

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NESPRESSO USA, INC.,
Petitioner,

v.

K-FEE SYSTEM GMBH,
Patent Owner.

Case No. IPR2023-00502
U.S. Patent 10,994,923

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

PATENT OWNER SUR-REPLY

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Exhibit	Description
Ex. 2001	Declaration of Marc Kruger
Ex. 2002	Applicant-Initiated Interview Summary for Appl. No. 16/538,752
Ex. 2003	<i>K-fee System GmbH v. Nespresso USA, Inc.</i> , Case No. 2:21-cv-3402 GW(AGRx), Dkt. No. 126-1 (Apr. 1, 2022)
Ex. 2004	<i>K-fee System GmbH v. Nespresso USA, Inc.</i> , Case No. 2:21-cv-3402 GW(AGRx), Dkt. No. 211 (June 17, 2022)
Ex. 2005	<i>K-fee System GmbH v. Nespresso USA, Inc.</i> , Case No. 2:21-cv-3402 GW(AGRx), Dkt. No. 71 (January 19, 2022)
Ex. 2006	Excerpts from file history of Appl. No. 16/538,752
Ex. 2007	Examiner-Initiated Interview Summary for Appl. No. 17/324,182
Ex. 2008	Examiner-Initiated Interview Summary for Appl. No. 17/108,175
Ex. 2009	File History of U.S. Patent No. 10,800,600
Ex. 2010	Excerpts from file history of Appl. No. 16/860,441
Ex. 2011	Applicant-Initiated Interview Summary for Appl. No. 17/963,392
Ex. 2012	Notice of Allowance for Appl. No. 17/330,572
Ex. 2013	Excerpts from Appl. No. 17/670,629
Ex. 2014	NOT USED
Ex. 2015	NOT USED

Exhibit	Description
Ex. 2016	NOT USED
Ex. 2017	Declaration of Laurens “Lars” Howle in Support of Patent Owner’s Response (“Howle Decl.”)
Ex. 2018	NOT USED
Ex. 2019	Transcript of deposition of Michael Jobin taken November 28, 2023
Ex. 2020	NOT USED
Ex. 2021	NOT USED
Ex. 2022	NOT USED
Ex. 2023	NOT USED
Ex. 2024	NOT USED
Ex. 2025	NOT USED
Ex. 2026	Brian D. Wood, et. al., <i>Modeling Turbulent Flows in Porous Media</i> , Annu. Rev. Fluid Mech. (2020)

All challenged claims are patentable over the instituted grounds. In the face of Patent Owner’s arguments, Petitioner reaches for new arguments and seeks to unjustifiably discredit Patent Owner’s declarants. But Petitioner cannot run from the many inescapable admissions of its expert, the conclusory and unsupported arguments in its Petition, and its failure to refute various evidence-based arguments presented in the Patent Owner Response (“POR”).¹

I. There Is No Question Dr. Howle Is A POSITA

Dr. Howle is a POSITA and should be given equal, if not more weight than Petitioner’s expert, Mr. Jobin. Petitioner’s arguments ignore relevant facts and are unsupported by law.

The Board preliminarily adopted Patent Owner’s proposed definition of a POSITA, which provided that a POSITA “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.” Paper 9 (“Institution Decision”) at 8.

¹ All emphases added, unless noted.

Dr. Howle’s experience exceeds this definition. Dr. Howle holds a Ph.D. in Mechanical Engineering—Mr. Jobin does not.² Ex.2017 at ¶5. For over 30 years, Dr. Howle taught a wide variety of undergraduate and graduate courses in Mechanical Engineering and Materials Science at Duke University and even served as the lead instructor for the entire mechanical engineering design sequence. *Id.* at ¶¶5-6, Ex.1067, 101:13-18. Specific relevant courses Dr. Howle has taught include various mechanical design, heat/mass transfer, and fluid dynamics courses. Ex.2017, ¶6.

Petitioner myopically focuses on Dr. Howle’s experience with “beverage system design” but never challenges Dr. Howle’s academic credentials and experience in the design of “similar products.” *See* Paper 18 (“PR”), 26-27. It is undisputed that Dr. Howle has experience in mechanical design including design of components used in mechanical beverage systems, and design of ***similar products*** that include heaters, pumps (piston pumps and peristaltic pumps), strain gauges, thermocouples, thermistors, photo emitter/detector circuitry, ultrasonic and inductive proximity sensors, Hall effect transducers, piezoelectric elements, pressure

² Dr. Howle provided unrebutted testimony that “[a]dditional education might substitute for some of the experience.” Ex.2017, ¶31. Dr. Howle’s educational experiences are, at a minimum, a substitute for design experience.

transducers, ultrasonic and impellor flow meters, acceleration gauges, interferometers, and custom line-of-business software systems. Ex.1067, 101:3-12³; Ex.2017, ¶¶3-4, 9-10; *see also* Ex.1066, 34:16-35:9. Dr. Howle also has extensive experience with medical devices, which utilize these components and operate similarly to beverage machines. Ex.1067 at 102:20-104:9. There can be no doubt that medical device experience is relevant because even Mr. Jobin identifies similar experience as relevant in seeking to qualify himself as an expert. *See* Ex.1003, ¶¶8, 12, 23, 27.

