFICATE OF SERVICE

I hereby certify, that on November 11, 2024, a complete copy of the foregoing **PATENT OWNER'S NOTICE OF APPEAL** was served upon the following by ELECTRONIC MAIL:

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The undersigned certifies that, in addition to being filed electronically through the Patent Trial and Appeal Board Case Tracking System (P-TACTS) system on November 11, 2024, a true and correct copy of the foregoing **PATENT OWNER'S NOTICE OF APPEAL** was filed on November 11, 2024, with the Director of the United States Patent and Trademark Office at the following e-mail address: efileSO@uspto.gov.

I further certify that a copy of the this Notice of Appeal is being filed via CM/ECF on November 11, 2024, with the U.S. Court of Appeals for the Federal Circuit.

/Michael P. Chu/
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EXHIBIT A

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NESPRESSO USA, INC.
Petitioner,

v.

K-FEE SYSTEM GMBH,
Patent Owner.

IPR2023-00485
Patent 11,230,430 B2

Before GRACE KARAFFA OBERMANN, JON B. TORNQUIST, and
JAMES J. MAYBERRY, *Administrative Patent Judges*.

TORNQUIST, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Nespresso USA, Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1–10 of U.S. Patent No. 11,230,430 B2 (Ex. 1001, “the ’430 patent”). K-fee System GmbH (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 6 (“Prelim. Resp.”). With authorization, Petitioner subsequently filed a reply to the Preliminary Response (Paper 7) to which Patent Owner filed a sur-reply (Paper 8).

Upon review of the parties’ arguments and supporting evidence, we instituted review with respect to the single ground asserted in the Petition. Paper 9 (“Institution Decision” or “Inst. Dec.”). After institution, Patent Owner filed a Response (Paper 15, “PO Resp.”), to which Petitioner filed a Reply (Paper 18, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 19, “Sur-reply”).

Petitioner relies, *inter alia*, upon a declaration from Michael Jobin (Ex. 1003), and Patent Owner relies upon a declaration from Laurens Howle, Ph.D., P.E. (Ex. 2017).

An oral hearing was held on June 12, 2024, and a transcript of the hearing is included in the record (Paper 25, “Tr.”).

For the reasons that follow, we conclude that Petitioner has proven by a preponderance of the evidence that claims 1–10 of the ’430 patent are unpatentable.

II. BACKGROUND

A. Related Matters

The parties identify the following district court proceeding as a related matter: *K-Fee System GmbH v. Nespresso USA, Inc.*, No. 2:22-00525-GW (C.D. Cal.). Pet. 82; Paper 3, 2.

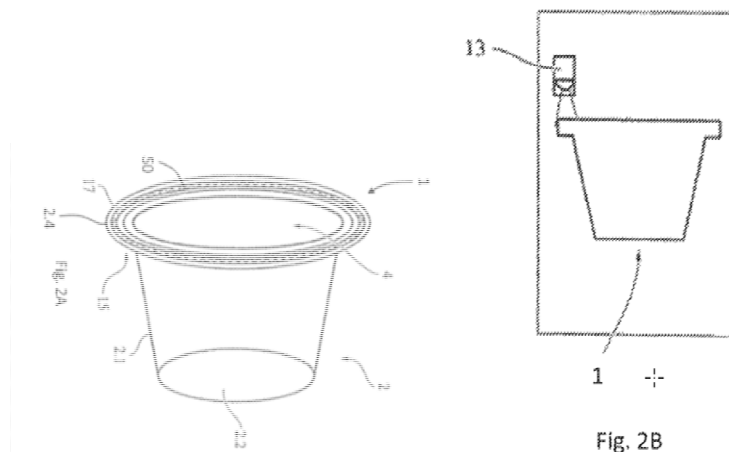
B. Real Parties in Interest

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

Patent Owner identifies itself as the real party in interest, and notes that it is “a wholly owned subsidiary of Kruger GmbH & Co. KG, along with Kruger North America, Inc.” Paper 3, 2.

C. The '430 patent

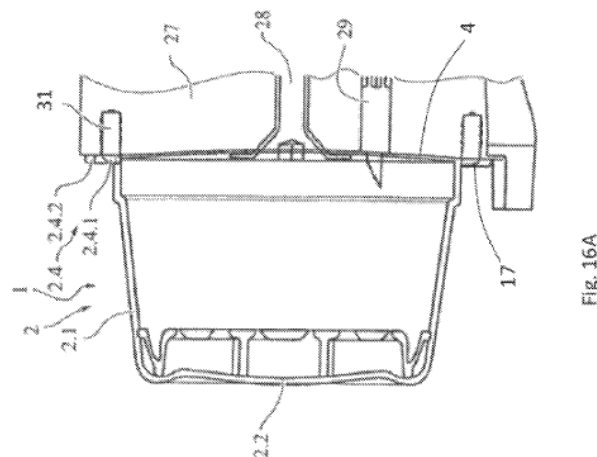
The '430 patent is titled “Portion Capsule Having an Identifier,” and issued January 25, 2022, from an application filed July 26, 2021. Ex. 1001, codes (22), (45), (54). Figures 2A and 2B of the '430 patent are reproduced below.



Figures 2A and 2B depict “a portion capsule containing a barcode.” *Id.* at 7:31–32.¹ As shown in Figure 2A above, portion capsule 1 includes base element 2 with wall region 2.1 and bottom area 2.2. *Id.* at 8:44–47.

Membrane 4 is attached to edge region 2.4 and seals the cavity of the capsule. *Id.* at 8:11–13. Barcode 50 is placed “in the area of the membrane’s top surface.” *Id.* at 8:47–48. Alternatively, as shown by arrow 15, the barcode “can be attached to the base element’s edge region being averted from the membrane 4.” *Id.* at 8:54–56. This barcode is used as an identifier and is read by detector 13 (Figure 2B), which is placed, for example, in a media chute. *Id.* at 8:56–58.

Figures 16A and 17A are reproduced below.



¹ For ease of reference, we have rotated Figures 2A and 2B by 180 and 90 degrees, respectively,

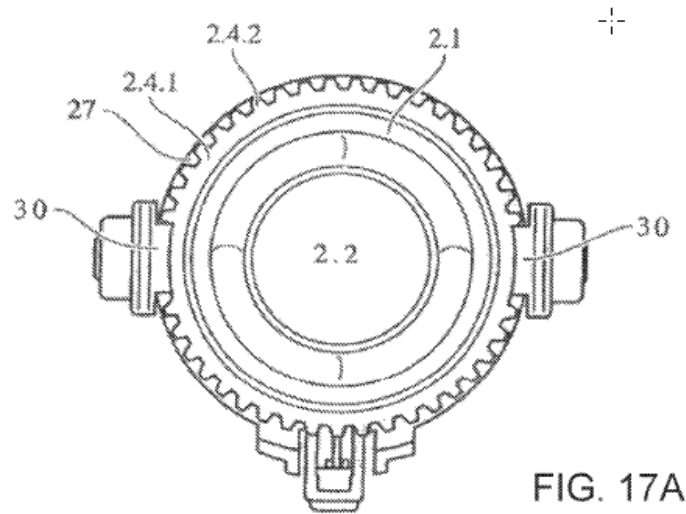


Figure 16A² depicts “a portion capsule with a gearwheel placed in the brewing chamber,” and Figure 17A depicts a different embodiment of the portion capsule of Figure 16A. Ex. 1001, 7:58–61. These figures show “flange 17/edge region 2.4, which is preferably circular” and includes a “means for fit locking, friction locking and/or detection 2.4.2 in the outer area (outer circumference).” *Id.* at 10:19–24. In Figure 16 and Figure 17A, means 2.4.2 is a gearwheel that is formed by several recesses/bulges evenly arranged in the edge region of portion capsule 1. *Id.* at 10:24–28. Holding arms 30 (Figure 17A), in combination with brewing chamber 27, hold portion capsule 1 in place. *Id.* at 10:41–43. Holding arms 30 interact with “means for locking, friction locking and/or detection 2.4.2.” *Id.* at 10:43–45. The ’430 patent explains that without means 2.4.2 the holding arms will not hold the portion capsule, the portion capsule cannot be inserted into the brewing chamber, and the capsule will instead “fall through it into a dropping box.” *Id.* at 10:45–48.

² Figure 16A has been rotated 90 degrees for ease of reference.

D. Illustrative Claim

Petitioner challenges claims 1–10 of the '430 patent. Pet. 1. Claims 1 and 7 are independent. Claim 1, reproduced below, is illustrative of the challenged claims:

1. A beverage system for making a beverage, comprising:
a single-serve capsule comprising: a base element with a cavity, in which a raw beverage material is provided; a flange extending outwardly from the base element, the flange comprising a top side and an opposing bottom side; a cover that is fastened to the top side of the flange to close the cavity; and *a barcode provided on the bottom side of the flange*; and

a beverage machine comprising: a sensor/detector configured to read the barcode; a brewing chamber configured to receive the base element of the single-serve capsule and having an end portion that opposes the bottom side of the flange; and a pump controlled to supply water into the single-serve capsule;

wherein the single-serve capsule is free of a filter that is located inside of the cavity, the single-serve capsule also comprises:

- i. an upper end portion that has an annular convexity and a lower end portion that has an annular concavity relative to a central axis of the base element; and
- ii. a barrier layer to prevent moisture or aroma from escaping out of the single-serve capsule;

wherein the beverage machine also comprises:

- i. a mandrel that is configured to pierce the cover in a region that is offset from the central axis of the base element;
- ii. a seal that is configured to seal against the cover in a region between a peripheral edge of the flange and the region of the cover that is pierced by the mandrel;
- iii. a pair of holding arms for engaging the single-serve capsule; and
- iv. a dropping box for the single-serve capsule to fall into;

wherein the pump is controlled to push the water into the single-serve capsule only upon a determination that the read barcode agrees with a stored reference.

Ex. 1001, 12:58–13:28 (claim terms at issue herein are emphasized in italics).

E. Asserted Grounds of Unpatentability

Petitioner asserts that claims 1–10 of the '430 patent are unpatentable on the following ground (Pet. 33):

Claims Challenged	35 U.S.C. §³	Reference(s)/Basis
1–10	103	Yoakim ⁴ , Jarisch ⁵ , Rossi ⁶ , Castellani ⁷

III. ANALYSIS

A. Legal Standard

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

³ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. The parties assert that the challenged claims have an earliest effective filing date of either July 22, 2011, or September 2, 2010. Pet. 38–39; PO Resp. 54. Accordingly, we apply the pre-AIA version of § 103. See 35 U.S.C. § 100(i)(1)(B).

