

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NESPRESSO USA, INC.
Petitioner

v.

K-FEE SYSTEM GMBH
Patent Owner

IPR2024-00239

**PETITION FOR INTER PARTES REVIEW
OF U.S. PATENT NO. 11,542,094**

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Cases

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<i>Advanced Bionics, LLC v. MED-EL Elektromedizinische GeräteGmbH</i> , IPR2019-01469, Paper 6 (Feb. 13, 2020).....	79, 80
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<i>D Three Enterprises, LLC v. SunModo Corp.</i> , 890 F.3d 1042 (Fed. Cir. 2018)	34
<i>Dish Network L.L.C. v. TQ Delta LLC</i> , IPR2016-01470, Paper 14 (Feb. 9, 2017).....	16
<i>Flash-Control, LLC v. Intel Corp.</i> , 2021 WL 2944592 (Fed. Cir. 2021)	30
<i>FWP IP ApS v. Biogen MA, Inc.</i> , 749 Fed.Appx. 969 (Fed. Cir. 2018).....	5
<i>Hyatt v. Dudas</i> , 492 F.3d 1365 (Fed. Cir. 2007)	30
<i>Lyft, Inc., v. Rideshare Displays, Inc.</i> , IPR2021-01602, Paper 7 (Apr. 11, 2022).....	80
<i>Nespresso USA, Inc. v. K-Fee System GmbH</i> , Case No. 2:22-cv-09295-GW	7
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<i>Nespresso USA, Inc. v. K-Fee System GmbH</i> , IPR2023-00502, Paper 9 (Sep. 13, 2023).....	30, 79, 84

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<i>Novozymes A/S v. DuPont Nutrition Biosciences APS</i> , 723 F.3d 1336 (Fed. Cir. 2013)	34
<i>Purdue Pharma L.P. v. Recro Tech., LLC</i> , 694 Fed.Appx. 794 (Fed. Cir. 2017).....	35
<i>Studiengesellschaft Kohle M.B.H v. Shell Oil Co.</i> , 112 F.3d 1561 (Fed. Cir. 1997).	29
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<i>Viken Detection Corp. v. Am. Sci. and Eng. Inc.</i> , IPR2021-01585, Paper 11 (May 5, 2022).....	84
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Patent No. 11,542,094

Petition for *Inter Partes* Review

PETITIONER'S EXHIBIT LIST

No.	Reference	Referred To As
1001	U.S. Patent No. 11,542,094	'094 Patent
1002	Prosecution History of U.S. Patent No. 11,542,094	'094 Patent File History
1003	Declaration of Michael Jobin	Jobin Decl.
1004	U.S. Patent Pub. US2010/0239734A1	Yoakim
1005	U.S. Patent Pub. US2013/0064937A1	Jarisch
1006	U.S. Patent Pub. US2013/0064929A1	Jarisch 929
1007	PCT Pub. WO2010/026053A1	Denisart
1008	U.S. Patent Pub. US2012/0269933A1	Rapparini
1009	U.S. Patent Pub. 2008/0105131	Castellani
1010	PCT Pub. WO2005/079638A1	Panesar
1011	U.S. Patent Pub. 2006/0233921	Mock
1012	National Coffee Association	NCA
1013	U.S. Patent Pub. 2002/0078831	Cai
1014	U.S. Patent No. 726,793	Bezzera
1015	U.S. Patent Pub. 2009/0007793	Glucksman
1016	U.S. Patent No. 3,387,553	Tavera
1017	U.S. Patent No. 3,631,793	Bednartz
1018	U.S. Patent No. 4,136,202	Favre
1019	U.S. Patent No. 6,142,063	Beaulieu
1020	U.S. Patent No. 4,389,925	Piana

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1021	U.S. Patent No. 6,655,260	Lazaris
1022	U.S. Patent Pub. 2006/0230941	Ryser
1023	U.S. Patent Pub. 2009/0249961	Cheng
1024	U.S. Patent Pub. 2004/0089158	Mahlich
1025	PCT Pub. WO 2010/034663	Ozanne
1026	ASM Handbook, Volume 14B: Metalworking: Sheet Forming, S.L. Semiatin, editor.	ASM Handbook
1027	https://www.italcoat.com/wp-content/uploads/2023/02/ITC-Coffee-Capusles-1.pdf	Italcoat
1028	EU Patent App. EP2145759A1	Geerts
1029	Penix J.A. (1991) Thermoforming of Plastic Film and Sheet. In: Berins M.L. (eds) SPI Plastics Engineering Handbook of the Society of the Plastics Industry, Inc.	Penix
1030	U.S. Patent No. 3,437,253	Davis
1031	U.S. Patent No. 5,261,558	Claydon
1032	U.S. Patent No. 5,243,164	Erickson
1033	U.S. Patent No. 6,645,537	Sweeney
1034	EU Patent App. EP1849718A1	Rubino
1035	PCT Pub. WO2010/041179A2	Mariller
1036	EU Patent App. EP0455337B1	Bentley
1037	U.S. Patent Pub. 2002/0048621A1	Boyd
1038	U.S. Patent Pub. 2007/0203587A1	Erlandsson

1039	U.S. Patent Pub. 2005/0150391A1	Schifferle
1040	PCT Pub. WO2005/044067A1	Ruchonnet
1041	PCT Pub. WO2010/099806A1	Rossi
1042	US Patent Pub. 2009/0205747	Lillard
1043	U.S. Patent Pub. 2010/0078480A1	Aker
1044	U.S. Patent Pub. 2013/0099597	Perentes
1045	Official English translation of German application No. 102011010534.4	February 2011 Application
1046	Official English translation German application No. 102010031988.0	July 2010 Application
1047	Official English translation German application No. 102010044251.8	September 2010 Application
1048	<i>Nespresso USA, Inc. v. K-fee System GmbH</i> , Case No. 2:22-cv-09295; Dkt. 13.	First Amended Complaint
1049	<i>Nespresso USA, Inc. v. K-fee System GmbH</i> , Case No. 2:22-cv-09295 – Infringement Contentions (August 20, 2023)	Infringement Contentions
1050	Excerpt from Prosecution History of U.S. Appl. No. 13/744,623	'623 Appl.
1051	https://nestle-nespresso.com/our_products/product	Nespresso Vertuo System
1052	<i>K-Fee System GmbH v. Nespresso USA, Inc. et al.</i> , Case No. 2:21-cv-3402; Dkt. 111.	Claim Construction Order
1053	Excerpt from Prosecution History of U.S. Appl. No. 16/438,818	'818 Appl.

1054	<i>K-Fee System GmbH v. Nespresso USA, Inc. et al.</i> , Case No. 2:21-cv-3402; Dkt. 211.	Summary Judgment Order
1055	Food Packaging and Shelf Life: A Practical Guide (2009), Chapter 11 – “Packaging and the Shelf Life of Coffee”	Food Packaging
1056	Illy, Andrea, and Rinantonio Viani, eds. <i>Espresso coffee: the science of quality</i> . Academic Press, 2005.	Espresso Coffee
1057	United States District Courts – National Judicial Caseload Profile (Central District of California), <i>available at</i> https://www.uscourts.gov/sites/default/files/data_tables/fcms_na_distprofile0630.2020.pdf	Central District of California Time to Trial Statistics
1058	Docket Navigator Time to Trial (Judge George H. Wu; Central District of California), <i>available at</i> https://search.docketnavigator.com/patent/binder/0/0?profileType=time_to_trial&profileId=0	Docket Navigator Time to Trial Statistics
1059	<i>Lateral</i> , Concise Oxford English Dictionary (11 th ed. Revised 2008).	Oxford Dictionary
1060	<i>Lateral</i> , Merriam-Webster’s Collegiate Dictionary (11 th ed. 2004).	Merriam-Webster Dictionary
1061	<i>Lateral</i> , Random House Webster’s unabridged dictionary (2d. 2001).	Random House Dictionary
1062	Excerpt from Appl. No. 16/860,441: Jul. 13, 2020 Office Action Rejection	441 Appl. First Rejection
1063	Excerpt from Appl. No. 16/860,441: Oct. 13, 2020 Response to Office Action	441 Appl. Response

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1064	Excerpt from Appl. No. 16/538,752: Nov. 8, 2019 Office Action Rejection	752 Appl. First Rejection
1065	Excerpt from Appl. No. 16/538,752: Jan. 23, 2020 Response to Office Action	752 Appl. First Response
1066	Excerpt from Appl. No. 16/538,752: Jul. 27, 2020 Response to Office Action	752 Appl. Second Response

I. INTRODUCTION

Petitioner requests *inter partes* review and cancellation of claims 1-20 of U.S. Patent 11,542,094 (“the ’094 Patent”) (EX1001) because the claims recite nothing more than well-known coffee system features combined in ways that would have been obvious to a person of ordinary skill in the art (POSITA).

In 2013, K-fee System GmbH (“K-fee”) began filing claims in the U.S. directed to portion capsules with “identifiers” such as gearwheels and machine-readable imprints inside the capsule membrane. EX1050, 29, 173. These claims were rejected by the USPTO, and abandoned by K-fee. *Id.*, 239-250. At that time, K-fee’s applications had nothing to do with Nespresso’s coffee systems. But in 2014, Nespresso launched the Vertuo System. EX1051. Years later, K-fee began filing continuation applications attempting to reverse-engineer patent coverage over Nespresso’s machine and capsule. As a result, K-fee’s new claims are untethered from its original priority filings and unpatentable in view of the prior art, including Nespresso’s own patent publications.

To distract from the fact that its claim limitations are all found in the prior art, K-fee filed Information Disclosure Statements (“IDSs”) with hundreds of prior art references—even those with little relevance. As a result, numerous patents issued that would never have issued had the Examiners utilized the Yoakim reference and its combination with the references cited herein.