Moreover, Dr. Howle has been named a Fellow of the American Society of Mechanical Engineers, has been selected as finalist and winner of awards for products that he designed, and he owned a licensed professional engineering consulting firm (license number P-0774)—accolades and experience that Mr. Jobin

³ At Dr. Howle's deposition, Petitioner invoked Dr. Howle's experience, Ex.1067, 31:24-32:1, 32:11-13, 100:5-8; therefore, despite Petitioner's numerous objections, there was nothing improper about Patent Owner's redirect examination of Dr. Howle. Petitioner cannot seek Dr. Howle's opinions to utilize them in support of its positions while also seeking to undermine Dr. Howle's ability to offer those opinions. *See e.g., id.*, 28:21-24, 30:1-7, 81:7-9; PR.8, 15.

does not possess. Ex.2017, ¶¶8, 10. The five-year licensure process to become a professional engineer requires proof of a minimum of four years of experience working under professional engineers and passing an exam. Ex.1067, 101:19-102:11 (Dr. Howle “became licensed in 2008, but all the experience leading up to that, I had completed by 2000”).

To suggest Dr. Howle’s opinions should not be given appropriate weight, Petitioner cites to trial testimony from two of Dr. Howle’s previous coffee capsule cases. *See* PR.26-27. These trial transcripts *prove* that Dr. Howle is qualified to offer opinions on these issues. Indeed, in both cases, Dr. Howle was qualified as an expert without objection and testified before the factfinder. *See, e.g.*, Ex.1068, 6:3-12; *generally* Ex.1069. Nothing in those transcripts that suggests that Dr. Howle lacks the qualifications to provide opinions here or is not a POSITA. Tellingly, it is undisputed that Dr. Howle has been accepted as a credible expert witness in over 20 cases and served as an expert and/or testified at trial in seven cases related to single-serve beverage brewing systems. Ex.2017, ¶13.

Should the Board believe that Dr. Howle somehow does not fall squarely within the Board’s definition of a POSITA, the Board has held that the proper inquiry is whether “the testifying witness possesses sufficient qualifications to be able to testify as to what the hypothetical person of ordinary skill in the art postulated by § 103 would have known and understood at the time of the invention.” *See, e.g., SEB*

S.A. v. Montgomery Ward & Co., 594 F.3d 1360, 1373 (Fed. Cir. 2010); *see also Bayerische Motoren Werke Aktiengesellschaft v. Paice LLC*, IPR2020-01386, Paper 37 at 73 (PTAB Jan. 31, 2022); *GoPro, Inc. v. Contour, LLC*, IPR2015-01078, Paper 84 at 12 (PTAB Jul. 31, 2019). *Kyocera Senco Industrial Tools Inc. v. International Trade Commission* is not contrary—there the expert lacked the requisite experience at all times. 22 F.4th 1369, 1376 (Fed. Cir. 2022).

Dr. Howle is a POSITA and there is no reasonable basis for his testimony less weight than Mr. Jobin's.

II. Petitioner's Motivations To Combine Fail

A. Jarisch Is Not Intended to be Combined With Yoakim's Centrifugal Systems

Patent Owner explained there are substantial differences between the system in Jarisch and the systems in Yoakim that undermine the combination Petitioner advocates. POR, 36-45. Petitioner argues that the art is generally directed to centrifugal brewing systems. But Jarisch's cursory mention of Denisart does not establish a wholesale ability to modify Yoakim's multiple centrifugal brewing systems with Jarisch's teachings of yet another centrifugal brewing system not in the chain of priority of the Yoakim patent. Indeed, it is not enough to argue that a POSITA could have modified a reference, but rather must demonstrate why. *See PersonalWeb Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017).

B. There Is No Motivation To Place A Code On The Bottom Of Yoakim's Flange.

Yoakim would not benefit from Jarisch's code location. *See* POR.36-45. As an initial matter, Petitioner does not dispute the apparent differences between Yoakim and Jarisch. Instead, Petitioner seeks to suggest a problem in Yoakim that beverage residue is "left over in the chamber from prior brewing." PR.20. Petitioner identifies no evidence of such a problem in Yoakim.

Petitioner relies now upon the embodiments of Figs. 35 and 38, which relate to Yoakim's single-volume capsule set. PR, 21. But Petitioner fails to demonstrate any rationale to combine these embodiments with those in Yoakim Figs. 23, 61, and 62, which were relied upon in the Petition. This lack of explanation dooms Petitioner's arguments. *See Abiomed, Inc. v. Maquet Cardiovascular, LLC*, IPR2017-01204, Paper 9, at 11 (PTAB Oct. 23, 2017); *Intel Corp. v. Tela Innovations, Inc.*, IPR2019-01521, Paper 65 at 25 (PTAB Mar. 9, 2021) (FWD finding claims not unpatentable where Petitioner failed to "explain why a POSITA would have combined the elements disclosed in the separate embodiments described in [the reference]"); *Hewlett Packard Enterprise Co. v. Intellectual Ventures II LLC*, IPR2022-00115, Paper 9 at 15 (PTAB Mar. 29, 2022); *Google LLC v. AGIS Software Dev., LLC*, IPR2018-01086, Paper 10 at 19 (PTAB Dec. 4, 2018). Moreover, Yoakam's Figs. 35 (annotated below) and 38 do suggest the

“problems” Petitioner argues (PR, 21) because they have no sensor or barcode, and the capsule has a peripheral collection recess to maintain fluid at the periphery.