⁴ US 2010/0239734 A1, published September 23, 2010. Ex. 1004 (“Yoakim”).

⁵ US 2013/0064937 A1, published March 14, 2013. Ex. 1005 (“Jarisch”).

⁶ WO 2010/099806 A1, published September 10, 2010. Ex. 1041 (“Rossi”).

⁷ US 2008/0105131 A1, published May 8, 2008. Ex. 1009 (“Castellani”).

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 in evidence, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

The Petition contends that a person of ordinary skill in the art “would have a bachelor’s degree in engineering plus five years of experience in design of mechanical beverage systems, or similar products.” Pet. 31 (citing Ex. 1003 ¶ 40). In the Institution Decision, we preliminarily determined that a person of ordinary skill in the art “would 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.*” Inst. Dec. 8 (emphasis added). Neither party disputes this conclusion. PO Resp. 9; *see generally* Pet. Reply. As such, we adopt our preliminary definition of the ordinarily skilled artisan for purposes of this Final Written Decision.

C. Claim Construction

In an *inter partes* review proceeding, a patent claim is construed 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) (as amended Oct. 11, 2018). This rule adopts the claim construction standard used by Article III federal courts, which follow *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), and its progeny. Under this standard,

the words of a claim are generally given their “ordinary and customary meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *See Phillips*, 415 F.3d at 1312–13.

Upon review of the prior art of record, we agree with the parties that no claim terms require express construction for purposes of this Final Written Decision. Pet. 33 (“Petitioner submits that, for this proceeding, no claim terms require formal construction.”); PO Resp. 8 (proposing no formal constructions); *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)).

D. Weight Accorded to Conflicting Opinion Testimony

Petitioner submits that Patent Owner’s witness, Dr. Howle, lacks the minimum qualification of the ordinarily skilled artisan related to at least “five years of experience in design of mechanical beverage systems, or similar products, as well as experience with sensors for recognizing an identifier.” Pet. Reply 27–28. Based on the full trial record, we agree.⁸

⁸ The Board previously determined, under similar facts and circumstances, that Dr. Howle does not possess the minimum level of ordinary skill in the art because he lacks “five years of experience in design of mechanical beverage systems, or similar products, as well as experience with sensors for recognizing an identifier” and, on that basis, is not qualified to opine about the understanding of the ordinarily skilled artisan. IPR2022-01574, Paper 29 at 22.

For the past 35 years, Dr. Howle has held academic roles at Duke University, first as a graduate-level research assistant, then as a professor in the Department of Mechanical Engineering. Ex. 2017 ¶¶ 5–7, App’x 1–2. Prior to his time at Duke, Dr. Howle was employed for seven years by Kaye Products, where his duties related to physical therapy equipment. *Id.* ¶ 3. Before that, he served for four years in the United States Army. *Id.*, App’x 1.

Dr. Howle readily admits he lacks five years of experience designing mechanical beverage systems. Ex. 1069, 53:15–18. Yet Dr. Howle does not explain sufficiently, if at all, how any related design experiences, in the aggregate, add up to “*at least five years* of experience in design of . . . similar products.” See Ex. 2017 ¶¶ 2–13, App’x 1–3 (statement of qualifications and experience). Dr. Howle simply identifies experiences, which may or may not have been related to the design of similar products, then asserts, in conclusory fashion, that he qualifies as an ordinarily skilled artisan. *Id.* ¶¶ 2–13; *see especially id.* ¶ 14. We assign that conclusory statement little weight because the statement is not explained or supported adequately by objective evidence. *Id.* ¶ 14.

None of the experiences identified by Dr. Howle are self-explanatory; that is, none, on their face, support a conclusion that his experiences, in the aggregate, amount to “at least five years” (Inst. Dec. 8) of experience designing products similar to mechanical beverage systems. See Ex. 1017 ¶¶ 2–13. Dr. Howle identifies a single experience as “[d]irectly related to single-serve beverage brewing systems,” but that qualification is outside the realm of design: It relates to his experiences consulting as an expert witness in litigation. *Id.* ¶ 13. In short, Dr. Howle does not attempt to account for

how his experiences add up to “at least five years” designing products “similar” to mechanical beverage systems.

Dr. Howle’s research interests include, for example, decompression sickness and oxygen toxicity, and do not, on their face, support a finding that he spent at least five years designing beverage brewing systems or similar products. Ex. 2017, App’x 2–3 (statement of research interests). Similarly, Dr. Howle’s peer-reviewed publications reflect a distinct focus on marine mammal science, such as lift and drag performance of whale flippers. *Id.* at App’x 6. Patent Owner does not direct us to information from which we can determine whether Dr. Howle possesses at least five years of experience in the design of mechanical beverage systems or similar products. *See* Pet. Reply 27–28 (Petitioner’s arguments); Sur-reply 1–5 (Patent Owner’s arguments)⁹.

In the Sur-reply, Patent Owner for the first time argues that Dr. Howle’s “educational experiences” are “a substitute for” the required “design experience.” Sur-reply 2 n.2. We reject that argument because Patent Owner failed to timely contest its own proposed definition of the ordinarily skilled artisan in its Response and, as a result, Petitioner was denied an opportunity to brief this new issue raised for the first time in the Sur-reply. Patent Owner’s own proposed definition, advanced in the Preliminary Response and adopted in the Institution Decision, expressly distinguishes educational experiences from hands-on design experience.

⁹ Even if we accept that Dr. Howle was deemed qualified, “without objection,” in district court actions, that does not compensate for his failure to establish his qualifications in this proceeding under the definition proposed by Patent Owner and adopted by the Board, where his qualifications are contested. Sur-reply 4.

Inst. Dec. 8 (accepting Patent Owner’s proposed definition) (quoting Prelim Resp. 18). The time for advocating for a different definition was on the date of filing Patent Owner’s Response. *See* PO Resp. 9 (apparently adopting the definition proposed in the Institution Decision).

In the Sur-reply, Patent Owner also contends for the first time that Dr. Howle’s work with devices, such as heaters, pumps, and gauges, represents “experience in mechanical design including design of components used in mechanical beverage systems, and design of *similar products*.”

Sur-reply 2 (Patent Owner’s emphasis). Patent Owner does not explain how these experiences together add up to “at least five years” of designing products similar to mechanical beverage systems as well as “experience with sensors for recognizing an identifier.” Inst. Dec. 8; *see* Sur-reply 2–4 (providing a survey of Dr. Howle’s qualifications, including work plainly outside the realm of such design experiences, but declining to address how those qualifications include *at least five years* of relevant design experience) (citing Ex. 1066, 34:16–35:9; Ex. 1067, 101:3–12, 101:19–102:11, 102:20–104:9; Ex. 1068, 6:3–12; Ex. 1069; Ex. 2017 ¶¶ 3–6, 8–10, 13) (Patent Owner’s evidence).

Patent Owner’s attempt to establish Dr. Howle’s qualifications in the Sur-reply, based on re-direct examination taken by Patent Owner during Petitioner’s deposition of Dr. Howle, is too little too late. Sur-reply 3 (citing Ex. 1067, 102:20–104:9). Specifically, Petitioner avers in the Sur-reply, for the first time, that “Dr. Howle [] has extensive experience with medical devices, which utilize” components that “operate similarly to beverage machines.” *Id.* Even if we consider that belated argument, however, it does nothing to establish that Dr. Howle possesses, in the aggregate, “at least five years” of relevant design experience. Inst. Dec. 8; *see* Sur-reply 3 (citing

Ex. 1066, 34:16–35:9; Ex. 1067, 101:3–12, 102:30–104:9; Ex. 2017 ¶¶ 3–4) (declining to address the duration of Dr. Howle’s allegedly relevant design experience).

Further, by raising that contention for the first time in the Sur-reply, Patent Owner unfairly denies Petitioner an opportunity to oppose the contention with facts and evidence. *See Genzyme Therapeutic Prods.*, 825 F.3d at 1366–1367 (Fed. Cir. 2016) (Administrative Procedure Act and due process require notice and opportunity to submit facts and argument). The evidence filed in support of Patent Owner’s Response does not indicate that Dr. Howle possesses design experience with medical devices. Ex. 2017 ¶¶ 2–13, App’x A. Patent Owner’s attempt to introduce this alleged experience in the Sur-reply, in the first instance, is improper and prejudicial to Petitioner’s ability to effectively respond with facts and evidence.

In summary, even if we accept that Dr. Howle has some experience designing medical devices and components, and that those experiences represent work designing products similar to mechanical beverage systems, Patent Owner fails to direct the Board to evidence sufficient to establish that this experience, in the aggregate, amounts to at least “five years” or involved “experience with sensors for recognizing an identifier.” Inst. Dec. 8 (adopting Patent Owner’s own proposed definition of one of ordinary skill in the art); *see* Sur-reply 3–4 (citing Ex. 1066, 34:16–35:9; Ex. 1067, 101:3–12, 102:20–104:9; Ex. 2017 ¶¶ 3–4, 8–10) (failing to establish adequately, if at all, how Dr. Howle’s qualifications include the requisite minimum five-year period of relevant design experience). Accordingly, we determine that Dr. Howle is not qualified to offer expert testimony from the perspective of

a person having ordinary skill in the art in this proceeding.¹⁰ *See Kyocera Senco Indus. Tools Inc. v. Int’l Trade Comm’n*, 22 F.4th 1369, 1376–77 (Fed. Cir. 2022).

The Federal Circuit has explained that “[t]o offer expert testimony from the perspective of a skilled artisan in a patent case,” including the issue of patent “validity,” the “witness *must* at least have ordinary skill in the art.” *Id.* (Board’s emphasis). “Without that skill, the witness’[s] opinions are neither relevant nor reliable.” *Id.* at 1377.

Even if Dr. Howle possessed “at least five years” of relevant design experience, on this record, we agree with Petitioner that his opinions are entitled to less weight than those of Petitioner’s witness, Mr. Jobin. Pet. Reply 28. Unlike Dr. Howle, Mr. Jobin is a designer by profession, with more than 30 years of directly-relevant industry experience. *Id.* (citing Ex. 1003 ¶¶ 5–30). For example, Mr. Jobin designed a home-based beer dispensing system utilizing cartridge identification technologies. *Id.* (citing Ex. 1003 ¶ 24). Mr. Jobin “has substantial experience with sensors for recognizing identifiers.” *Id.* (citing Ex. 1003 ¶ 19; Ex. 2018, 37:12–19,

¹⁰ To be clear, we are not saying that a witness supplying expert opinions 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. *See* Sur-reply 4–5. 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. *Osseo Imaging, LLC v. Planmeca USA, Inc.*, Appeal No. 2023-1627, slip op. at 7 (Fed. Cir. Sept. 4, 2024) (“[A]n expert can acquire the necessary skill later and develop an understanding of what a person of ordinary skill knew at the time of the invention,” however, the fact that “the expert was not a person of ordinary skill at the time of the invention may well be used during cross-examination to undermine the credibility of the expert.”); *see id.* at 5–6 (affirmatively quoting *Kyocera*).