K-fee has filed continuation after continuation in an effort to fuel lawsuits against Nespresso. However, the resulting claims repeat the same limitations, and have already received IPR institutions: IPR2022-01574, IPR2023-00502, and IPR2023-00485. In fact, the '094 Patent terminally disclaimed the patent being reviewed in IPR2022-01574, and is highly-similar thereto. Nearly all of the '094 limitations are substantively identical to those in IPR2022-01574, and the remaining limitations are obvious, non-patentable features found in the art.

As shown in this Petition and related petitions on U.S. Patents 11,465,829, 11,465,830, 11,554,910, and 11,548,722, K-fee has continued its gamesmanship of seeking patents on anything it can in an attempt to cover Nespresso's products without being held to the limited disclosures of its priority applications. As with the three currently instituted IPRs, K-fee has not fixed its priority and patentability problems, and these patents should never have issued.

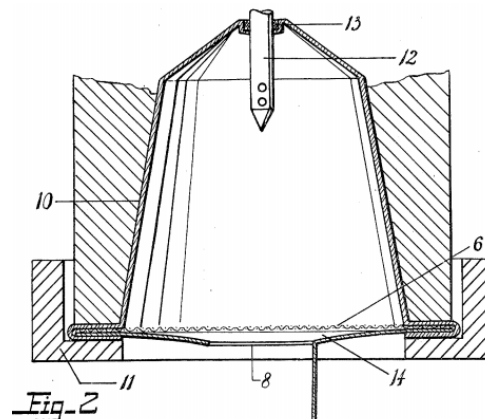
Accordingly, all claims are unpatentable over the prior art as presented in Grounds 1-2.

II. TECHNOLOGY BACKGROUND

Coffee extraction has been known for centuries (EX1003, ¶¶53-54), and single-portion coffee offerings began to emerge in the 1960s. *Id.* ¶¶55-56. Single-serve beverage systems by Keurig, Nespresso, and others were widely available by 2010. *Id.* ¶57. The operation and components of these systems are well-known. *Id.*

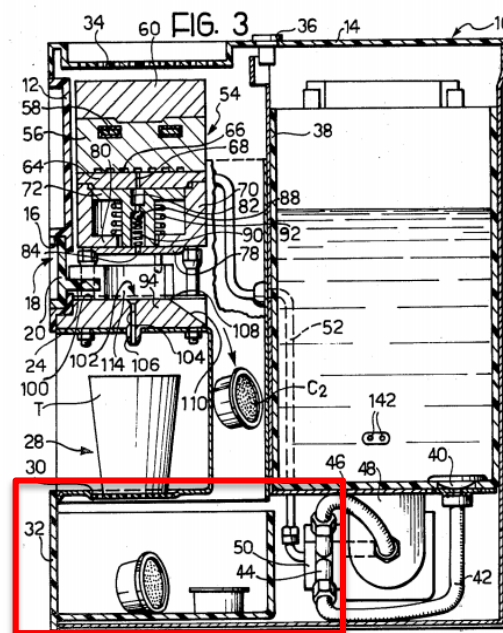
They include a brewing chamber to place the single-serve capsule, and needles to pierce the capsule to allow for water injection using a water pump and heater, which extracts beverage into a cup for drinking. *Id.* ¶¶58-59.

An example from 1979 is shown (right) using an aluminum capsule (10) including a bottom portion that is pierced by a needle (12) to inject high-pressure hot water, which exits through membrane (8) that perforates under pressure. EX1018, 2:17-31, FIG2;



EX1003, ¶60. By 2000, such systems were computer controlled to manipulate sensors, valves, and pumps to optimize the brewing process. EX1019, 2:21-3:11, FIG1, FIG4A; EX1003, ¶¶61-63.

Single-serve capsules must be removed after brewing to allow use of a subsequent capsule. Used-capsule containers, such as the drawer (32) (right), have long been utilized to avoid touching hot, wet capsules after brewing. EX1003, ¶¶64-65; EX1020, 3:4-10, FIG3.



Likewise, machine features, such as that shown in blue (right), have long been known to position capsules (10) and automatically eject into waste containers.

EX1003, ¶¶66-71; EX1009, [0053]-[0054], FIG7;

EX1020, 5:15-31; EX1021, 3:6-8, 24-31, 47-56,

4:39-43; EX1022, [0049]-[0051], FIG8; EX1023,

[0042]-[0047], [0008]-[0015], FIG7.

A. Capsule Components and Manufacturing

Capsule design evolved to allow for different beverage sizes, and to withstand water pressure and temperature, with good barrier properties to protect coffee from moisture and oxygen. EX1003, ¶¶72-74; EX1018, 1:5-12; EX1015, [0014]-[0015].

Aluminum, manufactured by deep-drawing¹, has long been a common capsule material because of its exceptional barrier properties. EX1003, ¶¶75-76; EX1024, [0005]; EX1025, 1:7-23; EX1044, [0044]-[0045].

POSITAs also knew to use barrier layers in coffee packaging to increase

¹ Deep-drawing involves shaping sheets of aluminum with a die. EX1003, ¶¶77-79; EX1026, 323; EX1027; EX1028, [0004]. Thermoforming can be used for plastic. EX1003, ¶¶80-82; EX1029, 383-426.

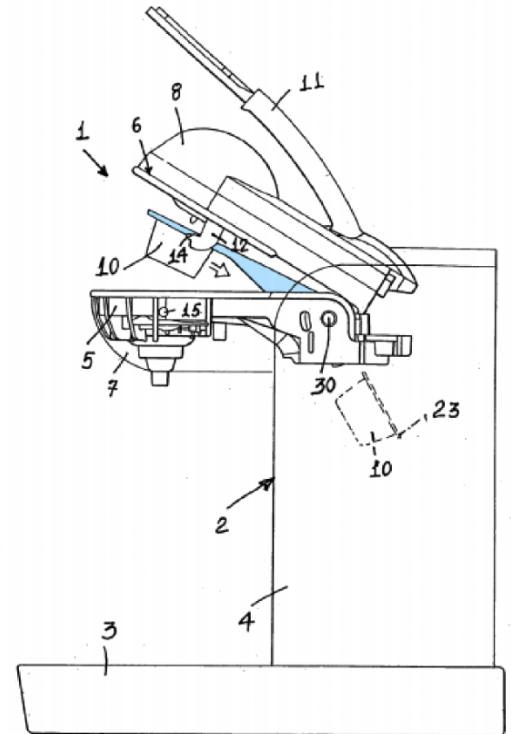
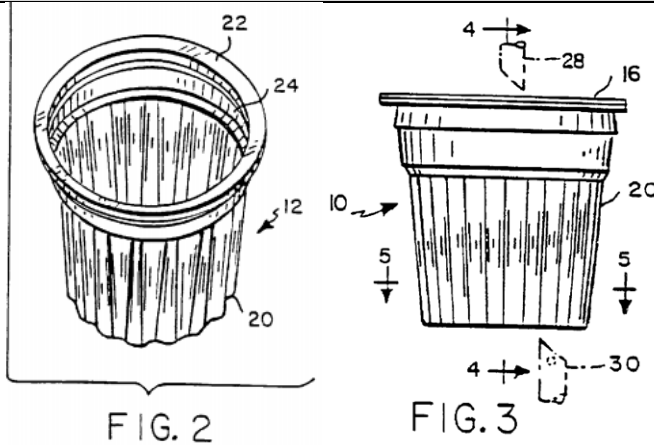
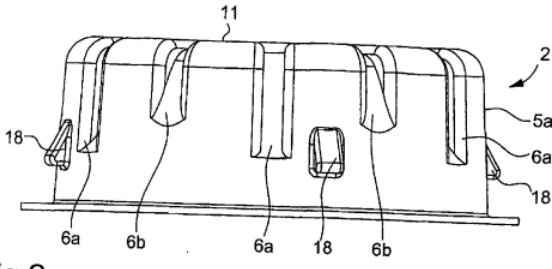
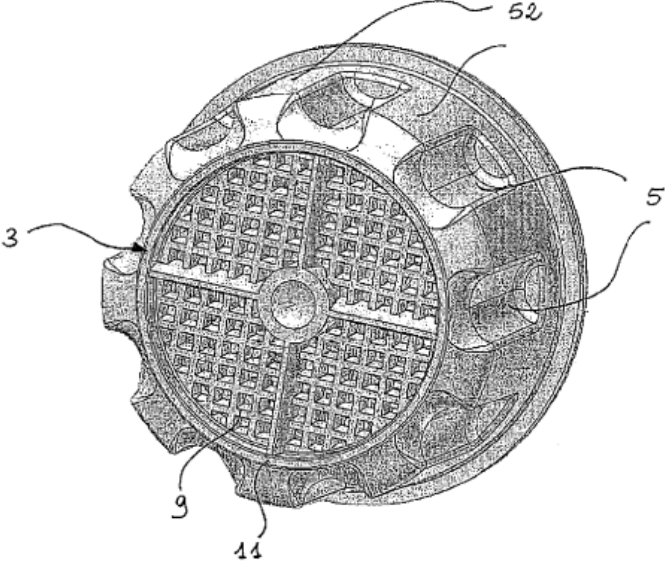


FIG. 7

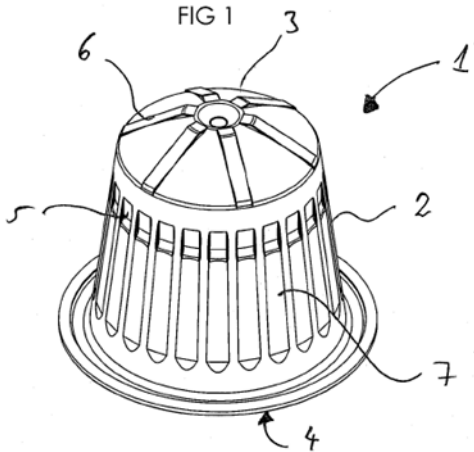
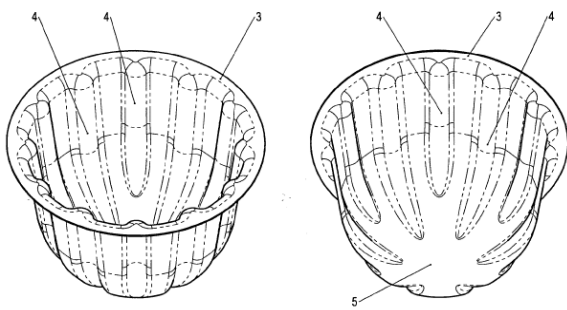
freshness and prevent moisture or aroma from escaping. EX1003, ¶¶83; EX1055, 205; EX1056, 246. To extend shelf life, it was also known to package coffee using inert gasses, such as nitrogen, and to pressurize the contents. EX1003, ¶¶84; EX1056, 248; EX1055, 208; EX1024, [0005]. Internal pressure also can occur if the coffee outgasses CO₂ over time. EX1003, ¶¶85; EX1056, 249-250. It is known that the capsule's foil membrane will bow outwardly when the pressure inside the container is higher than atmospheric pressure. EX1003, ¶¶85-86.