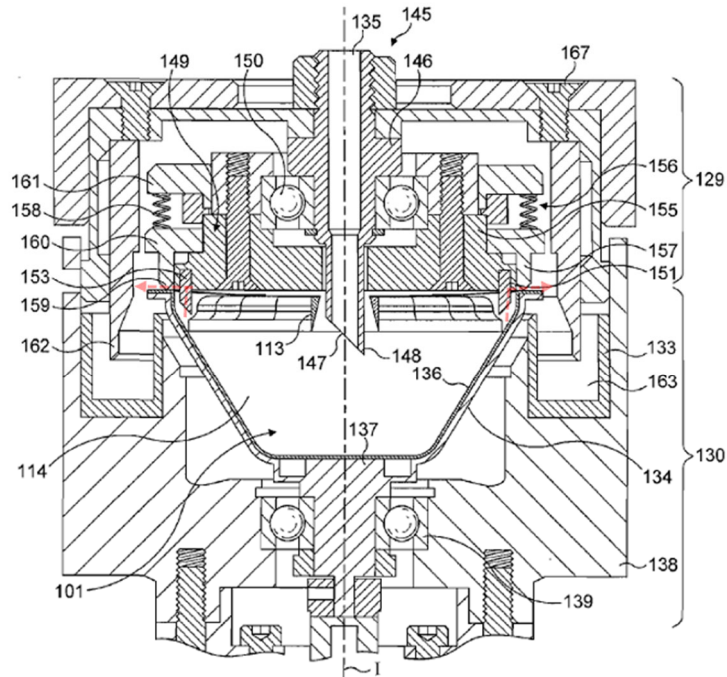


FIG. 35

As for Yoakim Figure 61, Petitioner has provided no evidence of a liquid flow path contrary to that below (in red). It cannot be disputed that ID4 and sensor 231 are not in the flow path but are located inboard of the flow path.



FIG. 61

In the POR, it is shown that substantial reconstruction is required to implement Jarisch’s teachings in Yoakim, which is insistent on avoiding unbalance and teaches the snug fit as the means to solve it. POR.40-41; Ex.1004, [0006]. Petitioner argues to use Jarisch’s “straight chamber,” but this is not a simple plug and play operation. Yoakim speaks to specific requirements for the capsule holder of Figs. 61/62 including that it be capable of receiving a set of multiple volume capsules and that it realizes a “snug fit” to assure that “unbalances” are avoided. Ex. 1004, [0512]. The snug fit provides safety. *Id.* at [0205], [0479], [0484], [0507], [0512]. Petitioner bears the burden to demonstrate unpatentability but has not

explained how this combination would have been motivated to be achieved with any expectation of success.

At best, Jarisch describes a “risk” from beverage residues in Jarisch’s system (and possibly those prior art systems Jarisch explicitly identifies) but is silent as to whether such residues result from prior brewing. Ex.1005, [0022]. In contrast, Yoakim teaches “[t]he capsule of the invention provides many advantages over the ‘open’ centrifugal systems of the prior art, in particular: . . . A *cleaner operation*.” Ex.1004, [0319]-[0325]. This suggests that Yoakim’s capsules adequately address any concern of residue without placing the barcode under the flange. Moreover, Figures 35 and 38 of Yoakim (upon which Petitioner relies) do not have a sensor/barcode and Petitioner presents no evidence that this embodiment would suffer from the alleged “residue” problem. *See id.* at Figs. 35, 38. In sum, there is no evidence to suggest that beverage residues would have been a concern in Yoakim’s system, or even after how many uses such a concern might even arise (if at all). The record is silent on this.

Petitioner mischaracterizes Dr. Howle’s testimony regarding the location of the piercing elements in Yoakim relative to the barcode. As can be seen in Figure 61, they are not “in the same location that is meant to be read” (PR.21), but instead inset from the piercing location. Moreover, Petitioner’s arguments that “problems of tearing” are unsupported. There’s nothing to suggest that the membrane in

Yoakim would be torn, rendering the barcode reading inoperable. As explained, the reading occurs prior to rotation of the capsule, so tearing is not a concern. *See* POR.36-45. The passage referred to in Ex.1010 (PR.21) states that piercing would only have a “minimal effect” on the laminate in the region of the barcode 320. There is no evidence that the arrangement of Fig. 10 in Ex.1010 where the barcode is on the lid is problematic.