67:22–70:19). Dr. Howle, by contrast, prior to his litigation experience, “did not research or design beverage systems.” *Id.* at 28.

Dr. Howle possesses excellent credentials as a professor in the general field of mechanical engineering, but his relevant design experience is sparse and insubstantial compared to Mr. Jobin. *Compare* Ex. 1003 ¶¶ 5–30, App’x A, *with* Ex. 2017 ¶¶ 1–15, App’x A. Therefore, even if we assign some weight to Dr. Howle’s opinions, where they conflict with those of Mr. Jobin, we assign Mr. Jobin’s testimony “more weight.”¹¹ Pet. Reply 28.

Moreover, for the critical, disputed limitations discussed below, we credit the testimony of Mr. Jobin because it is more compelling and more consistent with the prior art of record than that of Dr. Howle, regardless of either declarants’ design experience.¹²

E. Priority Date of the ’430 Patent

The ’430 patent claims priority to a series of United States patent applications, the earliest of which was filed July 22, 2011. Ex. 1001, code (60). The ’430 patent also claims priority to three German patent applications. *Id.* at code (30). The first German priority application was

¹¹ With his declaration, Dr. Howle provides citations to multiple references to support his positions. We have considered the content of these references and how they apply to the parties’ arguments. That said, where there is any ambiguity in the references, the fact that Dr. Howle cannot testify as to how one of ordinary skill in the art would understand these references, or at least cannot do so with the same impact as Mr. Jobin, this tends to cut against Patent Owner’s arguments.

¹² Even if Dr. Howle met the qualifications of one of ordinary skill in the art, for the reasons set forth below, we would arrive at the same conclusion, i.e., that the challenged claims would have been obvious over the combined disclosures of Yoakim, Jarisch, Rossi, and Castellani.

filed July 22, 2010, the second German priority application was filed September 2, 2010 (Ex. 1047, “second German priority application”), and the third German priority application was filed February 7, 2011. *Id.*

Jarisch was filed May 12, 2011, and published March 14, 2013. Ex. 1005, codes (22), (43); Pet. 35. Thus, to the extent that the ’430 patent is not entitled to receive the benefit of the priority date of one or more of the three German priority applications, Petitioner contends that Jarisch is prior art to the challenged claims under at least 35 U.S.C. § 102(e). Pet. 33–35.

In this case, the parties’ dispute focuses on whether the challenged claims are entitled to the benefit of the filing date of the second German priority application, which we address below. Pet. 38–46; PO Resp. 35–66.

1. *Legal Framework*

“It is elementary patent law that a patent application is entitled to the benefit of the filing date of an earlier filed application only if the disclosure of the earlier application provides support for the claims of the later application, as required by 35 U.S.C. § 112.” *In re Chu*, 66 F.3d 292, 297 (Fed. Cir. 1995). One may show support for the claims of a later application by showing that the earlier application provides written description support for the claims. *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306 (Fed. Cir. 2008). This written description requirement serves an important purpose “[i]n a patent system which allows claim amendments and continuation applications long after an initial application is filed,” it ensures “that the patent owner may only exclude others from what they had actually invented *as of the priority date*.” *Columbia Insurance Co. v. Simpson Strong-Tie Co., Inc.*, No. 2021-2145, 2023 WL 2733427, at *3 (Fed. Cir. Mar. 31, 2023) (non-precedential).

“To satisfy the written description requirement the disclosure of the prior application must ‘convey with reasonable clarity to those skilled in the art that, as of the filing date sought, the inventor was in possession of the invention.’” *PowerOasis*, 522 F.3d at 1306 (quoting *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563–64 (Fed. Cir. 1991)) (internal marks omitted). One may show that it is in possession of the invention through “such descriptive means as words, structures, figures, diagrams, formulas, etc., that fully set forth the claimed invention.” *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997). “Although the exact terms need not be used *in haec verba*, . . . the specification must contain an equivalent description of the claimed subject matter. A description which renders obvious the invention for which an earlier filing date is sought is not sufficient.” *Id.*; see *Novozymes A/S v. DuPont Nutrition Biosciences APS*, 723 F.3d 1336, 1349 (Fed. Cir. 2013) (noting that written description support cannot be provided by merely pointing to “an amalgam of disclosures plucked selectively” from the priority document); *Ariad Pharms., Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1352 (Fed. Cir. 2010) (en banc) (“We have made clear that the written description requirement does not demand either examples or an actual reduction to practice; a constructive reduction to practice that in *a definite way* identifies the claimed invention can satisfy the written description requirement.”) (emphasis added); see also *Flash-Control, LLC v. Intel Corp.*, 2021 WL 2944592, *4 (Fed. Cir. 2021) (explaining that to provide written description support “the specification must present each claim as an ‘integrated whole’”) (quoting *Novozymes*, 723 F.3d at 1349).

2. *The Parties' Arguments*

a. *Patent Owner's Arguments*

Patent Owner bears the burden of demonstrating entitlement to the benefit of an earlier filing date. *See In re NTP*, 654 F.3d 1268, 1276 (Fed. Cir. 2011) (noting that “a patent’s claims are not entitled to an earlier priority date merely because the patentee claims priority . . . Rather, for a patent’s claims to be entitled to an earlier priority date, the patentee must demonstrate that the claims meet the requirements of 35 U.S.C. § 120”). In support of its priority arguments, Patent Owner provides a claim chart identifying where it contends the second German application discloses the subject matter of independent claim 1.¹³ PO Resp. 43–53

As a preliminary matter, Patent Owner contends the USPTO has already settled the very same priority issue Petitioner now raises. PO Resp. 35–36. In particular, Patent Owner contends that during prosecution of “related U.S. Application No. 17/547,363 . . . Examiner Chou initially concluded that the German application did not provide support.” *Id.* at 36. But, after the Examiner was directed to the disclosure of the embodiment described in Figure 16, as well as the disclosure that “the identifier applies to all other examples,” the Examiner withdrew the priority notification. *Id.* (citing Ex. 2010, 11). Patent Owner contends Examiner Chou came to

¹³ Although Patent Owner seeks the benefit of the filing date of the second German application for claims 1–10, it does not address the subject matter of claim 2–10, much less identify where these claims find support in the priority documents. PO Resp. 54 (“The same is true for every limitation of every other claim of the ’430 Patent.”). Thus, even if claim 1 were shown to have written description support in the second German application, Patent Owner has not persuasively demonstrated that claims 2–10 likewise find sufficient written description support in any earlier-filed application.

similar conclusions during prosecution of two other related applications (U.S. Application No. 17/670,629 and U.S. Application No. 17/670,765). *Id.* (citing Ex. 2015, 2; Ex. 2014, 2). And, during prosecution of a related patent, Patent Owner contends Examiner Jennison concluded that “[t]he priority dates of the applications, and prior art cited, under Pre-AIA were verified.” *Id.* at 38 (citing Ex. 2003, 2).

Patent Owner asserts that the Examiners’ conclusions with respect to priority were correct. PO Resp. 38. First, Patent Owner contends the embodiment disclosed in Figures 16–18 of the second German application alone demonstrates possession of the claimed invention. *Id.* Patent Owner notes that in the embodiment depicted in Figure 16 an identifier can be used to identify an inserted capsule and this identifier can be “a . . . detection means to be sensed by a detector” that indicates “whether the respective portion capsule is suitable for the respective coffee machine.” *Id.* at 39–40 (citing Ex. 1047, 34–36, 41, Fig. 16). According to Patent Owner, earlier disclosures in the written description indicate that an identifier may take the form of a “machine-readable barcode,” on either the top or bottom of the flange. *Id.* at 40.

Although it looks to combine different embodiments for the disclosure of using a barcode on the bottom of the flange, Patent Owner contends the second German application indicates that the various identifiers disclosed in the application are combinable with all of the disclosed embodiments. PO Resp. 39–40. Patent Owner reasons that in discussing different examples of identifiers and how they may be used in the disclosed embodiments, the second German application states “[w]hat has been said in relation to the identifier applies to all other examples.” *Id.* at 40 (quoting Ex. 1047, 38). Then, in the very next example (relying on Figure 2), the

second German application provides additional disclosure regarding the location of the identifier on the capsule. *Id.* Moreover, Patent Owner contends that the multiple-dependent claims of the second German application demonstrate that the various disclosed features were intended to be combinable. *Id.* at 40–42.

b. Petitioner’s Arguments

Petitioner contends that Figure 16 of the second German application does not disclose a barcode on the “bottom side of the flange,” but rather a “form-fitting and/or friction-fitting means and/or a detection means” that takes the form of a “toothed ring” that is placed on the “outer region” or “outer circumference” of the flange. Pet. Reply 1–2 (citing Ex. 1047, 41:17–27, 35:9–11, Fig. 18; Ex. 1001, 10:22–24). Petitioner further contends that, in Figures 16–18, element 2.4.2 is always in the form of a toothed ring or gearwheel, and is never linked with other types of identifiers. *Id.* at 3 (citing Ex. 1047, 31:29–31, 37:30–35, 38:34–38). According to Petitioner, it is illogical for element 2.4.2 to take the form of a barcode in Figure 16 because element 2.4.2 interacts with retaining arms 30, and if a toothed ring or gearwheel is not present, the arms will not retain the capsule. *Id.* at 4 (citing Ex. 1047, 42:5–12).

Petitioner asserts that the statement “[w]hat has been said in relation to the identifier applies to all of the other examples” merely indicates that the description of the machine’s operation after reading an identifier applies to all the other identifier examples—“not that multiple embodiments would be swapped interchangeably.” Pet. Reply 4 (citing Ex. 1047, 37:14–27, 37:38–38:6). Petitioner further contends that no combination of the multiple-dependent claims of the second German application would lead one

of ordinary skill in the art to place a barcode on the underside of the flange in the claimed beverage systems. *Id.* at 3. Instead, according to Petitioner, the multiple-dependent claims result in a “complex web of combinations” lacking any “blaze marks” leading towards the claimed invention. *Id.*

Petitioner also contends that, contrary to Patent Owner’s assertion that all identifiers are applicable in all embodiments of the second German application, there is no common brewing chamber in the second German application, and the operation and configuration of each brewing chamber is distinct, with each capsule made for a particular brewing chamber.

Pet. Reply 4–5.