Because single-serve capsules endure physical stresses during brewing and handling, it also became common to use grooves, ribs or other indentations to stiffen the capsule wall. EX1003, ¶¶87-89; EX1030, 1:14-21; EX1031, 1:27-37; EX1032, 5:10-25. In other instances, capsule indentations have been used for purely ornamental purposes. EX1003, ¶¶87. The pervasiveness of such structures is shown below. EX1003, ¶¶90-94.

Date	Capsule	Description
2001	 FIG. 2 FIG. 3	“circumferentially spaced flutes which are strategically positioned to enhance resistance to buckling” EX1033,

Date	Capsule	Description
		2:20-25. ²
2006	 Fig.2	“A first series of ribs 6a plays a part in reinforcing the capsule 2.” EX1011, [0077].
2007	 FIG. 2	Indentations on the capsule wall and cavity. EX1034, [0009].

² All emphasis in this Petition is added.

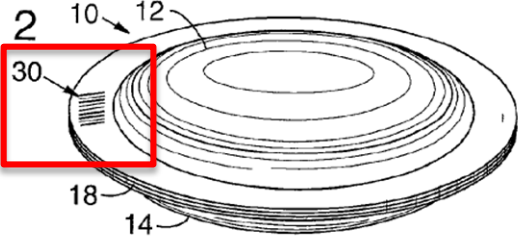
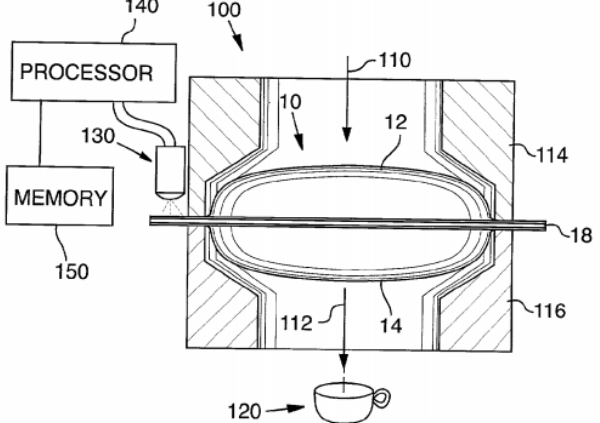
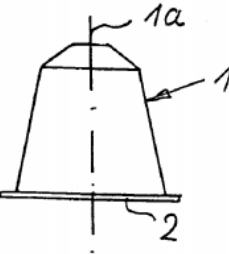
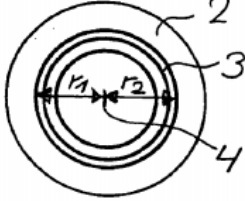
Date	Capsule	Description
2010	 FIG 1	Grooves (7) are “side wall <i>stiffening elements</i>.” EX1035, [0027], [0037].
2010	 FIG. 6 FIG. 6 bis	Capsule body with “longitudinal <i>stiffening ribs</i>” that “allow[] the <i>optimization of the stability</i> of the container.” EX1008, [0009].

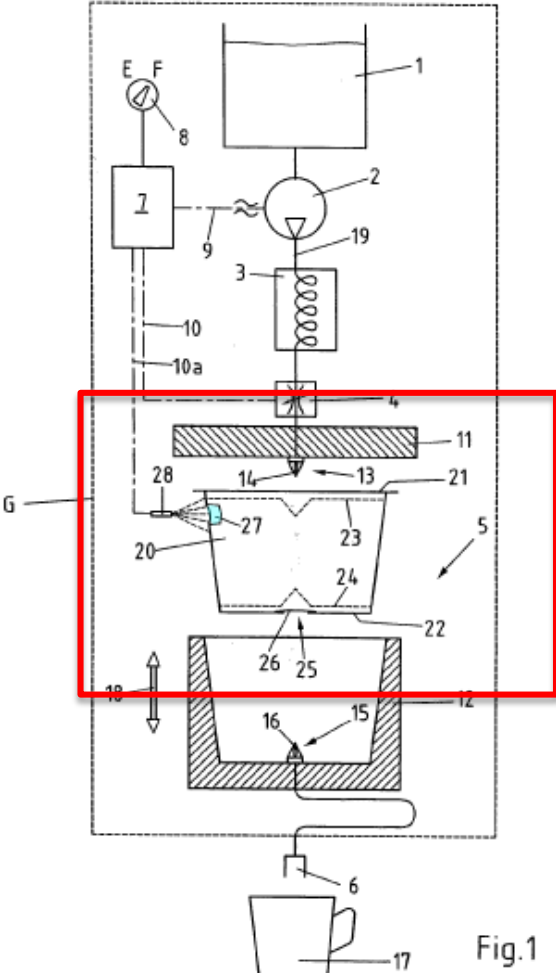
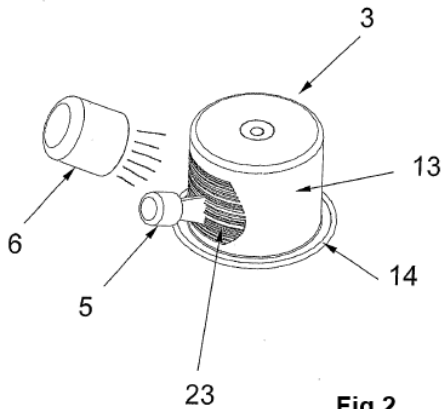
B. Single-Serve Beverage Capsule Identification Systems

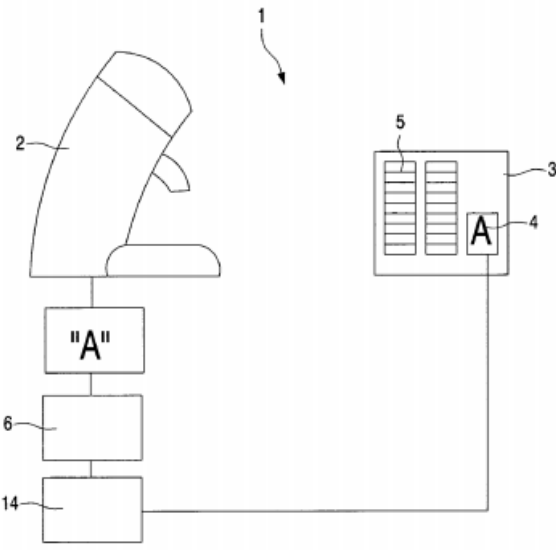
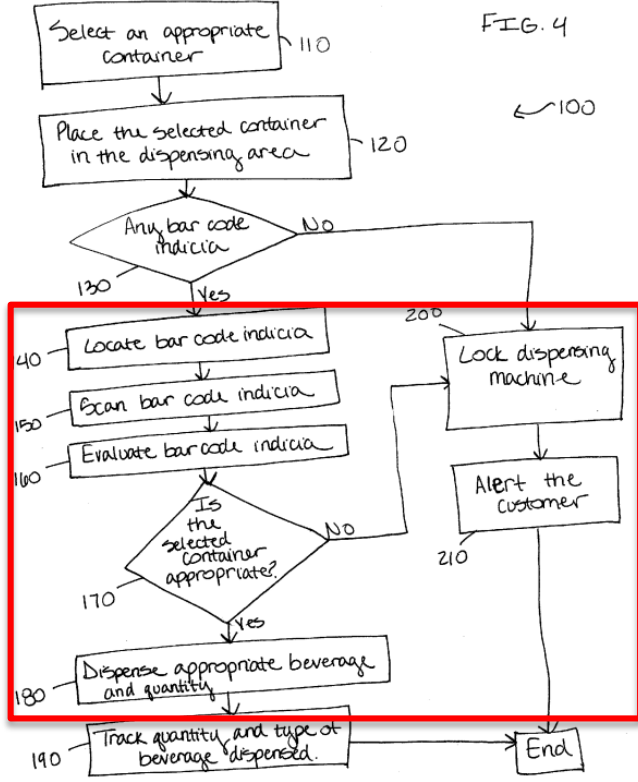
An increase in the number of single-serve capsules and brewing systems led to the development of capsule identification methods used to control the brewing process based on the type of capsule, or otherwise determine whether a particular capsule was suitable or safe for a given machine. EX1003, ¶96; EX1015, [0009], [0014]-[0015]. Since the early 1990s, it was known to use optical readers to read optical codes from the capsule and adjust brewing parameters accordingly. EX1003, ¶¶97-98; EX1036, 4:40-45, 5:1-50, 7:47-8:22. By 2010, using optical codes for

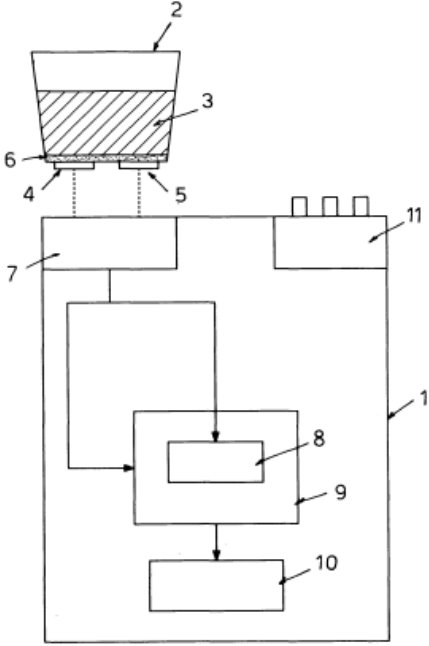
capsule identification and machine control was highly developed, as shown below.