C. Petitioner Changes Its Arguments For Combining Yoakim And Jarisch To Contend Such Combination Is “Simple.”

Patent Owner identified numerous deficiencies in Petitioner’s efforts to combine the teachings of Yoakim with Jarisch. *See* POR.36-45. In response, Petitioner changes its positions to argue “[t]he combination is simple to a POSITA.” PR.22. Dr. Howle explains various reasons why that is untrue. Ex.2017 at ¶¶87-100. Petitioner argues that “K-fee insists that the combination utilize the same, unmodified, physical chamber of Yoakim FIG61.” PR.22-23. But it was Petitioner and its expert that advocated this specific combination—contending only to modify Yoakim *by the placement of* the optical code and reader from Jarisch. Pet., 44-45 (“Jarisch also discloses motivations for a POSITA to *combine the brewing and barcode reading system of Yoakim with the code location of Jarisch on the bottom flange of the capsule.*”); Ex.1003, ¶192 (“A person of ordinary skill in the art would have been motivated *to use the placement of the optical code and reader from*

Jarisch in the Yoakim barcode reading system.”); see also id., ¶187 (“A person of ordinary skill in the art would have been motivated to combine the single-serve brewing system, capsule, barcode reading system, and concepts of Yoakim, **with** the code location under the flange disclosed in Jarisch”).

Under the advocated modifications, the differences between Yoakim’s capsule holder and Jarisch’s reader placement present significant obstacles to achieving the proposed combination. *See* POR.36-44. Petitioner should not be heard to argue a different combination or reasoning to combine now. *See Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1330-31 (Fed. Cir. 2019) (“an IPR petitioner may not raise in reply ‘an entirely new rationale’ for why a claim would have been obvious”). As such, a POSITA would not have had a reasonable expectation of success in moving the sensor to the bottom of Yoakim’s brewing device and the combination of Jarisch and Yoakim would have required a significant redesign of the elements. *See* Ex.2017, ¶¶90-91.

Petitioner’s mantra that the teachings do not need to be bodily incorporated is not an unrestricted license to combine references just because they may be in a similar field. Petitioner neglects the precision needed to operate the Yoakim and Jarisch systems, especially in view of the repeated teachings in Yoakim of rotation speeds upward of 15,000 RPM and near boiling water. Ex.1004, [0509]. Even without bodily incorporation, there must be a motivation to achieve the combination. On the present

facts, Petitioner's arguments fail because they do not provide a rationale for why a POSITA would make the specific modifications alleged, there are many pointers discouraging the combinations sought, and any such combinations would have required a POSITA to make significant reconfigurations. Therefore, a POSITA would *not* have been motivated to combine the teachings of the two references.

Petitioner does not dispute that it has not identified in Yoakim disclosure of a "barcode" under its ordinary meaning. PR.24-26; POR.33. The Federal Circuit recently held that "a barcode is defined *by its visual appearance* as lined-up bars of varying widths." *K-fee Sys. GmbH v. Nespresso USA, Inc.*, 89 F.4th 915, 924 (Fed. Cir. 2023). Petitioner never addresses this or identifies such a barcode in the art.

Finally, Petitioner seeks to walk away from its affiliate's prior statements discouraging the modification of Yoakim '601 to place a code under the flange of a capsule like the one in Figure 23 of Yoakim. PR.25-26. Petitioner does not dispute that it argued against motivation to place a code on the bottom of the flange of Figure 23. *See id.* Indeed, it concedes that Yoakim Figure 23 lacks "disclosure of a code under the flange." *Id.* This lack of disclosure combined with arguments during prosecution against a motivation to modify the capsule depicted as Yoakim Figure 23 undermine the combination advocated here.

III. K-fee Has Met Its Burden on Priority

A. There Can Be No Question Marc Krüger Is a Credible Declarant

Marc Krüger's Declaration ("Krüger Declaration") is a credible means of establishing priority and swearing behind the Jarisch reference. *See* 37 CFR § 1.131(a); *see generally* Ex.2001, ¶¶1-22. In its attempt to discredit Mr. Krüger's sworn declaration, Petitioner does not directly rebut the *facts* presented therein. *See* PR.1-5. Accordingly, the Krüger Declaration is unrebutted.

It is well-known that the priority date of a patent can be the date of the earliest patent filing which first disclosed the invention. There is "no final single formula that must be followed" in proving corroboration to antedate a prior art reference. *See REG Synthetic Fuels, LLC v. Neste Oil Oyj*, 841 F.3d 954, 962 (Fed. Cir. 2016). Contrary to Petitioner's arguments, and as explained in the Krüger Declaration, each and every limitation of the '923 Patent claims was conceived of, possessed by the inventor, and disclosed in the three German priority documents. *See* Ex.2001, ¶¶9-22; Exs.1045-1047.

Moreover, there is no dispute that the '923 Patent is entitled to priority of at least July 22, 2011—the date of the PCT application. The Petition did not challenge this priority claim. Pet., 39. And Petitioner's expert did not form "any opinions on [the PCT application]." Ex.2019, 148:3-18. Accordingly, the '923 Patent is entitled to at least the date of that application. *See Hologic, Inc. v. Smith & Nephew, Inc.*,

884 F.3d 1357, 1362 (Fed. Cir. 2018) (concluding that substantial evidence supported the Board’s finding that PCT application reasonably conveyed possession of claim element where parties did not dispute disclosure or knowledge in the art).