Finally, Petitioner contends that the second German application fails to depict an “annular convexity,” as recited in the challenged claims. Pet. Reply 8. According to Petitioner, the convexity depicted in Figure 16 is actually the “depth and inner circumference of the capsule rim, *not* an ‘annular convexity’ or ‘bowed cover.’” *Id.* In support of this argument, Petitioner notes the water inlet is below the alleged “annular convexity” and the capsule has already been pierced in Figure 16, thereby removing any hypothetical pressurization within the capsule. *Id.*

c. Sur-reply

Patent Owner argues in its Sur-reply that it is clear that element 2.4.2 is on the bottom of the flange and can take the form of an identifier, which the second German application discloses may be a barcode. Sur-reply 14 (citing Ex. 1047, 38:21–27, Figs. 16–17; Ex. 2017 ¶¶ 72–75). Patent Owner further argues that the embodiments of the second German application are linked through the statement that “[w]hat has been said in relation of *the* identifier applies to all other examples.” *Id.* (quoting Ex. 1047, 38:8–9)

(emphasis by Patent Owner); *see id.* at 15 (asserting that the antecedent basis for “the identifier” links the identifier across the various embodiments).

Patent Owner also argues that the second German application reasonably conveys possession of a single brewing chamber that allows substitution of identifiers in the embodiments depicted in Figures 16–18. *Id.* at 16.

With respect to the “annular convexity,” Patent Owner contends that an intact sealed portion capsule, like the one depicted in the second German application, would have an outwardly-bowed cover due to the pressure from gases inside. Sur-reply 17. And, once the convex cover is pierced by the mandrel it would flatten as the volume of air decreases, which is what Figure 16 shows “in action.” *Id.* at 17–18.

3. *Analysis: Written Description Support*

Upon review of the second German application as a whole, we determine that Patent Owner has not demonstrated that this application provides sufficient written description support for the challenged claims. First, we are not persuaded that the toothed rings of Figures 16–18 are on the underside of the flange, as asserted by Patent Owner. PO Resp. 45. The second German priority application states that the “form-fitting and/or friction-fitting means and/or detection means 2.4.2” is located in the “outer region” of the peripheral region 2.4. Ex. 1047, 12:22–24. We are directed to no persuasive evidence that this “outer region” is on the bottom of the flange, and Figures 16–18 each appear to depict means 2.4.2 on, or forming, the outer circumference of the flange.¹⁴ *Id.* at Figs. 16–18, 6:8–11 (noting

¹⁴ At first blush, Figure 17A appears to show means 2.4.2 under a portion of element 27 of the capsule. Ex. 1047, Fig. 17A; PO Resp. 45; *see* Ex. 1001, Fig. 17A (providing a clearer depiction of the capsule). The text makes

that the toothed ring is provided “on the outer circumference of the periphery”).

Second, Patent Owner and Dr. Howell assert that a person of ordinary skill in the art “would have understood upon reading the second German application that the capsule features described would be intended to be combinable with each of the described embodiments.” PO Resp. 40; Ex. 2017 ¶ 61. But Patent Owner and Dr. Howell do not explain how a barcode could be used in the devices depicted in Figures 16–18, which place the detection means 2.4.2 on the outer circumference of the flange (not its underside) and rely on toothed-rings physically interacting with either the chamber, retaining arms, or a pinion. Ex. 1047, 12:22–31, 13:8–18. Indeed, the second German priority application explains that means 2.4.2 physically interacts with retaining arms 30 (embodiments of Figures 16 and 17) or a pinion (embodiment of Figure 18), and if means 2.4.2 were not present in these embodiments the capsule would either “drop through into a waste container” or could not be inserted through the insertion shaft. *Id.* at 12:22–27, 13:9–12, 13:16–35 (noting that in the embodiment disclosed in Figure 18 a pinion interacts with means 2.4.2 and only when means 2.4.2 “is formed complementary to the teeth of the means” can the capsule be inserted). At no point does the second German application identify means 2.4.2 as a barcode or suggest a barcode could be used as the detection means.

The second German application also states that

A person skilled in the art is also aware that for example the insertion shaft may also contain a sensor, for example a camera,

clear, however, that element 27 is part of the brewing chamber, and not the capsule. Ex. 1047, 12:27–31, 13:5–8, 13:21–26, 15:36. Thus, we are not persuaded that the toothed ring is in fact on the bottom side of the flange.

which senses the shape of the means 2.4.2. For example, it would be possible, in the present case, for the shape of the teeth and/or the spacing between the same to be sensed. This signal, in turn, is passed to a control means, which frees, for example, the brewing chamber if the capsule is the correct one.

Ex. 1047, 14:11–19. Again, despite using a camera to determine if a capsule is “the correct one,” the second German application does not suggest using a barcode in place of the toothed-ring structure, or suggest moving the location of the detection means 2.4.2 from the outer surface to the underside of the flange. This reinforces that the inventors did not contemplate using a barcode in the embodiments depicted in Figures 16–18.

Patent Owner contends the disclosure at the end of the description of Figure 1 that “[w]hat has been said in relation to the identifier applies to all the other examples,” demonstrates that the inventor contemplated using a barcode on the bottom side of the flange in every embodiment, including those depicted in Figures 16–18. PO Resp. 40 (citing Ex. 1047, 38). The problem with this argument is that “what has been said” up until this statement is only that a barcode or other identifier may be used; there is no disclosure of using a barcode on the bottom side of the flange. And, given that this statement comes at the bottom of the description of Figure 1, it is logical that it is the description of using an identifier in Figure 1 to establish whether a portion capsule is suitable for use in a particular brewing chamber that is applicable to all the other examples, not that every discussion of identifiers or their locations applies equally to every embodiment.

Third, Patent Owner’s argument that the claims of the second German application suggest that the inventors contemplated various combinations of disclosed elements, such as the barcode of Figures 1 and 2 and the beverage

machine elements of Figures 16–18, is unavailing. We are directed to no combination of claims in the second German priority application that would lead one of ordinary skill in the art to place a barcode on the underside of the flange in any of the embodiments, much less the embodiments depicted in Figures 16–18.

Patent Owner contends that reliance on the multiple-dependent claims was “for the purpose of demonstrating the inventor contemplated features from one embodiment were not confined solely to that individual embodiment.” PO Resp. 41–42. But the use of multi-dependent claims is not a substitute for actual disclosure of placing a barcode on the underside of the flange in a brewing system having all of the remaining claimed features. Such a disclosure is not found in the second German application.

In view of the foregoing, we determine that the second German application does not provide sufficient written description support for the subject matter recited in claims 1–10 of the ’430 patent. *See Lockwood*, 107 F.3d at 1572 (“A description which renders obvious the invention for which an earlier filing data is sought is not sufficient.”). As such, we apply *Jarisch* as prior art to the challenged claims.

F. Claims 1–10 over Yoakim, Jarisch, Rossi, and Castellani

Petitioner contends the subject matter of claims 1–10 would have been obvious over the combined disclosures of Yoakim, Jarisch, Rossi, and Castellani. Pet. 46–81.

1. *Yoakim*

Yoakim is titled “Method for Preparing a Beverage or Food Liquid and System Using Brewing Centrifugal Force” and 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 beverage device includes a sensor to read an identifier that is used in the system to select predetermined parameters for a particular capsule, including the flow rate and the volume of liquid injected into the capsule. *Id.* ¶ 25. For example, “a capsule recognition system” may “recognize the type of capsules, i.e., espresso, lungo, cappuccino, long coffee (e.g., 180-400 ml), latte, tea, etc., and . . . adjust the speed and/or other brewing parameters (e.g., water temperature)” based on the type of capsule inserted into the device. *Id.* ¶ 192. The identifier may be a code on the capsule, “such as a color, a barcode, an RFID, a magnetic code, ferromagnetic micro-wires or labels, shapes and combinations thereof.” *Id.*

We reproduce Yoakim's Figure 1, below.

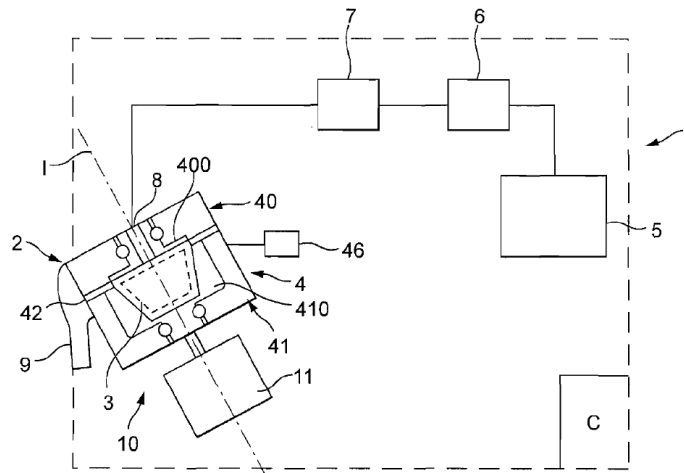


FIG. 1

Figure 1 depicts “a schematic representation of [Yoakim’s] system.”

Ex. 1004 ¶ 30. System 1 includes device 2 and capsule 3, with device 2 having brewing module 4 that receives capsule 2 for brewing. *Id.* ¶ 180. Module 4 is connected to water reservoir 5, with the water delivered to module 4 by low pressure pump 6. *Id.* Water heater 7 heats the water to the desired temperature for the capsule. *Id.* After brewing is complete, the capsule is removed and discarded. *Id.*

Figures 6 and 27 of Yoakim are reproduced below:

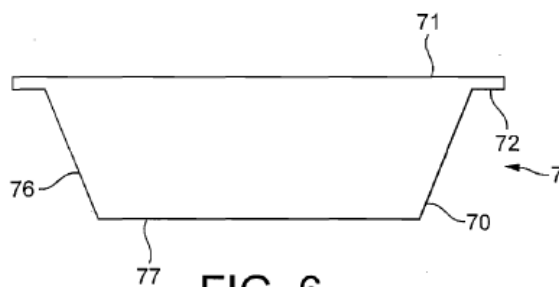


FIG. 6

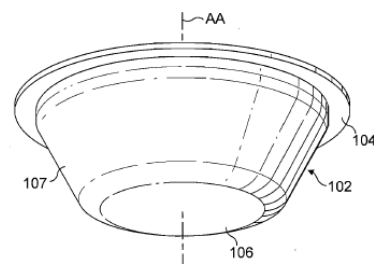


FIG. 27

Figure 6 depicts a sealed capsule that can be used in the invention and Figure 27 is a perspective view from below of the capsule of the invention. Ex. 1004 ¶¶ 35, 56. In Figure 6, capsule 7 comprises a cup-shaped body 70

having upwardly oriented sidewall 76 and a bottom wall 77. *Id.* ¶ 197. “The body terminates by an upper edge 72 raising outwards onto which is sealed a lid 71,” which may be “a flexible pierceable membrane of several microns in aluminum and/or plastic.” *Id.* In Figure 27, the capsule comprises a dished body 102, onto which sealing foil 103 (not shown) is sealed to peripheral rim 104 of the body. *Id.* ¶ 414. Yoakim explains that “rim 104 can extend outwards forming a small annular portion, e.g., of about 2–5 mm.” *Id.*