Id. ¶¶99-110.

Date	Capsule/System	Description
2002	FIG. 2  FIG. 3 	Barcode used to identify the capsule, compare with system memory, and determine “the source of the packet <i>so as to prohibit use of counterfeit products</i>, or packets from unauthorized suppliers.” EX1037, [0037]; [0002], [0005]-[0006], [0023]. [0028], [0032]-[0033].
2004	Fig.1  Fig.1a 	Machine identifies capsule based on barcode and blocks operation if it does not match pre-programmed identifier. EX1024, [0014].

Date	Capsule/System	Description
2005		Coffee identification system with barcode positioned on the capsule <i>so the system can control extraction parameters, including the water pump.</i> EX1039, [0019].
2005		System reads capsule barcode to “determine the origin of the containers used,” “encrypt/decrypt, analyze, compare, approve/reject and store information read on [the capsule]” and “<i>selectively start or not start a cycle of operations.</i>” EX1040, 2:3-19.

Date	Capsule/System	Description
2007	 Fig.1	System stores pre-programmed brewing parameters that are selected based on a capsule barcode. EX1038, [0005]-[0006], [0011]-[0012], [0025]-[0028].
2009	 FIG. 4	System checks coffee barcode and either locks machine or brews beverage based on barcode result. EX1042, [0054]-[0055].

Date	Capsule/System	Description
2010	 FIG. 1	System reads barcodes on the capsule and “compares the signal from the recognising means for the [barcodes] with pre-stored data in order to allow the machine to <i>proceed to activation only if it recognizes the [barcodes].</i>” EX1041, 9.

POSITAs also understood how to position optical identifiers on capsules to ensure proper alignment with the reader and avoid obstruction of the code during reading. *Id.* ¶¶111-112.

POSITAs knew that repeating an optical identifier around the perimeter of the rim could increase the chances that the reader would successfully read the code. In 2002, Boyd disclosed using an identifier that “***may span its entire perimeter in . . . repetitive fashion.***” EX1003, ¶114; EX1037, [0029]. In 2008, Aker disclosed a capsule identifier “repetitively positioned” on the perimeter of the rim (below). EX1003, ¶113; EX1043, [0017], [0006].

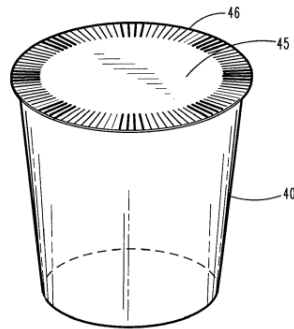


FIG. 2A

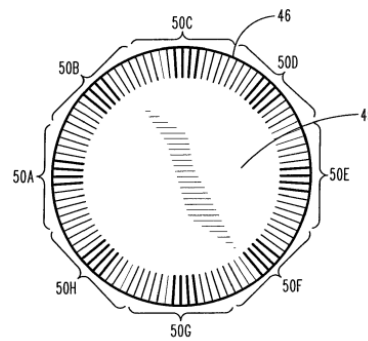


FIG. 2B

Aker identified the benefit to repetition because an optical reader “can read the information coded . . . even if the orientation of the product body is not fixed.” EX1043, [0022]. Jarisch 929 also disclosed repeating an optical code on the bottom of the capsule flange, “in order to ensure reliable reading” because “the same sequence can be detected or read more than one time” during capsule rotation. EX1003; ¶115; EX1006, [0068].

POSITAs further understood that positioning an optical identifier away from the liquid inlet and outlet would increase readability of the code by shielding it from liquid and loose coffee grinds. EX1003; ¶116. For example, Panesar disclosed the benefits of positioning the barcode away from the liquid injection areas to avoid soiling or tearing the barcode. EX1003, ¶117; EX1010, 2:29-3:12, 19:22-20:13.

It was also known that positioning the code on the underside of the rim provided the advantage of increasing the readability of the code in the system. For example, Jarisch and Jarisch 929 disclosed a capsule with an optical code located on the underside of the flange—away from the membrane and injection site—to avoid

soiling during the extraction process and thus improve the reliability of code reading.

EX1003, ¶¶118-120; EX1005, [0014], [0022]; EX1006, [0017]-[0018].

Thus, repeating an optical identifier around the bottom perimeter of the capsule flange was known at the time of the alleged invention. EX1003, ¶121.

III. '094 PATENT

A. Overview

The '094 Patent is related to, and possesses highly-similar disclosure as, the '491 Patent.³ IPR2022-01574, Paper 12, 3-5 (Apr. 14, 2023). Both disclose a single-serve beverage system that can identify capsules to determine whether the capsule is suitable for use with the machine. EX1001, 1:6-8; 3:23-30; EX1003, ¶¶122-123. The '094 Patent notes a problem that certain capsules may end up being used in a different manufacturer's brewing system, even though the capsule is not designed for that system. EX1003, ¶123; EX1001, 1:17-22. The disclosed solution is creating a capsule that is only suitable for a specific coffee machine by providing an "identifier" on the capsule that allows a brewing system to identify whether or not a capsule is suitable for use with the machine. EX1003, ¶¶123-124; EX 1001, 1:23-35, 1:61-66.

The capsule comprises a base element with a cavity that contains raw beverage material, *e.g.*, ground coffee, and a lid that seals the material. EX1001, 1:12-17,

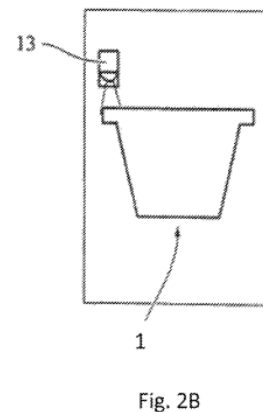
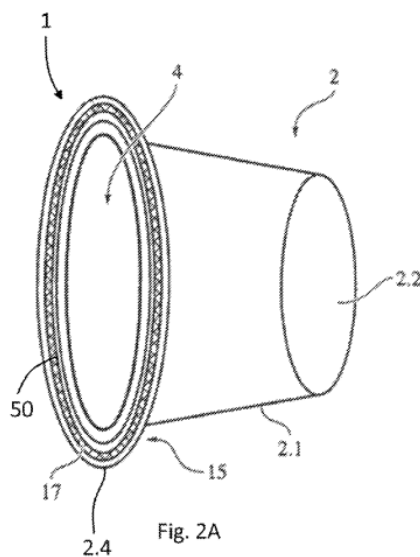
³ The '094 Patent terminally disclaims the '491 Patent. EX1002, 378-379.

abstract; EX1003, ¶122. Grooves on the capsule body reinforce the capsule wall.

EX1001, 4:32-35, 12:12-15; EX1003, ¶127.

The specification describes sensors/detectors to (i) recognize an “identifier” (*e.g.*, a barcode, recesses and bulges, electrically conductive sections, etc.), and (ii) impact whether and how the machine operates. EX1001, 2:9-14, 2:28-33, 2:48-51, 3:3-14, 3:23-30, 8:47-49, 8:61-65, 9:21-25; EX1003, ¶¶124-125.

FIG2 discloses a capsule with a barcode (50) placed on the top surface of the capsule flange (17). Although it states that “the barcode 50 alternatively can be attached to the base element’s edge region being averted from the membrane,” it does not provide reason to do so, especially in view of the location of detection (13) in FIG2B. EX1001, 8:54-56; EX1003, ¶126.



No embodiments disclose an identifier including a “repeat pattern,” particularly one located on the bottom of the flange.

B. Prosecution History

U.S. Patent Application No. 17/547,363 (the “’363 application”) was filed on December 10, 2021. It claims priority to numerous continuations and divisionals,

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and to PCT/EP2011/003677, filed on July 22, 2011, which improperly claims priority to three foreign applications (Section VII.E). EX1001; EX1003, ¶¶129-130. The '363 application was originally filed with nine claims directed to a single-serve capsule for making a beverage using a barcode provided on the peripheral region of the basic element which is directed away from the membrane. EX1002, 23; EX1003, ¶131. The Applicant canceled claims 1-9 and added new claims 10-29, which removed the barcode limitations and instead claimed “an optically detectable repeat pattern, provided on the bottom side of the flange,” “a groove that is laterally offset from the chamfered mandrel,” and “a seal that is at least partially seated in the groove and configured to bear against a top side of the cover in a region between the peripheral edge of the cover and the region of the cover that is pierced by the chamfered mandrel.” EX1002, 41-47; EX1003, ¶131. These limitations are highly-similar to the '491 claims, which was filed just months before. IPR2022-01574, Paper 12, 5-6.

In the first/only Office Action, the Examiner ***did not reject any claims based on any prior art***. EX1002, 249-257; EX1003, ¶¶133-135. The Examiner provided Reasons for Allowance. EX1002, 255-256; EX1003, ¶¶134-135.