If the undisputed priority to the PCT application were not enough, the un rebutted evidence shows that Mr. Krüger was in possession of at least as much of the subject matter as relied upon by Petitioner from the Jarisch reference and disclosed in the German applications before the effective date of Jarisch. Petitioner does not dispute that Mr. Krüger’s testimony is corroborated by his “patent filings.” PR.4. Mr. Krüger’s Declaration, as corroborated by the German priority applications, establishes that Mr. Krüger had conceived and constructively reduced to practice the concept of using an identifier, such as a code or barcode, and placing that identifier on the underside of a flange of a coffee capsule. *See* Ex.2001, ¶¶2-4, 8-22. The declaration further establishes possession of the claimed inventions by no later than the third German priority application.

Petitioner incorrectly argues that “K-fee never explains how the vertical grooves are linked in any way to the other ’923 Patent claim requirements including a barcode below the flange.” PR.5. But Petitioner does not dispute that the third German application has “vertical grooves and ribs on the exterior and interior of the capsule body wall.” Pet., 40. Nor does the Petitioner dispute that the first and second German applications “disclose[] a barcode located on the capsule flange.” Pet., 41;

Ex.2017, ¶61. While Petitioner contends that no individual application contains all the elements, it does not dispute that the elements are present across all three German applications. *See* Ex.2001, ¶¶9-22 (describing the invention of the first, second, and third German applications and key features, specifically how ‘[a]dditional concepts and innovations were describes further’ in the subsequent second and third German applications). The lack of dispute supports a finding in Patent Owner’s favor. *See Hologic*, 884 F.3d at 1362. Thus, the Krüger Declaration as corroborated by the three German applications demonstrates priority over Jarisch.

B. K-fee Properly Swears Behind The Jarisch Reference

K-fee reasserts that, in view of the long history of *Stempel* and its progeny, the Board should follow this line of good caselaw, and uphold the Krüger Declaration as antedating Jarisch and removing it from consideration. *See* POR.11-15.

Petitioner incorrectly contends that the Krüger Declaration does not establish “possession of either the whole invention claimed, or something falling within the claim, in the sense that the claim as a whole reads on it.” PR.2-3 (citing *In re Tanczyn*, 347 F.2d 830, 833 (C.C.P.A. 1965) and MPEP 715.02). As explained herein, the Krüger Declaration establishes possession of the claimed inventions by no later than the third German priority application. Moreover, “under Rule 131, it is sufficient that appellant has shown a reduction to practice of his basic invention,

which showing will also suffice as to claims differing therefrom only in details which are obvious to one of ordinary skill in the art.” *In re Spiller*, 500 F.2d 1170, 1178 (C.C.P.A. 1974); *see In re Tanczyn*, 347 F.2d at 833. The Krüger Declaration meets this standard and therefore properly swears behind the Jarisch reference.

IV. The Claims Are Not Obvious Over Yoakim/Jarisch/Rapparini

A. Yoakim Fails To Disclose A Capsule Free Of A Filter Inside of the Cavity

There is no dispute that Yoakim expressly teaches that his capsules indeed contain a filter, and that such filter is inside the cavity, for purposes of filtering brewed liquid from solid particles in the capsule. Petitioner contends that the filter is optional or not in the cavity. Tellingly, Petitioner remains unable to identify any passage in Yoakim to support this.

Petitioner’s arguments for an optional filter are unpersuasive. First, Petitioner argues that “express negative statements are not required.” PR.7. This new argument fails because the Petitioner points to nothing to suggest that the filter is optional. Rather, the Petition refers to a *second* filter and embodiments that fail to show the inside of the capsule at all. Pet., 50. This cannot satisfy Petitioner’s burden. Moreover, Petitioner’s reliance on the ’923 Patent’s disclosure is misplaced. Yoakim’s disclosure is unlike the ’923 Patent’s written description, which expressly states that a filter is optional “if necessary.” *See, e.g.,* Ex.1001, 10:9-13 (“It is

provided that the base element contains the raw material and, *if necessary*, build-in elements like a filter as illustrated here.”); POR.20-26.

Petitioner is also wrong that the premade slits are not in the cavity. PR.8. In Yoakim, the premade slits are beneath the top side of the flange and thus are indeed in the cavity. *See, e.g.*, Ex.1004, Fig. 29 (below). In Yoakim, the premade slits are *beneath* the top side of the flange and thus are *in* the cavity. *Id.*

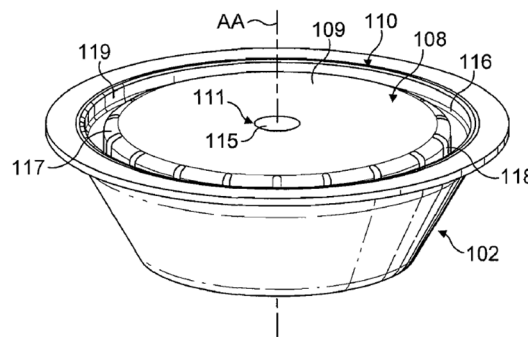


FIG. 29

As explained in the POR, Yoakim’s Figure 54 lacks any detail of the cavity’s contents. POR.25-26. Indeed, it does not even depict a food substance. *See* Ex.1004, Fig. 54. Nonetheless, Petitioner argues that it somehow shows no filter in the cavity. The absence of detail in Figure 54 does not demonstrate by a preponderance of the evidence the lack of a filter in the cavity. *In re Debus*, 17 F.3d 1442, 1442 (Fed. Cir. 1993) (concluding prior art does not render the invention obvious because patent drawings lacked sufficient detail). Moreover, [0503] does not provide any clarity on this because it discusses only the walls and the membrane. It does not teach anything about the contents within the cavity.