Figure 29 of Yoakim is reproduced below:

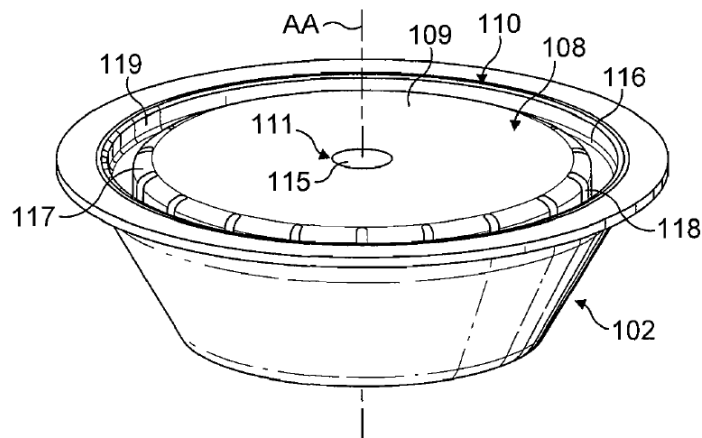


FIG. 29

Figure 29 is a perspective view of the capsule of Yoakim. Ex. 1004 ¶ 58. As shown in Figure 29, the capsule includes a lid 108 that is inserted in the dished body. *Id.* ¶ 415. Lid 108 and body 102 together delimit an internal enclosure for receiving the food substance. *Id.* Lid 108 includes a series of outlet openings 118 and collecting recess 116. *Id.* ¶ 416. Outlet openings 118 “preferably have a width that is smaller than the statistical average size of the particles of the substance.” *Id.* ¶ 419. A sealing membrane seals the collecting recess, and piercing members may be used to create outlets for the brewed liquid. *Id.* ¶ 420.

Figure 4 of Yoakim is reproduced below:

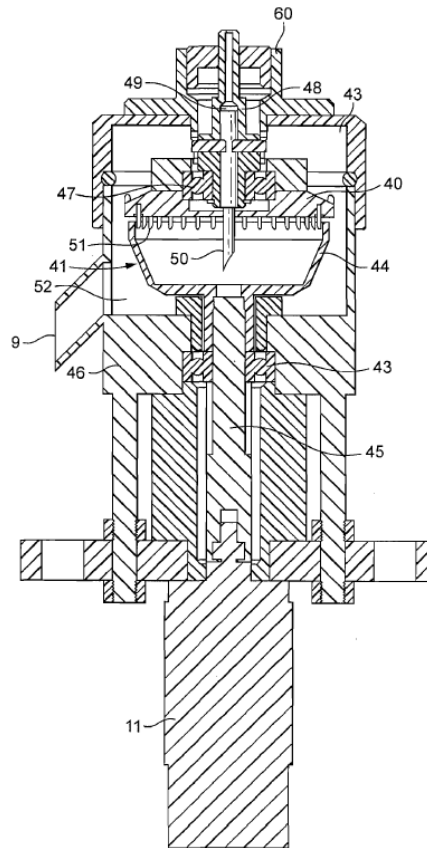


FIG. 4

Figure 4 is a detailed cross-sectional view of the system of one invention of Yoakim. Ex. 1004 ¶ 33. In the device depicted in Figure 4, capsule holder 41 is associated with a central rotating rod 45 mounted along a lower bearing 43. *Id.* ¶ 187. A series of needles 51 are positioned on lid 40 to form small perforations at the periphery of the upper side of a capsule. *Id.* When the needles are engaged in the capsule, the lid is driven in rotation by the capsule and rotor 45. *Id.* Yoakim explains that the higher the rotational speed, the more radial pressure is exerted in the capsule by the liquid and the more the substance is compacted on the sidewall of the capsule. *Id.*

2. *Jarisch*

Jarisch is titled “Capsule, System and Method for Preparing a Beverage by Centrifugation” and published March 14, 2013 from an application filed May 12, 2011. Ex. 1005, codes (22), (43), (54). Jarisch is directed to the preparation of a beverage using a capsule and, in particular, “focuses on the detection of the capsule.” *Id.* ¶ 1.

Jarisch notes that various prior art methods have been disclosed for identifying a capsule using a code, but proposes “an improved way to identify the capsule within a beverage production machine.” Ex. 1005 ¶¶ 4–14. In a preferred embodiment, a “bit code” “is present on the bottom of the rim of the capsule . . . opposed to the lid of the capsule” and is used to identify the capsule. *Id.* ¶¶ 17, 22. Jarisch explains that the position on the bottom of the rim is preferable because it “is sufficiently away from the liquid injection and beverage delivery areas so that there is a lower risk for the code to become unreadable . . . [due to] beverage residues.” *Id.* at 22.

3. *Rossi*

Rossi is titled “System of Edible-Product Making Machine and Load Element and Process for Control of Machine” and published September 10, 2010. Ex. 1041, codes (43), (54). 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.” *Id.* at 1.¹⁵

¹⁵ 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.

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 both 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 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.

Rossi explains that the identifying element and validation element may be in the form of “barcodes, antennae, or paints having optically measurable properties.” Ex. 1041, 9. Rossi further explains that “[t]he validation element could be identical to the identification element” and the machine may be unlocked only “when both the identification element and the unvalidated validation element are recognized.” *Id.* at 7–8.

4. *Castellani*

Castellani is titled “Delivery Head for Espresso Coffee Machines” and 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.

Figure 2 of Castellani is reproduced below.

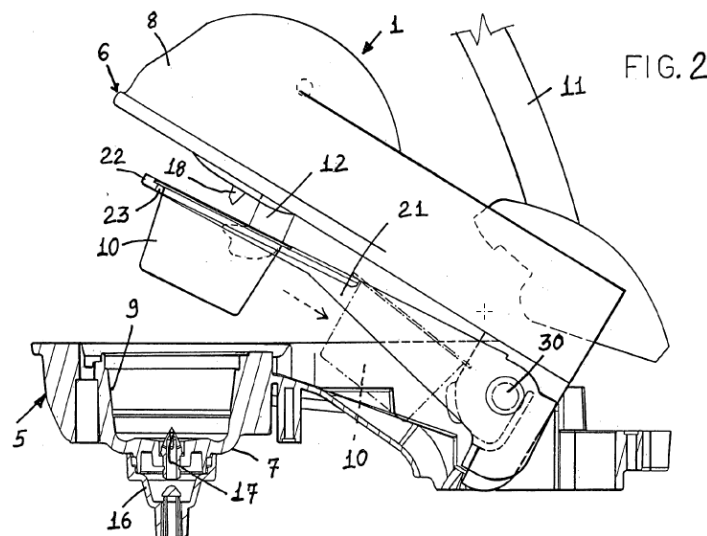


Figure 2 is a side elevation view, as partially longitudinally cross-sectioned, of the delivery head of Castellani. Ex. 1009, 15. As shown in Figure 2, delivery head 1 includes top supporting element 6, pivot pin 30, and bottom supporting element 5. *Id.* ¶ 28. Recess 9 is provided in bottom supporting element 5 for holding capsule 10. *Id.* ¶ 30, 38.

A coffee capsule ejecting means is provided that includes capsule ejecting fork elements 21. Ex. 1009 ¶ 43. In operation, when top supporting element 6 is raised after coffee is brewed from capsule 10, “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.

5. Analysis: Claim 1

Petitioner contends the combination of Yoakim, Jarisch, Rossi, and Castellani teaches or suggests every limitation of independent claim 1. Pet. 54–73. In particular, Petitioner contends that Yoakim discloses a brewing system that includes a single-serve capsule containing a raw beverage material that includes a base element with a cavity in which raw beverage material is provided (element 1.a), a flange extending outwardly from the base element and including a top and opposing bottom side (element 1.b), a cover that is fastened to the top side of the flange to close the cavity (element 1.c), a barrier layer to prevent moisture or aroma from escaping (element 1.j), and a barcode on the flange (element 1.d). *Id.* at 54–57, 64–65, claim listing appendix (Petitioner’s claim listing appendix provides the identifiers used herein). Petitioner further contends that the single-serve capsule of Yoakim may be free of a filter in the cavity (element 1.h) and has an upper end portion that has an annular convexity and a lower end portion that has an annular concavity relative to a central axis of the base element (element 1.i). *Id.* at 62–64.

With respect to the brewing machine, Petitioner contends Yoakim discloses (1) a brewing device having a brewing chamber configured to receive the base element of the single-serve capsule and having an end portion that opposes the bottom side of the flange (element 1.f), (2) a pump controlled to supply water into the single serve capsule (element 1.g), (3) a mandrel that is configured to pierce the cover of the capsule in a region that is offset from the central axis of the base element (element 1.k), (4) a sensor/detector for identifying the barcode on the capsule (element 1.e), and (5) a seal that is configured to seal against the cover in a region between a

peripheral edge of the flange and the region of the cover that is pierced by the mandrel (element 1.1). Pet. 58–62, 65–69, 71–72.

Petitioner contends Jarisch discloses an optical code detector that is designed to read a code positioned on the underside of the flange (element 1.d), and Yoakim and Rossi disclose controlling a pump based on the detection of the identifier by a sensor, with the pump not allowed to operate, i.e., push water into the single serve capsule, if the barcode does not agree with a stored reference (element 1.o). Pet. 57, 61–62, 71–72. Petitioner further contends that Castellani discloses a pair of holding arms for engaging the single-serve capsule (element 1.m) and a dropping box for the single-serve capsule to fall into (element 1.n). *Id.* at 70–73.

With respect to the reason to combine these references, Petitioner contends that one of ordinary skill in the art would have placed the barcode of Yoakim on the bottom side of the flange of its single-serve capsule because (1) this location would avoid tearing of the barcode by the mandrel and (2) Jarisch expressly indicates that this location is “sufficiently away from the liquid injection and beverage delivery areas” to avoid being hidden or soiled by beverage residues. Pet. 47–48 (quoting Ex. 1005 ¶ 22); Ex. 1003 ¶¶ 182–183; Pet. Reply 22. Petitioner further contends that one of ordinary skill in the art would have implemented the capsule recognition process of Rossi in the device of Yoakim and Jarisch in order to both increase safety and provide improved accuracy of brewing conditions. Pet. 49–50 (citing Ex. 1003 ¶ 185). Finally, Petitioner contends that one of ordinary skill in the art would have used the holding arms and waste container of Castellani in the device of Yaokim, Jarisch, and Rossi, because the holding arms would facilitate capsule unloading operations and the waste container would allow users to avoid handling dirty or high temperature

capsules after extraction. *Id.* at 51–52 (citing Ex. 1009 ¶¶ 7–10; Ex. 1003 ¶¶ 191–193).