In response, and in conjunction with an Examiner interview (EX1002, 375), Applicant made minor claim amendments to address §112(b), acknowledged the Examiner's express grant of priority during the interview, and filed a terminal

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disclaimer over the '491 Patent. EX1002, 378-379, 386-399; EX1003, ¶¶136-137.

The Examiner issued a Notice of Allowance, and expressly stated that the priority rejection is removed. EX1002, 406-409.

Applicant then made minor claim amendments (EX1002, 540-548) and filed additional IDSs, including the '491 IPR along with a self-serving explanation (*id.*, 585-589). The Examiner issued a Corrected Notice of Allowance, but did not provide any additional reasons. *Id.*, 594; EX1003, ¶¶139-140. ***Critically, the Examiner never received the April 14, 2023 Institution Decision of the '491 Patent IPR discrediting K-fee's priority arguments and crediting the references combined in this Petition.***

IV. POSITA

A POSITA, for purposes of this Petition only: a bachelor's degree in engineering plus five years of experience in design of mechanical beverage systems, or similar products, and experience with sensors for recognizing an identifier. EX1003, ¶40. IPR2022-01574, Paper 12, 15.

V. CLAIM CONSTRUCTION

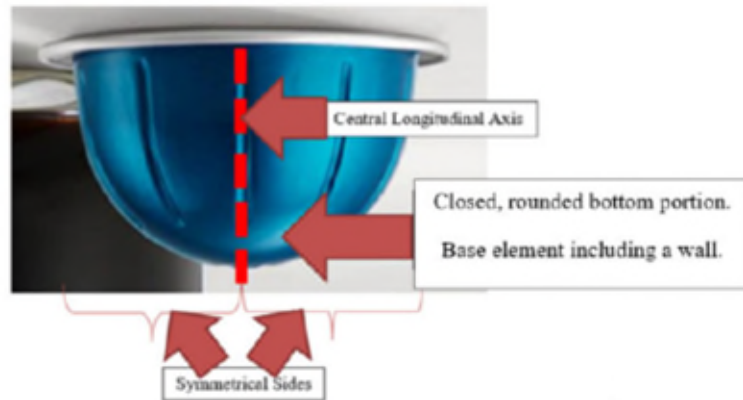
Petitioner herein applies, for purposes of this Petition, the apparent interpretations that K-fee offered in its infringement contentions (EX1049). *Dish Network L.L.C. v. TQ Delta LLC*, IPR2016-01470, Paper 14, 6-7 (Feb. 9, 2017), Paper 1, 11 (July 20, 2016) (accepting Patent Owner's district court construction in

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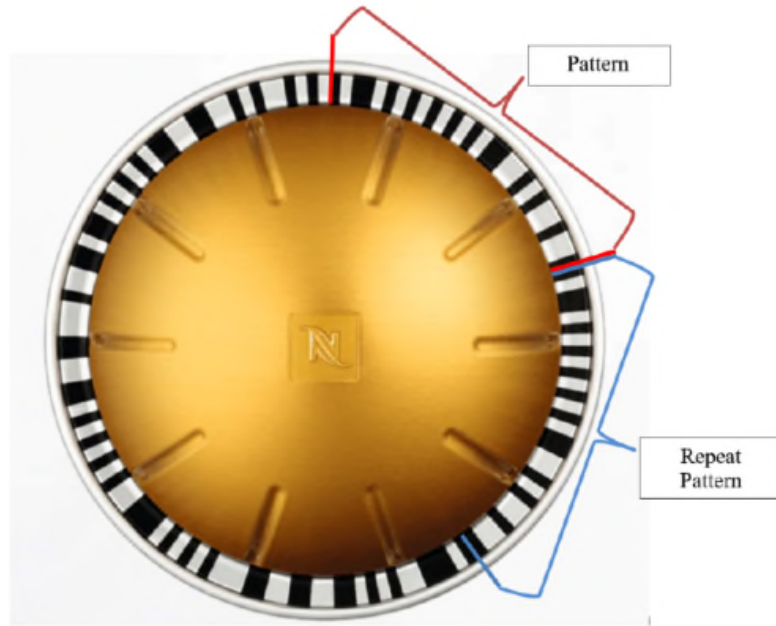
IPR without Petitioner acquiescing in that construction).

For example, K-fee asserts that the below product in the shape of a continuous dome is a single-serve capsule that includes a “closed, rounded bottom portion” and whose base element is symmetrical about a central longitudinal axis:



EX1049, 221-222.

For “an individualization identifier, which includes an optically detectable repeat pattern, provided on the bottom side of the flange,” K-fee asserts that the following optical code meets this:



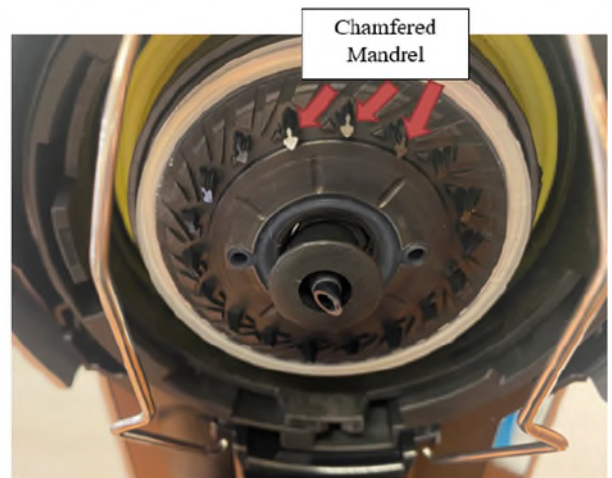
Another example of the identifier having a repeat pattern is shown below. The identifier is repeated five times around the circumference of the capsule, as annotated in green. In this example, the repeated portions of the identifier are spaced at equal intervals from the next closest repeated portion of the identifier.

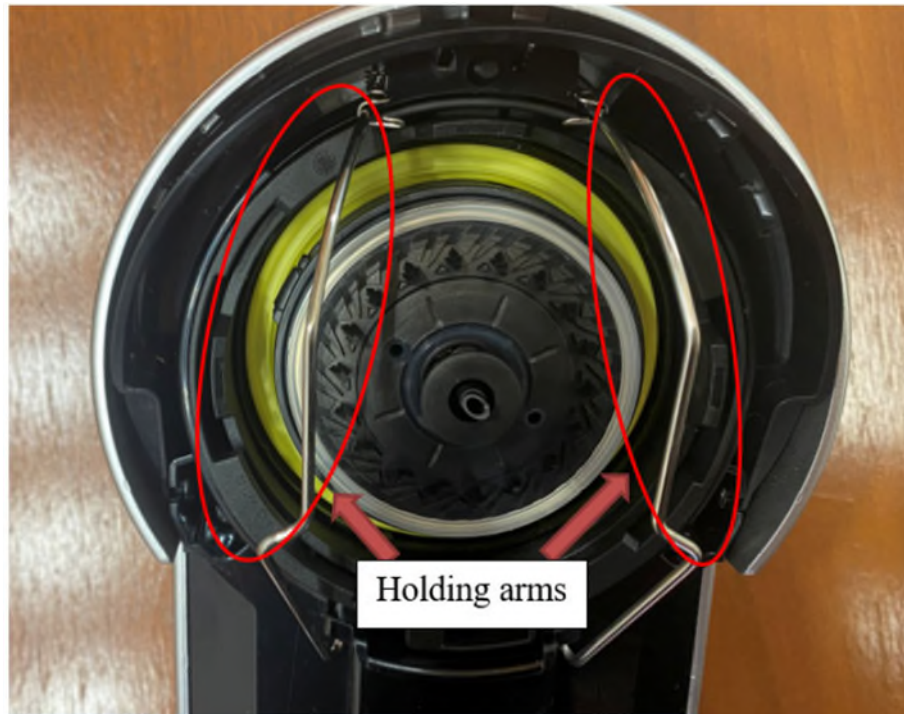
EX1049, 228-230.

For “a chamfered mandrel,” K-fee asserts that it includes a brewing system with needles that pierce the outer perimeter of the capsule to allow liquid to exit the capsule.

EX1049, 242-243.

For “holding arms for guiding the single-serve capsule,” K-fee asserts that the limitation can be met by the following:

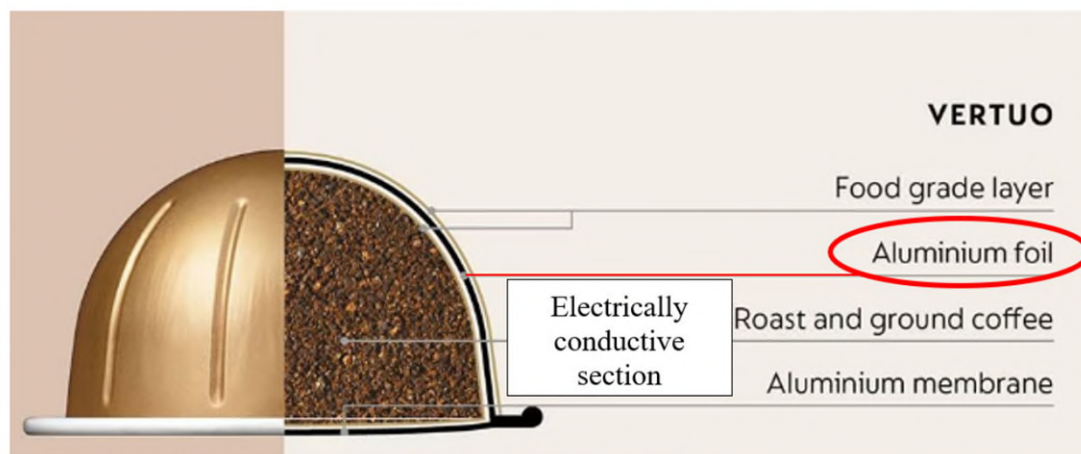




EX1049, 265-266.