In a footnote, Petitioner relies for the first time upon Figure 16 as somehow supportive of its position. It is not. This is new argument and should be rejected. Moreover, “Petitioner fails to provide a sufficient rationale to combine the teachings of [Yoakim’s] different embodiments.” *Abiomed*, IPR2017-01204, Paper 9, at 11 (denying institution where Petition failed to provide rationale to combine the teachings of the reference’s different embodiments). According to Petitioner, “there is no single capsule embodiment in Yoakim” so it cannot merely argue that Figure 16 somehow informs the distinct embodiment disclosed in Figure 54, especially at this late stage and without the benefit of expert testimony. Tellingly, Figure 16 is unlike the multi-volume capsule set within which Figure 54 falls. Regardless, Figure 16 illustrates slits, which as explained above are found within the cavity.

Finally, Petitioner presents another new argument that “Yoakim discloses many different ways to brew a beverage without a filter in the capsule cavity.” PR.9. But Yoakim’s passing reference to filtering outside the capsule cavity does not evidence disclosure of a lack of filter within capsule cavity. As Dr. Howle credibly explains, Yoakim repeatedly teaches embodiments where his capsules use filters. Ex.2017, ¶¶64-70. Such filters ensure that solid materials do not contaminate the machine. Ex.1004, [0325].

B. Rapparini Fails to Render Obvious The Claimed Grooves

“When an obviousness challenge asserts a combination of identified prior art, the motivation-to-combine portion of the inquiry is whether a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve *the claimed invention*. . . . The real question is why a person of ordinary skill in the art would have combined elements from specific references in the way the claimed invention does.” *Axonics, Inc. v. Medtronic, Inc.*, 73 F.4th 950, 957 (Fed. Cir. 2023) (quotation marks omitted).

Here, it is undisputed that in modifying Yoakim in view of Rapparini, the Petition starts from Yoakim’s frustoconical capsules (Figs. 6, 27), relying on Yoakim’s teachings to argue that the claimed “wall region” is found in the art. Pet., 49, 52-53. The Petition then leaps to Rapparini’s Fig. 6bis to argue that it would have been obvious to modify the wall region of Yoakim’s frustoconical capsules to include the claimed radially spaced and vertically oriented grooves that are free from extending entirely to the bottom region. Pet., 53. Patent Owner identified this oddity in its Response, because the Petition lacks a reason why a POSITA would pick up Rapparini and select Fig. 6bis—a capsule that is not frustoconical—to modify Yoakim’s frustoconical capsules of Figs. 6, 27. POR.28-33.

Presented with this glaring shortcoming, Petitioner pivots to relying on rounded capsules from a different embodiment in Yoakim that it never cited in the

Petition. PR.13 (citing Yoakim Figs. 58-60); *see also id.* at 8 (Petitioner arguing “there is no *single capsule embodiment* in Yoakim”). These new contentions raised for the first time on reply should be rejected. *See, e.g., Henny Penny*, 938 F.3d at 1330-31 (“Board did not abuse its discretion in holding [Petitioner] to its word and disregarding its new theory first raised in reply.”); PTAB Consolidated Patent TPG (Nov. 21, 2019), at 73.

But even if the Board considers these new contentions, they fall short because “Petitioner fails to provide a sufficient rationale to combine the teachings of [Yoakim’s] different embodiments.” *Abiomed*, IPR2017-01204, Paper 9, at 11 (denying institution where Petition failed to provide rationale to combine the teachings of the reference’s different embodiments); *Intel*, IPR2019-01521, Paper 65 at 25 (FWD finding claims not unpatentable where Petitioner failed to “explain why a POSITA would have combined the elements disclosed in the separate embodiments described in [the reference]”). On its face Yoakim identifies numerous priority and continuation-in-part applications, which add new material not found in prior applications. Ex.1004, 1. Yoakim aggregates (without interrelating) the various discrete embodiments from among those filings and groups them based upon, *inter alia*, the nature of the valve arrangement for brewing, the nature of whether the capsules are part of a system of different volume capsules, whether the system employs a sensing device for selectively controlling the machine based on the

different volume of capsules in the set, and the nature of the intended beverage. Despite all of these disparate embodiments, the Reply (and Petition) do not explain how or why a POSITA would have combined Yoakim's single-sized capsule embodiments at Figs. 6 and 27 with the multi-volume capsules at Figs. 58-60.

i. Petitioner's Moka Pot Arguments Are Unavailing.