Patent Owner does not contest that Yoakim, Jarisch, Rossi, and Castellani disclose the vast majority of limitations recited in claim 1. *See, e.g.*, PO Resp. 9–10. Patent Owner contends, however, that Petitioner’s arguments fail to demonstrate that claim 1 is unpatentable because: (1) the Petition fails to provide a persuasive reason to combine Rossi with Yoakim and Jarisch, or to combine Yoakim, Jarisch, and Rossi with Castellani; (2) the Petition fails to demonstrate that Yoakim discloses a capsule free of a filter; and (3) the art of record fails to disclose or render obvious the pump control limitations of the challenged claims. *Id.* at 9–22, 25–34. We address these arguments below.

a. Reason to Combine Rossi with Yoakim and Jarisch

Patent Owner contends that Petitioner is the owner of Jarisch, and Yoakim and Jarisch both have a common owner and a common inventor, yet despite the fact that Jarisch’s priority document was filed “days after Yoakim,” Jarisch makes no mention of Yoakim in the background or otherwise. PO Resp. 25. According to Patent Owner, “[t]his suggests the inventors of those references did not themselves see any clear relation between the two references.” *Id.* at 25–26.

This argument is not persuasive. A prior art reference need not identify or discuss another prior art patent or application in order for that reference to be deemed relevant or analogous art. Nor do we endeavor to determine why, or why not, a particular reference is discussed in a prior art reference. The analogous art inquiry focuses on reasonable pertinence and involves assessing the similarities between the claimed invention and the

prior art, including the problems addressed and the closeness of the subject matter, as viewed by an ordinarily skilled artisan. *Donner Tech., LLC v. Pro Stage Gear, LLC*, 979 F.3d 1353, 1360 (Fed. Cir. 2020); *see Airbus S.A.S. v. Firepass Corp.*, 941 F.3d 1374, 1380-81 (Fed. Cir. 2019) (relevant analysis focuses on comparing the disclosed embodiments, function, and structure of the claimed invention to the disclosures of the prior art). Against that backdrop, we reject Patent Owner’s suggestion that the inquiry involves whether the inventors of Jarisch saw a need to discuss Yoakim’s disclosure in Jarisch’s priority document.

Patent Owner further argues that during prosecution of a similar Jarisch reference (U.S. Patent No. 10,800,600), in attempting to overcome a rejection based on WO 2008/148601 (“Yoakim ’601”), “Petitioner disparaged the ability of Yoakim ’601 to be combined with other references describing single-serve coffee capsules.” PO Resp. 26 (citing IPR2021-01222, Ex. 2002-1, 393; Ex. 2017 ¶¶ 140–142). This argument is not persuasive. In the recited sections of the prosecution history, the inventors traversed the pending rejection based on the fact that no cited reference disclosed providing a code on the bottom of the flange-like rim, as required by independent claim 1. IPR2021-01222, Ex. 2002-1, 395 (“These references do not disclose or suggest a code arranged on a bottom of the flange-like rim, which is opposed to the lid . . .”). This is in stark contrast to the current Petition, which identifies Jarisch’s express disclosure of placing a code on the bottom of the flange of a single-serve capsule. Pet. 57 (citing Ex. 1005 ¶ 22 (“[T]he code is present on the bottom of the rim of the capsule which is opposed to the lid of the capsule.”)).

In response to Petitioner’s argument that one of ordinary skill in the art would have moved the barcode of Yoakim to the underside of the flange

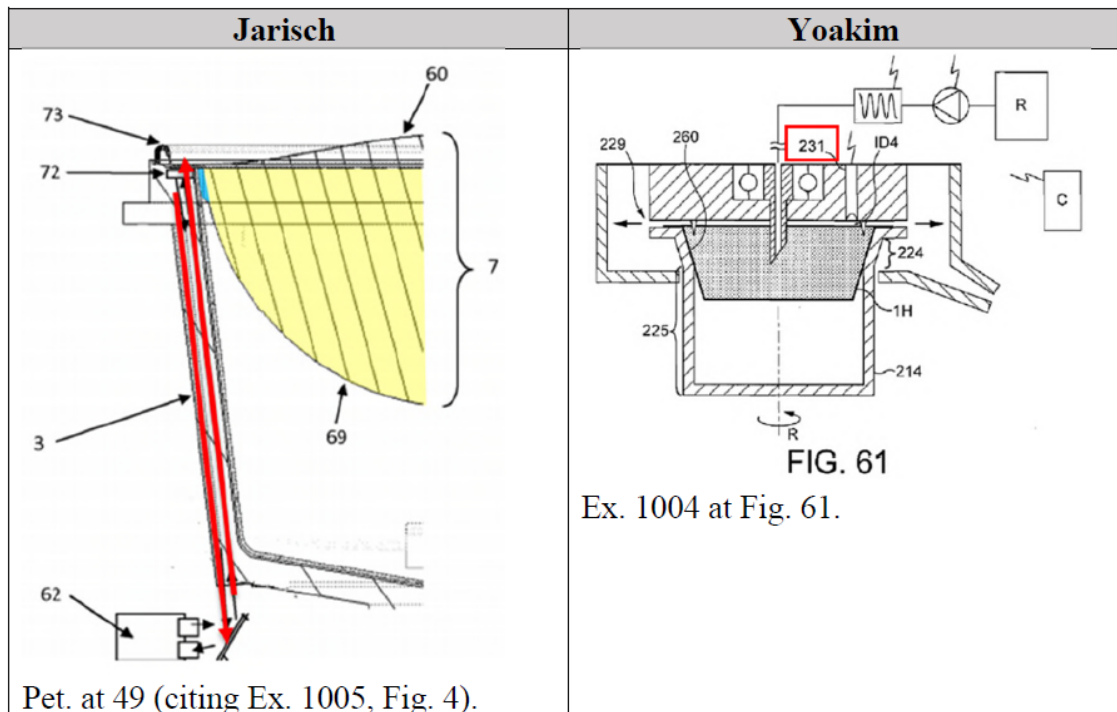
to improve readability, Patent Owner argues that there is no reason to believe that Yoakim's placement of a barcode on the top of the membrane would suffer from readability issues, given that the barcode is read before brewing "when a capsule would not be soiled by beverage residues." PO Resp. 27 (citing Ex. 1004 ¶¶ 525–526). Patent Owner also contends that there is no evidence that Yoakim suffers from the same problems as Jarisch, especially because sensor 231 is located inboard of the liquid flow path in Figure 61. *Id.*; PO Sur-reply 7–8. These arguments are not persuasive. First, we credit the testimony of Mr. Jobin that placing a barcode on the bottom side of the flange would lower the risk of the code becoming unreadable due to beverage residues. Ex. 1003 ¶ 182; Ex. 1005 ¶ 22. We also agree with Petitioner that Yoakim addresses beverage residues that are left over in the chamber from prior brewings, not residues caused by the currently-inserted single-serve capsule. Pet. Reply 22 (citing Ex. 1005 ¶ 22; Ex. 1067, 81:3–13 (Dr. Howle testifying, in a manner consistent with Mr. Jobin's testimony, that "in a very broad sense, residue can be a solid left over after the brewing process")); Ex. 1004, Fig. 63).¹⁶

Second, we find persuasive Mr. Jobin's testimony that moving the code to the bottom of the flange would advantageously avoid placing the code near the piercing element, and avoid the problem of piercing the membrane in the same general location that is meant to be read *after* closing

¹⁶ Jarisch explains that the bottom rim is an advantageous location for the barcode because it is sufficiently away from *both* the liquid injection and beverage delivery areas. Ex. 1005 ¶ 22. Patent Owner focuses its arguments on the beverage delivery areas, without considering that the liquid injection area of Yoakim is inboard of sensor 231. PO Resp. 27; PO Sur-reply 7–8; Ex. 1004, Fig. 61.

the device. Ex. 1003 ¶ 182; Pet. 12–13; Pet. Reply 22–23 (citing Ex. 1067, 94:6–95:9, 96:1–21).

Patent Owner also argues that Petitioner fails to address other important differences between Yoakim and Jarisch that undermine the combination. PO Resp. 28. In support of its arguments, Patent Owner provides the following annotated figures.



As shown above, Petitioner provides annotated versions of Figure 4 of Jarisch and Figure 61 of Yoakim. As annotated by Patent Owner, Jarisch is designed with a straight chamber of transparent material that lies between the code and the sensor. PO Resp. 30. In Figure 61 of Yoakim, however, there is a bend, or flare, in capsule holder 214 (generally identified as portion 224). *Id.* According to Patent Owner, for the sensor/detector to pass light through this flare, Yoakim would require extensive modifications, including mirroring or index-of-refraction matching within the flared structure, as well as consideration of “anisotropy in the material, Fresnel

effects, internal reflection, transmission loss along the wall of the holder, and other impairment to the light available for detection.” *Id.* at 30–31 (citing Ex. 2017 ¶¶ 148–153). In view of these needed modifications, Patent Owner contends one of ordinary skill in the art “would not have been motivated to combine the teachings of the two references” and also would not have had a reasonable expectation of success in so doing. *Id.* at 32.

As asserted by Petitioner, Jarisch teaches how to move a code in a centrifugal brewing system to the bottom of the flange and how to configure a light-conductive material so that the detector’s light source will reach the bottom of the flange. Pet. 48–49; Pet. Reply 23–24 (Ex. 1003 ¶¶ 184–185; Ex. 1005 ¶¶ 82–84, Fig. 5). And, although Figure 61 of Yoakim discloses a flare in its brewing chamber, bodily incorporation is not required, and we are directed to no persuasive argument or evidence that Yoakim could not be configured with a straight chamber, as generally depicted in Figure 5 of Jarisch. Pet. Reply 24 (noting that Dr. Howle’s testimony on this subject is “conclusory” and depends on “bodily incorporation”). As such, we credit the testimony of Mr. Jobin that a person of ordinary skill in the art would have sought to place the code at the bottom of the flange and would have had a reasonable expectation of success in so doing.¹⁷ Ex. 1003 ¶ 184.