For “the base element has an exterior wall region with an electrically conductive section,” K-fee asserts that the following meets the limitation:

The below annotated image illustrates the Accused Product’s infringement of this limitation.



See, e.g., <https://www.sustainability.nespresso.com/why-aluminium>

EX1049, 325-326.

In district court, Nespresso proposed that “individualization” be construed as “to determine whether the portion capsule is suitable for use with the beverage machine such that the use of unsuitable capsules is prevented,” and K-fee proposed “plain and ordinary meaning.” As explained below, the prior art discloses and/or renders obvious this limitation under either construction.

Petitioner submits that, for this proceeding, no claim terms require formal construction. EX1003, ¶¶148-151. Prior claim construction of related patents does not impact claim construction here. EX1052.

VI. GROUNDS

Ground	Claims	Statutory Basis
1	1-3, 6-14, 18-20	35 U.S.C. §103 over US2010/0239734 (Yoakim) in view of US2013/0064929 (Jarisch 929) in view of WO2010/099806 (Rossi).
2	4-5, 15-17	35 U.S.C. §103 over US2010/0239734 (Yoakim) in view of US2013/0064929 (Jarisch 929) in view of WO2010/099806 (Rossi) in further view of US2008/0105131 (Castellani).

VII. PRIOR ART

A. Yoakim

Yoakim (filed May 7, 2010) is prior art at least under pre-AIA 35 U.S.C. §102(e). EX1003, ¶181. Yoakim discloses a centrifugal beverage system with a single-serve capsule, brewing device, and method for preparing a liquid beverage, *e.g.*, coffee. EX1004, [0014]; EX1003, ¶182. The brewing device includes a water heater, pump, barcode reader, and control unit. EX1004, [0180], [0182]; EX1003,

¶¶182-183. Yoakim's capsule has a flange that is sealed with a membrane lid, and includes a barrier layer that prevents moisture or aroma from escaping the capsule. EX1004, [0014], [0121], [0128]-[0129], [0197], [0414]; EX1003, ¶184. The device pierces the membrane with needles, allowing for capsule rotation, injection of water, and a path for coffee to exit the capsule. EX1004, [0186]; EX1003, ¶183.

The object is to improve control of brewing parameters to provide a high-quality, customized beverage. EX1004, [0010]-[0011]; EX1003, ¶185. Yoakim achieved this through a capsule recognition system that uses an identifier to automatically adjust various brewing parameters, including rotational speed and liquid volume. EX1004, [0192], [0477], [0522]; EX1003, ¶185. The brewing parameters are recognized through association with an identifier, which can include an optical code such as a barcode, and is identified by an optical reader. EX1004, [0496], [0525], FIG61-62; EX1003, ¶185.

B. Jarisch 929

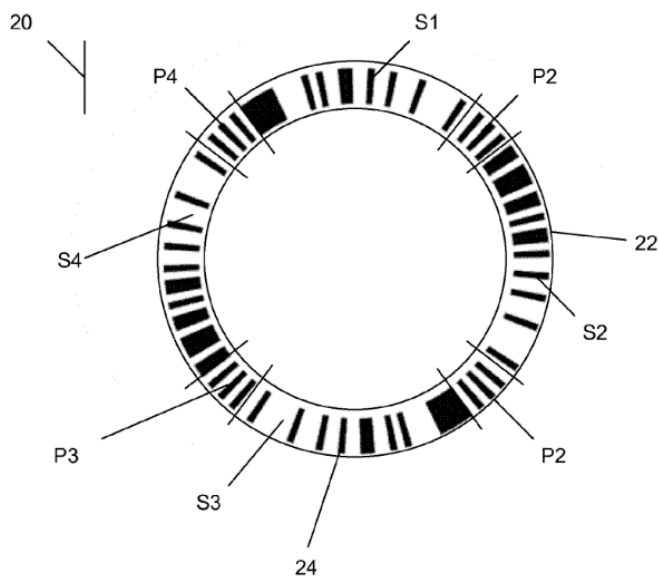
Jarisch 929 (filed May 12, 2011) is prior art under at least pre-AIA 35 U.S.C. §102(e) to Patent Owner's PCT filing date, which is the earliest date the '094 claims are possibly entitled to (Section VII.E). EX1003, ¶186. Jarisch 929 discloses an improved way to position an optical code on a capsule, in order to improve readability and retrieval of information about the capsule. EX1006, [0001], [0011]-[0012], [0017]-[0019]; EX1003, ¶187. Jarisch 929 further discloses using

identification of the optical code to recognize the **type** of capsule. *Id.*, [0022]-[0023]; EX1003, ¶187.

Jarisch 929 discloses that its capsule identification may be used by a centrifugal brewing system, such as Denisart (EX1007), which includes many similar features to Yoakim, including a capsule holder, liquid supply, water heater and pump, and computer processor with a control unit. EX1006, [0047]-[0048]; EX1003, ¶187. Like Yoakim, Denisart discloses a system controlled based on reading the capsule's code. EX1007, 2:19-22; EX1003, ¶187.

Jarisch 929 discloses positioning the optical code on the bottom of the capsule flange in order to provide a location that is “particularly advantageous since they offer both a large area for the symbols to be disposed and is less prone to damages caused by the processing module and in particular by the pyramidal plate, and to ingredients projections,” thus improving “the amount of coded information and the reliability of the readings.” EX1006, [0017]-[0019], [0011], [0014], [0069], [0090]; EX1003, ¶188.

Jarisch 929 further discloses advantages to repeating the optical code around the circumference of the bottom of the flange. *Id.*, [0068];



C. Rossi

Rossi (filed March 6, 2009) is prior art under at least pre-AIA 35 U.S.C. §102(e). Rossi is directed to an edible-product making machine that uses single-use load elements (or capsules) containing water-soluble substances such as coffee. EX1041, 3; EX1003, ¶191. The capsule is placed inside the machine, pierced to allow water to enter, and the contents are brewed to create the beverage. *Id.* The parameters surrounding such brewing process, such as the amount of water, temperature, pressure, and time required, vary based on the desired product. *Id.*, 3-4; EX1003, ¶191.

Rossi explains that the user must know the details of the capsule in order to produce a beverage of desired quality, and prevent “potentially selecting the wrong operating conditions for the desired quality of product, or even producing the wrong product.” EX1041, 4; EX1003, ¶192. Rossi acknowledges that “[u]se of an incorrect load element may cause the machine to malfunction and can prejudice the safety and integrity of the machine and [] may harm the user.” EX1041, 5.

Rossi proposes to solve this problem by “providing a safe and simple system and process” for ensuring the capsule used is suitable. *Id.*, 5; EX1003, ¶193. Rossi discloses a multi-step process that includes (i) recognizing a code on the capsule, and (ii) validating the capsule. EX1041, 11-12. This is typically accomplished

through barcodes or other optical codes on the capsule. *Id.*, 11. The machine will not begin the brewing process unless the capsule identifier is both recognized and validated. *Id.*, 8; EX1003, ¶193.

D. Castellani

Castellani (published May 8, 2008) is prior art under pre-AIA 35 U.S.C. §102(b). Castellani is directed to a delivery head used in a single-serve coffee

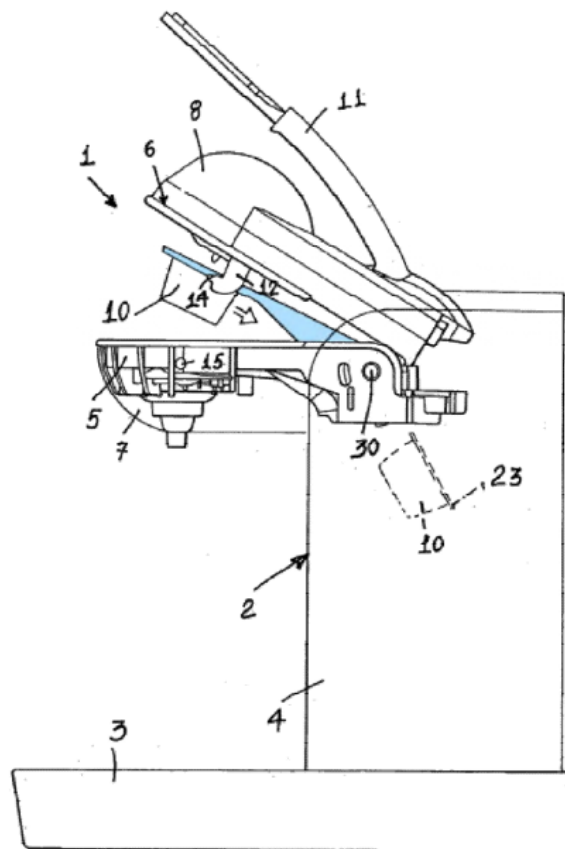


FIG. 7

machine. EX1009, [0001]-[002]; EX1003, ¶194. Castellani improves upon existing systems by including ejecting fork elements (blue) to accurately and safely lift and

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remove used portion capsules into a dropping box. EX1009, [0010], [0054]; EX1003, ¶194.

E. Patent Owner’s Foreign Priority Documents Do Not Support the Claims

The earliest possible priority date for the ’094 Patent is the date of its PCT application filed on July 22, 2011—not its foreign applications.⁴ EX1003, ¶¶152-154. Although the ’094 Patent claims priority to three provisionals, only DE 102010044251.8, filed September 2, 2010 (“the September Application”) requires discussion, as other priority filings lack significant disclosure for many ’094 claim limitations.⁵ K-fee cannot demonstrate that the ’094 Patent has priority to any earlier-filed applications for claims 1-20 because all claims require:

⁴ Petitioner does not concede that the July 22, 2011 PCT or any later continuations provide written description support for the claims, and reserves all rights to challenge such support.