Petitioner argues that Rapparini Fig. 10 is inapplicable because it “is directed to an insert for the basket of a Moka Pot, which is differentiated from an automatic espresso machine like Yoakim and Jarisch.” PR.14. But that's irrelevant. The Petition seeks to rely on Rapparini for its purported teachings of grooves on the wall region to modify and strengthen Yoakim's frustoconical capsule. Pet., 38-39 (“Rapparini improves upon existing containers by including longitudinal grooves and ribs of varying lengths along the inner and outer surface of the capsule body, which allow for optimization of system stability and rigidity.”). Rapparini teaches it is “particularly advantageous” for such frustoconical capsule shapes to extend the grooves to the bottom region. POR.28-30. This demonstrates that a POSITA would have been motivated by Rapparini to adopt grooves to the bottom region of such capsules—not to adopt the claimed grooves.

Until now Petitioner has relied indiscriminately on Rapparini without regard to the intended application. But to the extent it is found that teachings of a capsule suitable for a moka pot cannot be applied to Yoakim and Jarisch, none of Rapparini's

capsules would be appropriate. Specifically, Rapparini's paragraph [0067] indicates that all containers in Rapparini are suitable for Moka Pots. Applying Petitioner's logic, Petitioner has failed to show motivation because there is no teaching whatsoever in Rapparini for a centrifugal beverage system. Moreover, the passage from the Jobin Declaration that Rapparini's teachings would be suitable for a centrifugal device is merely conclusory (Ex.1003, ¶200). Mr. Jobin does not explain any of the structural and functional demands that the bag-type filter capsules of Rapparini would need to encounter with the various embodiments of the Yoakim and Jarisch systems, all of which demand structural rigidity due to centrifugation, let alone providing the necessary space for presenting a barcode. Rapparini requires that the capsule material be "permeable, filtering, and thermoformable material"—precisely the opposite of the material needed for a centrifuge system of Yoakim and Jarisch. For example, using a "permeable, filtering, and thermoformable material" in the capsule holder of Figs. 61/62 of Yoakim and Fig. 4 of Jarisch would result in beverage spilling into the voluminous capsule holder and being unable to escape the system except from underneath the flange of the capsule contaminating the reading surface of the barcode and blocking light traveling through the capsule holder.

Petitioner's reliance on other references to argue obviousness for utilizing grooves that "*do not* extend entirely to the bottom region in order to improve stability" is irrelevant because the cited items are not being relied upon for the

grounds of invalidity. PR.15. Moreover, numerous references cited do not pertain to portion capsules for beverage machines (e.g. Ex.1030 is directed to a plastic cup).

ii. Petitioner’s “Finite Number” Argument Is Misplaced

Petitioner’s new argument regarding “a finite number of identified, predictable solutions” (PR.15) is unsupported by evidence and does not address each individual claim having further specific limitations as to extent of grooves (e.g. ’923 Patent, cls. 3-4, 7, 11-13). The claims have features pertaining to the orientation, position, and extent of grooves among other features. A simple review of Rapparini alone indicates alternative designs, and there are numerous others illustrated in the prior art of record as well as other configurations that would have been known at the time. In fact, there is an infinite number of groove designs, varying in geometry, orientation, size, and positioning among others. For example, groove structures may include one or any combination of the following groove types: annular, spiral, intersecting, V-shaped, helical, diagonal shaped, angularly oriented zig-zag, X-shaped, I-beam shaped, horizontal shaped, serpentine, etc. Ex.1003, ¶¶87-93. Moreover, the grooves can be of any dimension and can be positioned at any location along any extent of the capsule.

Further, the full quote from the two-part test in *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 402 (2007), is “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a

person of ordinary skill in the art has good reason to pursue the known options within his or her technical grasp.” Petitioner’s new argument not only fails on the merits of the “finite number” element, it comes up short in evidence and analysis that established “a design need or market pressure to solve a problem.” If anything, the argument raises a question of claim construction because it seems to import a requirement into the claim that there be stiffening as a result of the grooves. It is ambiguous at best whether the stiffening requirement is the so-called market or design need for *KSR*. But, if it is intended as such by Petitioner, then it is incumbent upon the Board to consider that stiffening is not merely a result of using any of the groove types recited above, but can be achieved by any combination of the following techniques (among others) as well.

Local reinforcement can be achieved by one or any combination of the above-identified types of grooves. In fact, internal inserts are shown throughout Yoakim. *See, e.g.*, Ex.1004, [0460]-[0462], Fig. 44-47. Any one or combination of these things could be arranged in any one or combination of locations on the capsule.

Finally, Petitioner’s characterization that “Rapparini discloses stability through grooves of ‘variable’ length including grooves that extend *only* along the sidewall” mischaracterizes Rapparini. PR.15. As seen from the below annotated images, the Rapparini grooves extend into and intersect with at least the flange in each embodiment of the drawings.