Patent Owner further contends that Yoakim requires that the capsule holder be capable of receiving a set of multiple volume capsules and that

¹⁷ As discussed above, Mr. Jobin has extensive experience in the design of brewing devices. Conversely, Dr. Howle has limited experience in this field and is not one of ordinary skill in the art. Although Mr. Jobin’s testimony is more persuasive regardless of the discrepancy in experience between the two declarants, when this difference in design experience is considered, it only serves to increase the weight we give to Mr. Jobin’s testimony.

there is a “snug fit” to avoid “unbalances.” PO Sur-reply 8 (citing Ex. 1004 ¶¶ 205, 479, 484, 507, 512). According to Patent Owner, Petitioner does not explain adequately how the use of Jarisch’s “straight chamber” with a capsule holder that does not engage with the side wall of the capsule would allow insertion of the multiple volume capsules or permit a “snug fit.” *Id.*; PO Resp. 28.

Patent Owner’s assertion that Yoakim discloses the use of certain capsules that might not fit into a device with Jarisch’s non-flared structure is ineffective to undercut the sufficiency of Petitioner’s showing on this point. As noted by Patent Owner, Yoakim discloses the use of certain capsules which might not fit into a device with Jarisch’s non-flared structure. But Petitioner is not seeking a bodily incorporation of Yoakim and Jarisch, and other embodiments of Yoakim do not require the type of flared capsule identified by Patent Owner. Ex. 1004, Fig. 63. Moreover, we are directed to no persuasive evidence that Jarisch’s lack of contact between the capsule side wall and the holder would render the device inoperable or even less effective. *Id.* (citing Ex. 2019, 36:18–37:6; Ex. 1005 ¶ 23 (Jarisch explaining that its device includes a capsule holding means and that the capsule may be successfully driven in rotation)). As such, we credit the testimony of Mr. Jobin that one of ordinary skill in the art would have understood how to design the chamber of Yoakim to allow reading of a barcode on the underside of the flange and that this design would allow for successfully receiving single-serve capsules and driving them in rotation. Ex. 1003 ¶¶ 182–184; Ex. 1005 ¶ 23.

Patent Owner also contends that Jarisch’s use of a “bit code” would teach away from using a barcode in the combined device. PO Resp. 32–33. Patent Owner reasons that Yoakim uses the bare term “barcode,” without

providing any information as to what the code would actually be, whereas Jarisch teaches that reading information from a capsule, including from a barcode, is not always reliable. *Id.* at 33 (citing Ex. 1005 ¶¶ 8, 9, 11, 13). Jarisch’s solution, according to Patent Owner, is to use a “bit code,” which Patent Owner contends would have motivated one of ordinary skill in the to use a “bit code” over the “barcode” of Yoakim. *Id.*

We do not find Patent Owner’s arguments persuasive. Yoakim expressly discloses using a barcode as an identifier (Ex. 1004 ¶¶ 496, 525), and Jarisch does not criticize or otherwise teach away from the use of a barcode. For example, although Jarisch notes that barcodes had been used in the art previously (Ex. 1005 ¶¶ 8, 9, 11), it does not expressly disparage the use of barcodes or suggest that their use would not be successful. Rather, Jarisch merely indicates a preference for a “bit code.” Ex. 1005 ¶ 17 (“Preferably, the code is an optical code. The code may be a bit code formed by a series of discrete polygonal . . . or dot surfaces printed on the container and/or embossed in the container.”).

Finally, Patent Owner contends that Petitioner fails to take into account the nature of Rossi’s validation element, including that it is separate from the identification element, is used to determine whether a load element has already been used, may take the form of the physical destruction of the validation element, is visible to the user, is generally read outside of the machine, and is used for purposes of “unlocking” the machine. PO Resp. 34. According to Patent Owner, the “Petition is silent as to how one of ordinary skill in the art would consider Rossi as a whole, and how Rossi could be reconciled with the systems of Yoakim and Jarisch.” *Id.* (citing Ex. 2017 ¶ 155).

Patent Owner’s arguments are not persuasive. The Petition does not rely on Rossi’s validation element to render claim 1 obvious. Pet. 49–50, 72; Pet. Reply 16–17. Rather, the Petition looks to Rossi’s disclosure that a barcode (identifier) could be used to restrict operation of a brewing machine if the barcode does not agree with a stored reference. *Id* at 50, 72 (“Rossi discloses not operating the machine unless there is a determination that the barcode agrees with a stored reference.”); Pet. Reply 16–17 (relying on Rossi’s identification element alone, but noting that the claims do not preclude a second identifier, such as the validation element of Rossi). Nor does the challenged claim preclude a validation element that could be read outside of the device. Ex. 1003 ¶ 187; Pet. Reply 17. As such, Patent Owner’s arguments regarding the timing, location, and structure of the validation element in Rossi are not persuasive.

In view of the foregoing, we determine that Petitioner persuasively explains why one of ordinary skill in the art would have combined the various disclosures of Yoakim, Jarisch, and Rossi.

b. Reason to Combine Yoakim, Jarisch, and Rossi with Castellani

Petitioner contends that one of ordinary skill in the art would have sought to add the ejection mechanism and drop box of Castellani to arrive at the subject matter of the challenged claims. In particular, Petitioner contends that one of ordinary skill in the art would have sought to use Castellani’s ejection forks because they allow capsule unloading in a “very easy and safe manner” and facilitate ejection into a collecting vessel without the user having to reach into the system to grasp a hot and wet used capsule. Pet. 52 (citing Ex. 1009 ¶¶ 7–8, 10, 54; Ex. 1003 ¶¶ 191–192). Petitioner further contends that one of ordinary skill in the art would have sought to

use the dropping box of Castellani because this would advantageously collect used capsules without the user having to physically handle dirty or high temperature capsules after extraction. *Id.* (citing Ex. 1003 ¶ 193).

Patent Owner contends “Petitioner’s conclusory statements regarding motivation to combine are insufficient.” PO Resp. 34.

Contrary to Patent Owner’s argument, we see nothing conclusory in Petitioner’s reasons for combining Yoakim, Jarisch, and Rossi with Castellani; the Petition identifies specific structures of Castellani and persuasively explains why these structures would be beneficial in the device of Yoakim, Jarisch, and Rossi. Pet. 52. This is sufficient to support an obviousness combination.

In view of the foregoing, we determine that Petitioner persuasively explains why one of ordinary skill in the art would have combined the various disclosures of Yoakim, Jarisch, and Rossi with those of Castellani.

c. Free of a Filter That is Located Inside of the Cavity

Independent claims 1 and 7 require that “the single-serve capsule is free of a filter that is located inside of the cavity.” Ex. 1001, 13:5–7. Petitioner contends that “Yoakim discloses a capsule that does not include a filter and expressly confirms that a filter is optional.” Pet. 62 (citing Ex. 1004 ¶¶ 171, 343; Ex. 1003 ¶¶ 230–231). Petitioner further contends that Figures 42 and 54 of Yoakim depict embodiments using capsules that do not have a filter. *Id.* (citing Ex. 1003 ¶ 232; Ex. 1004, Figs. 42, 54).

Patent Owner contends that it is evident from the passages and figures cited by Petitioner that Yoakim expressly teaches that the capsules contain a filter that is inside the cavity. PO Resp. 10–11 (citing Ex. 2017 ¶¶ 106–107; Ex. 1004 ¶¶ 271 (“the capsule comprises an *internal filter portion* placed at

the periphery of the enclosure. The internal filter portion can be an internal perforated lid *and/or* a portion of porous material.”), 375, 376).

Upon review of the paragraphs of Yoakim cited by Petitioner and Patent Owner, we find that a filter within the cavity is an optional component in Yoakim. For example, paragraph 271 in Yoakim discloses an embodiment in which an internal perforated lid and/or a portion of porous material are used as a filter. Ex. 1004 ¶ 271. Yoakim clarifies, however, that “[i]n another mode, the filter could be part of the device or be formed by the puncturable membrane and piercing members.” *Id.* We agree with Petitioner that this disclosure indicates that the filter could be either part of the brewing device (as opposed to the capsule), or could constitute the puncturable membrane that is sealed to the flange.¹⁸ Pet. Reply 12. Neither of these filter locations is inside of the cavity of the single-serve capsule. Ex. 1067, 50:2–5 (Dr. Howle testifying that something that defines the boundary of the cavity “is neither inside nor outside” the cavity).

Patent Owner contends that “Dr. Howle credibly explains” that “Yoakim repeatedly teaches embodiments where his capsules use filters” and asserts that “Yoakim’s passing reference to filtering outside the capsule cavity does not evidence disclosure of a lack of filter within [the] capsule cavity.” Sur-reply 22 (citing Ex. 2017 ¶¶ 111–112). As noted by Patent Owner and Dr. Howle, Yoakim teaches embodiments having a filter within the cavity of a single-serve capsule. Petitioner persuasively demonstrates,

¹⁸ During the final hearing, Patent Owner’s counsel used language that blurred the distinction between Yoakim’s brewing device and capsule. Tr. 34:24–36:21, 37:1–38:5. The reference, however, repeatedly distinguishes the brewing device from the capsule. *See, e.g.*, Ex. 1004, code (57), ¶¶ 20–25, 210, 212, 215–216, 219–224, 229, 237, 250, 255, 271.

however, that Yoakim also contemplates capsules that do not use a filter within the cavity, because the filter is placed either in the brewing device or takes the form of the puncturable membrane.¹⁹ Ex. 1004 ¶ 271; Tr. 13:15–19. That these disclosures are not as numerous, or are contained in “passing reference[s]” in Yoakim, does not diminish their importance or relevance.

In view of the foregoing, we find that Yoakim discloses a single-serve capsule that “is free of a filter that is located inside of the cavity,” as recited in claim 1. Ex. 1001, 13:5–7.

d. Pump Control Mechanism

Claim 1 recites “wherein the pump is controlled to push the water into the single-serve capsule only upon a determination that the read barcode agrees with a stored reference.” Ex. 1001, 13:26–28.

Petitioner contends that Yoakim discloses a pump that pushes water into a single-serve capsule and that this pump is controlled based on the detection of a barcode identifier that is read by a sensor/detector. Pet. 61–62, 71–72 (citing Ex. 1004 ¶¶ 180, 477). Petitioner further contends that Rossi discloses not operating the brewing machine unless there is a determination that the barcode agrees with a stored reference. *Id.* at 72 (citing Ex. 1041, 11; Ex. 1003 ¶¶ 263–265). Petitioner contends one of ordinary skill in the art would have incorporated the machine activation

¹⁹ Petitioner’s arguments on this issue fairly respond to assertions, advanced in Patent Owner’s Response, that Yoakim does not suggest a capsule free of a filter. PO Resp. 14–15. Thus, we disagree with Patent Owner that this portion of the Reply contains “new argument.” Sur-reply 22. Petitioner in the Reply, moreover, fairly addresses other of Yoakim’s disclosures to counter arguments raised in Patent Owner’s Response. *Compare* PO Resp. 10, *with* Pet. Reply 22.

control of Rossi in the system of Yoakim and Jarisch to achieve “the predictable benefit of greater specificity and accuracy of brewing conditions,” as well as to achieve “increased safety in the machine from preventing operation with unsuitable capsules.” *Id.* at 49.