⁵ Neither of the February 2011 Application (EX1045) nor July 2010 Application (EX1046) disclose, *inter alia*, an individualization identifier, which includes an optically detectable repeat pattern located on the bottom side of the capsule flange, holding arms, waste container, a cover bowed outwardly, a barrier layer, a groove and seal configuration, or directing a beam through a wall structure to read an identifier on the bottom side of the capsule flange. EX1003, ¶¶155-156.

(i) “an individualization identifier, which includes an optically detectable repeat pattern, provided on the bottom side of the flange,”

(ii) a “cover [that] is bowed outwardly,” and

(iii) “direct[ing] a beam through a portion of the wall structure to read the individualization identifier on the single-serve capsule,” which are features not found in any foreign priority document. EX1003, ¶154. Claims 6-20 additionally lack priority because the September Application fails to disclose “a plurality of indentations arranged about the central longitudinal axis” of the capsule exterior wall. EX1003, ¶157. Claims 8-9, 14, and 19 further lack priority because no application discloses an individualization identifier located both on the bottom of the flange and on the capsule side wall.

1. No “individualization identifier, which includes an optically detectable repeat pattern, provided on the bottom side of the flange”

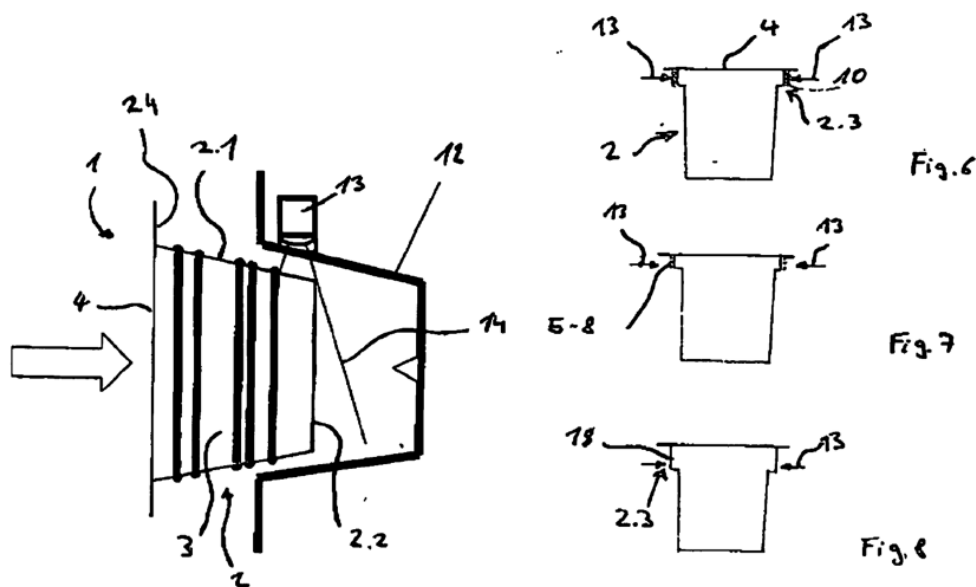
Other than a passing reference to a “repeat pattern,” the September Application never discloses any embodiment utilizing an identifier including an optically detectable repeat pattern, let alone one on the bottom side of the flange. EX1047, 33:6-7; EX1003, ¶158. It never discloses repeating a barcode, and refers to a “repeat pattern” as distinct from a “barcode.” EX1047, 33:6-7 (“The print is preferably a barcode, a logo, *or* a repeat pattern.”); EX1003, ¶158.

FIGS16-18 also do not disclose this limitation. IPR2022-01574, Paper 12,

24-25. Element 2.4.2 of FIGS16-18 is a “toothed ring,” which is not an optically detectable repeat pattern. EX1047, 33:1-7; EX1003, ¶160. Element 2.4.2 is also located on the *outer circumference* of the capsule flange, *not the bottom surface*. EX1047, 41:17-27, 35:9-11; EX1003, ¶159.

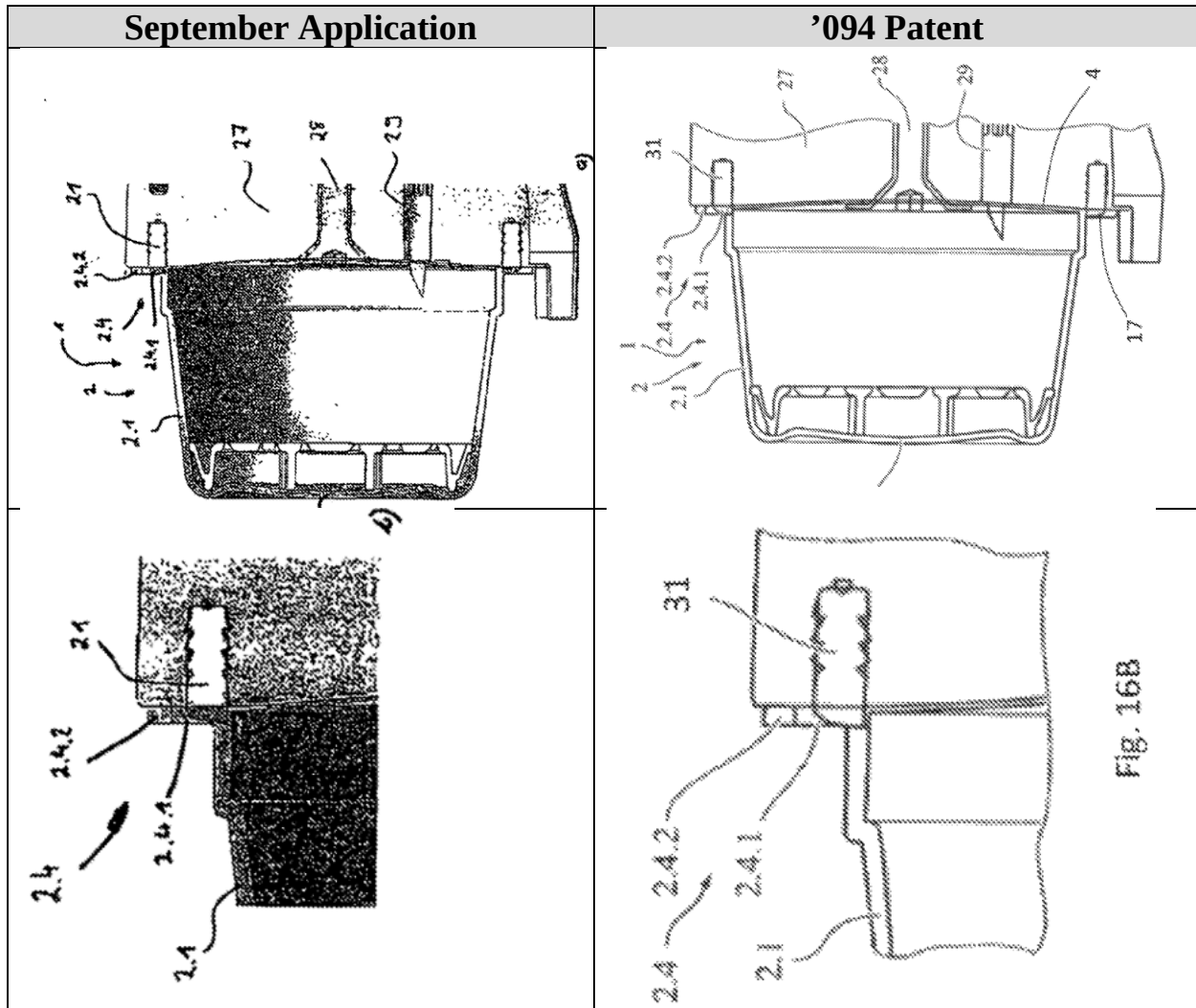
2. No cover “bowed outwardly in a central region”

A POSITA would understand that the Figures in the September Application, taken as a whole, disclose a capsule with a flat cover. EX1003, ¶161. For example, FIG1 and FIGS6-8 are shown below:



A POSITA further would not consider FIG16 to disclose a bowed cover in the context of the September Application, which depicts only flat covered capsules. Consistent with this, FIG16 depicts to a POSITA, at best, the depth and inner circumference of the capsule body and rim. EX1003, ¶¶162-163. FIG16 also shows the machine’s brewing head (27) and water inlet (28) flush with the flat capsule

membrane, and *below* the curved region, thus demonstrating it is not the cover of the capsule. *Id.*



3. No “optical sensor/detector positioned outside of the base portion of the wall structure of the capsule receptacle and below the annular portion, which directs a beam through a portion of the wall structure to read the individualization identifier on the single-serve capsule [on the bottom side of the flange]”

The September Application also fails to disclose this limitation. For example, FIG1 only discloses that “convexities 8, . . . are guided past a detection means”

EX1047, 37:30-35. It does not disclose directing a beam through a portion of a wall structure that would read an identifier located on the bottom of the flange, let alone read an optically detectable repeat pattern. EX1003, ¶164. Regarding FIG2, EX1047 discloses that “[t]his barcode is read by a detector 13, for example in an insertion shaft.” *Id.* 38:25-27. For FIG3, the “concavities or convexities, . . . , interact with detection means 13 which function in the manner of a key” *Id.*, 38:34-39:1. EX1047 also only discloses detection in the insertion shaft for FIGs. 8, 9 and similarly for FIG18, only 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, which senses the shape of the means 2.4.2.” *Id.* 39-40, 43:11-14. Nowhere does EX1047 ever disclose an optical sensor/detector positioned outside of the base portion of the wall structure of the capsule receptacle and below the annular portion, which directs a beam through a portion of the wall structure to read an optically detectable repeat pattern, provided on the bottom side of the flange. EX1003, ¶164.