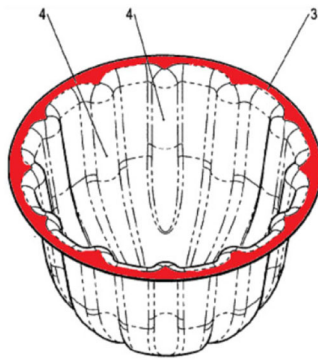


FIG. 6

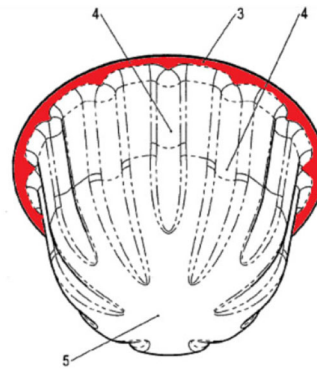


FIG. 6 bis

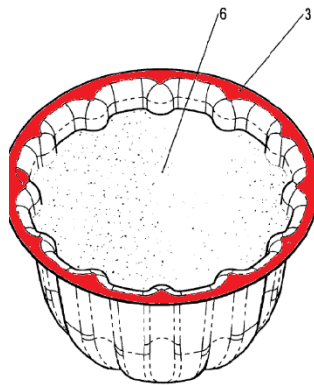


FIG. 7

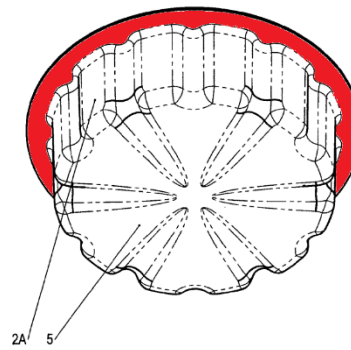


FIG. 10

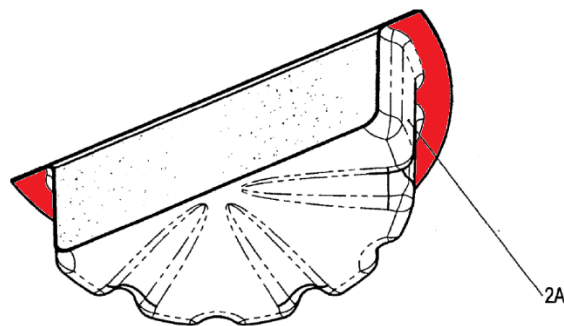


FIG. 11

And as explained in the POR, the grooves of Fig. 10 undisputedly extend to the bottom region and the capsule of Fig. 6 bis is irrelevant. POR.27-33.⁴

C. The Art Fails to Disclose or Render Obvious Turbulence in The Cavity

Petitioner fails to show that Yoakim and Rapparini disclose or render obvious “the grooves in the cavity generate turbulence of water in the cavity,” as required by dependent claims 7 and 13.

As an initial matter, Petitioner does not dispute that Rapparini is silent as to whether its capsules generate turbulent flow. *See* Ex.1008; PR.17-19. Petitioner also does not dispute that a POSITA would have understood from Yoakim that the water flow in the Yoakim capsule and resulting from Yoakim’s perforators is *laminar*—not turbulent. Ex.1004, [0509] (“Since many perforators are placed evenly at the periphery of the upper wall, liquid can also exit by making a laminar flow of beverage dispersed radially along the whole periphery of the upper wall”); Ex.2019,

⁴ In a footnote, Petitioner disputes Dr. Howle’s testimony regarding Rapparini’s Fig. 6/6bis in a conclusory fashion. PR.16n.4. Notably, Dr. Howle’s testimony was isolated to Rapparini’s disclosure and not in any way directed to K-fee’s infringement positions.

43:9-10 (Mr. Jobin admitting that “[t]urbulence is the opposite of smooth or laminar flow”).

Despite the lack of any teaching of turbulence in the references, Petitioner through its expert, concludes without any support that there would be turbulence in the capsule. Pet., 63. In contrast, Dr. Howle explains that turbulent flow is not a given or obvious because it depends on many factors including “the underlying structure, direction, speed, pressure, volume flow, or any of the other parameters” that determine the flow. Ex.2017, ¶¶85-86. This opinion is supported by Ex.2026, which describes five flow structures including laminar and turbulent. Ex.2026, 7-8. Petitioner does not dispute this evidence but argues that grooves would result in turbulence. The evidence shows otherwise. Without some explanation of how or why the grooves in Rapparini would result in turbulence in Yoakim’s capsule, Petitioner’s arguments fail to satisfy its burden.

Accordingly, Yoakim and Rapparini do not render the “turbulence” limitation obvious.

V. Conclusion

The Board should rule in K-fee’s favor.

Date: April 10, 2024

Respectfully submitted,

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CERTIFICATION UNDER 37 C.F.R. § 42.24

Under the provisions of 37 C.F.R. § 42.24, the undersigned hereby certifies that the word count for the foregoing Patent Owner Response totals 5,569 words, which is less than the 5,600 allowed under 37 C.F.R. § 42.24(c)(4).

Date: April 10, 2024

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.8 and 42.6(e), the undersigned hereby certifies that the foregoing Patent Owner's Sur-Reply and its respective exhibits was served on counsel of record for the Petitioner by filing this document through PTAB P-TACTS and by sending this document via electronic mail to the following addresses:

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