Patent Owner contends that neither Yoakim nor Rossi disclose the pump limitation of claim 1. PO Resp. 15. With respect to Yoakim, Petitioner concedes that Yoakim discloses using an identifier, such as a barcode, to identify different capsules and to adjust the flow rate and the volume of liquid injected into the capsule, but contends this does not disclose a pump that supplies water into the capsule only when a sensor identifies the barcode, particularly as a safety measure. *Id.* at 16. Patent Owner reasons that the flow rate or volume of liquid in Yoakim is not necessarily controlled by the pump, as hot water may be supplied into the capsule at substantially no pressure, or through aspiration or vaporization. *Id.* at 17. Patent Owner further asserts that Yoakim does not disclose supplying water to the capsule only when an identifier is detected, as there is no suggestion that an identifier is required for the pump to operate or in order to control the pump in any way. *Id.*

Patent Owner contends Rossi does not overcome Yoakim’s shortcomings. Patent Owner argues that, like Yoakim, Rossi discloses an identification element that is used to select appropriate brewing conditions, but has a separate validation element that controls whether the machine will be unlocked. PO Resp. 18. According to Patent Owner, “Petitioner has not shown how the validation element has anything to do with the operation of the machine, and certainly not the control of a pump.” *Id.* at 18–19 (asserting that the validation element “is used to ensure the load element is used a single time, and only serves to unlock the machine so it can be used at

all”).

Patent Owner further contends that Rossi never discloses using a single element for identification and validation, but rather using two different codes (which may be identical). PO Resp. 19. Patent Owner asserts that “having two elements that are identical is not the same as having a single element that performs both functions of identifying and validation.” *Id.*

Yoakim discloses a brewing system in which operating parameters, including “the pump supplying liquid in the capsule,” are adjusted based on an identification means associated with each capsule. Ex. 1004 ¶ 477. This identification means may be a barcode. *Id.* ¶¶ 496, 525. Yoakim does not expressly disclose how the system would function if the capsule is not identified. But Rossi discloses using a barcode(s) to both identify the operating parameters for a single-serve capsule (the same as Yoakim) and preventing the system from operating if the barcode is not recognized. Ex. 1041, 4–5, 7 (noting that the validation element and the identification element may be identical), 9 (explaining that the identifying and validation elements “are preferably in the form of barcodes, antennae, or paints having optically measurable properties”), 12 (“This automatically activates the machine, but only if the identifying element is recognized . . .”). As the pump is part of the brewing system of Yoakim, we agree that in the combination of Yoakim and Rossi the pump could not push water into the single-serve capsule unless there is a determination “that the read barcode agrees with a stored reference.” Ex. 1001, 13:26–28.

As to the reasons to use the barcode to both select operating parameters and prevent any use of the machine if the capsule is not recognized, Rossi explains that the high pressures and temperatures used in

brewing machines “poses a potential health hazard” if the machine is not used correctly. Ex. 1041, 3; Pet. 50. We agree with Petitioner, and credit the testimony of Mr. Jobin, that the desire to improve safety would lead one of ordinary skill in the art to use the barcode of Yoakim and Jarisch to not only identify the operating parameters for a single-serve capsule, but also to prevent use of the machine if a capsule is not recognized. Ex. 1003 ¶¶ 186–188.

Patent Owner’s counter-arguments are not persuasive. First, although Yoakim may introduce water into the single-serve capsules through various means, Yoakim expressly discloses using the barcode identifier to adjust the brewing parameters, including controlling “the pump supplying liquid in the capsule.” Ex. 1004 ¶ 477. Second, although Rossi does not expressly state that the pump is activated only when the identification element is recognized, the pump is part of the proposed device of Yoakim and Jarisch, and the device may not be unlocked unless the identification element is recognized.

Third, although Rossi uses both an identification element and a validation element, we agree with Petitioner that Rossi discloses that the identification and validation elements may be identical, and that the machine will be unlocked only when the identification element is recognized. Ex. 1041, 9 (“The validation element could be identical to the identification element.”), 12 (“This automatically activates the machine, but only if the identifying element is recognized”); Ex. 1001, 13:26–28.

e. Conclusion—Claim 1

Petitioner persuasively identifies where every limitation of independent claim 1 is disclosed in Yoakim, Jarisch, Rossi, and Castellani.

Pet. 54–73. Petitioner also persuasively explains why one of ordinary skill in the art would have combined these references to arrive at the subject matter of claim 1 with a reasonable expectation of success. *Id.* at 46–53. Accordingly, Petitioner demonstrates by a preponderance of the evidence that claim 1 would have been obvious over the combined disclosures of Yoakim, Jarisch, Rossi, and Castellani.

6. Dependent Claims 2, 3, 4, 6, 8–10

Petitioner identifies where it contends the subject matter of claims 2, 3, 4, 6, and 8–10 is disclosed in Yoakim, Jarisch, Rossi, and Castellani. Pet. 73–81. In particular, Petitioner identifies where Yoakim and Rossi disclose a sensor/detector on a beverage machine that is configured to compare a read barcode with a stored reference (claims 3 and 10) (*id.* at 71–72, 74, 81 (citing Ex. 1004 ¶¶ 25, 192, 218; Ex. 1041, 11; Ex. 1003 ¶¶ 262–263)); Rossi discloses controlling a pump to not push water into a single-serve capsule upon a determination that the read barcode does not agree with a stored reference (claim 2) (*id.* at 73–74 (citing Ex. 1041, 6, 9; Ex. 1003 ¶¶ 268–269)); Yoakim discloses a capsule with a base element that can be convex, i.e., an indentation (claims 4 and 8) (*id.* at 74–75, 81 (citing Ex. 1004 ¶¶ 471–473, Fig. 27)); and Yoakim discloses a base element that is made of a biodegradable material (claims 6 and 9) (*id.* at 76–77, 81 (citing Ex. 1004 ¶¶ 180, 237)).

Patent Owner does not address Petitioner’s arguments with respect to these claims, beyond its arguments discussed above with respect to independent claim 1.

Upon review of the parties’ arguments, as well as the disclosures of Yoakim, Jarisch, Rossi, and Castellani, we determine that Petitioner

demonstrates by a preponderance of the evidence that the subject matter of claims 2, 3, 4, 6, and 8–10 would have been obvious over the combined disclosures of Yoakim, Jarisch, Rossi, and Castellani.

7. Dependent Claim 5: Sidewall Having Indentations

Claim 5 depends from claim 4 and further requires “wherein the side wall of the base element includes indentations.” Ex. 1001, 13:38–39.

Petitioner contends that Yoakim discloses a capsule with a body having a toothed structure, or indentations, around its perimeter that is used to engage the capsule in the centrifugal brewing system to facilitate controlled rotation during brewing. Pet. 75 (citing Ex. 1004 ¶ 215). In particular, Yoakim discloses that in one capsule of the invention:

The capsule has a toothed structure 75 on at least one of its outer surface. The capsule has a body 70 comprising an upper edge 72 which can be closed by an upper membrane 71. The toothed structure comprises a series of teeth which is positioned below the edge or rim 72 of the body of the capsule. The teeth are placed along the whole periphery of the body of the capsule.

Ex. 1004 ¶ 215.

Patent Owner contends Petitioner fails to demonstrate that the teeth of Yoakim’s capsule are on the side wall. Patent Owner reasons that Yoakim broadly teaches that its capsule “has a flared design with a widening side wall located between top and bottom walls, and an outer surface or structure for engaging external rotational driving means of a centrifugal device with the outer surface or structure configured to offer resistance to torque during rotation of the capsule.” PO Resp. 23; Ex. 1004 ¶ 16. And, because the widening side wall and outer surface are identified separately in Yoakim, Patent Owner contends that Petitioner never explains how Yoakim’s toothed

structure in the outer surface satisfies the claimed side wall limitation. PO Resp. 23–24.

The enclosure of Yoakim includes a top, a bottom, and a side wall. Ex. 1004 ¶ 15. As shown in Figure 23, the teeth are placed below the rim along the whole periphery of the body of the capsule. *Id.* ¶ 215, Fig. 23. Mr. Jobin persuasively explains why teeth that are below the edge or rim of the body of the capsule are part of the sidewall, i.e., they are part of the structure connecting the bottom and top of the capsule. Ex. 1003 ¶¶ 277–279. As noted by Patent Owner, Yoakim refers to both “a widening side wall” and “an outer surface or structure.” PO Resp. 23–24. We understand from Figure 23 and the disclosures of Yoakim, however, that the “outer surface or structure” is part of the side wall, as opposed to a separate structure in the *injected* or *drawn* single-serve capsule. Ex. 1004 ¶ 16 (“The enclosure advantageously has a flared design with a widening side wall located between top and bottom walls”), ¶ 355; Ex. 1003 ¶¶ 277–281.

In view of the foregoing, Petitioner demonstrates by a preponderance of the evidence that claim 5 is unpatentable as having been obvious over Yoakim, Jarisch, Rossi, and Castellani.

8. *Independent Claim 7*

Petitioner persuasively identifies where Yoakim, Jarisch, Rossi, and Castellani disclose the subject matter of independent claim 7. Pet. 77–80. Patent Owner’s counter-arguments with respect to this claim are identical to those set forth above with respect to independent claim 1 and dependent claim 5. PO Resp. 9–10, 15, 22, 25–34.

For the reasons set forth above, we determine that Petitioner demonstrates by a preponderance of the evidence that claim 7 would have

been obvious in view of the disclosures of Yoakim, Jarisch, Rossi, and Castellani.

IV. CONCLUSION²⁰

For the foregoing reasons, we determine that Petitioner demonstrates by a preponderance of the evidence that claims 1–10 are unpatentable. Our conclusions are summarized in the following table.

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claims Not Shown Unpatentable
1–10	103	Yoakim, Jarisch, Rossi, Castellani	1–10	
Overall Outcome			1–10	

V. ORDER

For the foregoing reasons, it is:

ORDERED that Petitioner demonstrates that challenged claims 1–10 of the '430 patent 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.

²⁰ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

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Patent 11,230,430 B2

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