4. No “exterior wall that includes a plurality of indentations arranged about the central longitudinal axis”

The September Application also fails to disclose this limitation required in claims 6-20. EX1047 never uses the word “indentation” anywhere, and never describes or depicts indentations arranged on the capsule wall *about a central longitudinal axis*. EX1003, ¶165. To the extent K-fee argues that any other priority application discloses this feature, “an applicant cannot combine multiple prior

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applications to obtain an earlier filing date for an individual claim.”

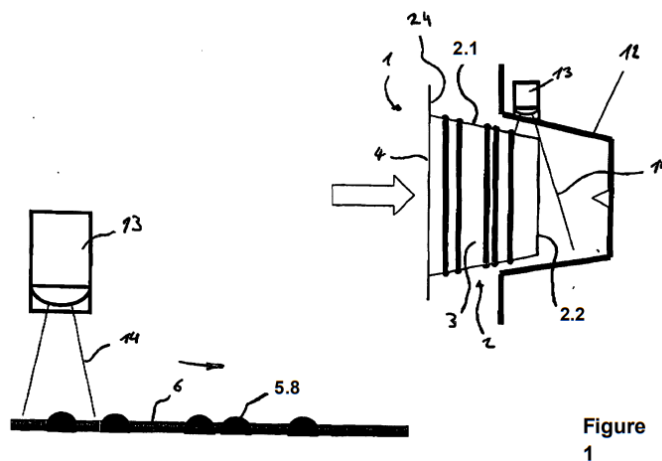
Studiengesellschaft Kohle M.B.H v. Shell Oil Co., 112 F.3d 1561, 1562 (Fed. Cir. 1997). IPR2023-00502, Paper 13, 11 (PTAB Sept. 13, 2023).

5. No Disclosure of the Claimed Invention

Moreover, the September Application fails to disclose the invention as claimed in the '094 Patent. *Hyatt v. Dudas*, 492 F.3d 1365, 1371 (Fed. Cir. 2007) (“[I]t is not enough that applicant show where each claimed element resides in the earliest filed application but [he] must also provide support for the *linkage of the claimed elements* creating the embodiment”). “The written description requirement is not met when, as here, the specification provides at best disparate disclosures that an artisan might have been able to combine in order to make the claimed invention.” *Flash-Control LLC v. Intel Corp.*, 2021 WL 2944592, *4 (Fed. Cir. 2021).

The September Application discloses several distinct embodiments of an identifier, yet fails to disclose the '094 claimed invention. EX1003, ¶166. For example, FIG1 discloses a capsule with an identifier made of several raised areas 8, with which it can be determined if the capsule is suitable for use with the machine. EX1047, 37:27-30, 8:14-19. However, this embodiment (below), does not disclose at least the claimed holding arms, drop box, an identifier which includes a repeat pattern located on the bottom side of the flange, a cover bowed outwardly in a central region of the cover relative to a peripheral region of the cover, a plurality of

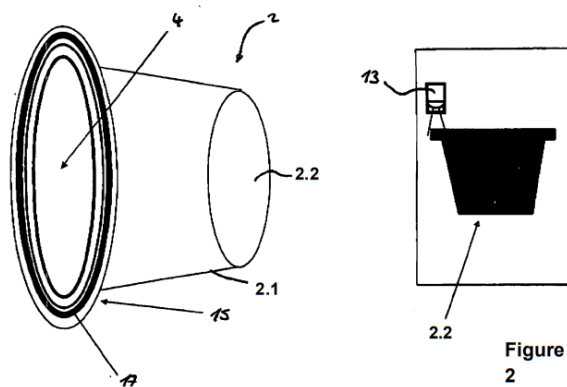
indentations arranged about the central longitudinal axis, or the claimed groove and seal configuration. EX1003, ¶167. It also does not depict directing a beam through a portion of the wall structure to read an optically detectable repeat pattern provided *on the bottom side of the flange. Id.*



The text describing FIG1 further explains how the identifier would be used to influence the machine's operation, and states this “applies to all other examples,” but does not indicate to a POSITA that multiple distinct identifier embodiments would be combined with one another (let alone in any specific combinations). EX1047, 37:38-38:10; EX1003, ¶168.

FIG2 discloses an alternative embodiment of a capsule with a *barcode* that is read from above, or alternatively, “on that side of the peripheral region of the basic element which is directed away from the membrane.” EX1047, 38:11-27. However,

this embodiment also fails to disclose the limitations identified above.⁶ EX1003, ¶169.



FIGS16-17 and the text describe another distinct embodiment of a capsule that is designed with a “toothed ring” around the “outer region” of the flange. EX1047, 41:17-31; 35:9-11, FIG18 (flange’s outer edge interacts with pinion 24); EX1003, ¶¶171-172. In only this embodiment, the specification explains “[p]referably a sealing surface 2.4.1 is provided in the peripheral region 2.4, on the inside in respect of this toothed ring, and interacts with sealing action with a seal 21.” EX1047, 41:27-31. The specification further explains that if this feature was not present “the retaining arms could not retain the capsule and the capsule, rather than being

⁶ The same is true for FIGS3-15, which disclose additional distinct embodiments lacking the same limitations identified above. EX1047, 38:29-41:11; EX1003, ¶170.

introduced into the brewing chamber, would drop through into a waste container.”

EX1047, 42:8-14; EX1003, ¶¶171-172. The “toothed ring” element 2.4.2 is a “form-fitting and/or friction-fitting means and/or a detection means 2.4.2.” EX1047, 41:23-27. It is not a generic identifier (or a repeat pattern), nor is it located on the bottom side of the flange. EX1003, ¶173. There is also no language that ties the disclosure referencing FIG16-17 to any other Figure or embodiment, EX1047’s specification uses different numbers to indicate different identifiers (p. 44), and EX1047 never explains how a barcode, repeat pattern, or optical identifier could replace means 2.4.2 and still retain the capsule within the device or allow the capsule to enter the insertion shaft. EX1003, ¶174; IPR2023-00485, Paper 9, 13 (PTAB Sept. 13, 2023).

Accordingly, the specification lacks any disclosure linking together the disparate features across these embodiments, particularly (i) an individualization identifier including an optically detectable repeat pattern, (ii) such optically detectable repeat pattern located on the bottom of the flange (and for claims 8-9, 14, and 19 on the capsule wall), (iii) an optical sensor/detector directing a beam through the wall structure of the capsule receptacle to read such individualization identifier on the bottom of the flange; (iv) holding arms, (v) the groove and seal configurations associated with the toothed ring embodiment, as well as (vi) a cover bowed outwardly, (vii) a capsule including indentations arranged about the central

longitudinal axis (which are described as yet another identifier). EX1003, ¶175.

Accordingly, “[t]aking each claim—as we must—as an integrated whole rather than as a collection of independent limitations, one searches the [September Application] in vain for the disclosure of even a single species that falls within the claims or for any ‘blaze marks’ that would lead an ordinarily skilled investigator toward such a species among a slew of competing possibilities.” *Novozymes A/S v. DuPont Nutrition Biosciences APS*, 723 F.3d 1336, 1349 (Fed. Cir. 2013).

To be sure, the boilerplate statements in the September Application do not demonstrate to a POSITA that the Applicant had possession of the ’094 claimed invention, as it fails to link any of the claimed features together. EX1003, ¶176. *D Three Enterprises, LLC v. SunModo Corp.*, 890 F.3d 1042, 1051 (Fed. Cir. 2018).

Nor do the multiple-dependent claims at the end of September Application provide written description support, or provide any “blaze marks” such that a POSITA would arrive at the ’094 claims. First, these claims are only directed to a portion capsule, and fail to disclose any details of the claimed brewing system. EX1003, ¶177. Second, these claims fail to disclose any identifier comprising an optically detectable repeat pattern, let alone one on the bottom of the flange. *Id.* Third, the Federal Circuit rejects such attempts at using multiple-dependent claims to satisfy the written description requirement, particularly where, as here, they result in “bizarrely complex chains of cross-reference claims.” *FWP IP ApS v. Biogen MA*,

Patent No. 11,542,094
Petition for *Inter Partes* Review
Inc., 749 Fed.Appx. 969, 977 (Fed. Cir. 2018).

“To the extent that [K-fee] contends that a person of skill in the art would isolate and combine aspects from various embodiments in the specifications . . . to obtain the claimed invention, [K-fee] relies upon the wrong test. ‘[A] description that merely renders the invention obvious does not satisfy the [written description] requirement.’” *Purdue Pharma L.P. v. Recro Tech., LLC*, 694 Fed.Appx. 794, 797-98 (Fed. Cir. 2017).

Accordingly, the '094 claims do not receive priority to their foreign filings. EX1003, ¶178.

VIII. CLAIMS 1-20 ARE UNPATENTABLE

A. Ground 1: Claims 1-3, 6-14 and 18-20 Would Have Been Obvious Over Yoakim in view of Jarisch 929 and Rossi

1. Motivation to Combine Yoakim, Jarisch 929 and Rossi

Yoakim discloses nearly all claims elements. EX1003, ¶196. In IPR2022-01574, K-fee did not dispute that Yoakim, Jarisch 929 and Rossi taught the majority of claim limitations, except the pump, groove and seal, and ledge limitations. Paper 17, 46-58. A POSITA would have been motivated to combine the single-serve brewing system, capsule, and concepts of Yoakim, with Jarisch 929, and Rossi to predictably arrive at the '094 claims. *Id.*

Yoakim, Jarisch 929, and Rossi are all analogous art in the field of portion capsule beverage extraction, each disclosing an invention that may be applied in

automatic coffee/expresso machines. EX1003, ¶197; EX1004, [0002]-[0003]; EX1006, [0001]-[0002]; EX1041, 1. Yoakim, Jarisch 929 and Rossi are all designed to use capsule identifiers to optimize beverage machine operation and can use optical codes to achieve this. EX1003, ¶197; EX1004, [0010]-[0011], [0025], [0494]-[0496]; EX1006, [0004], [0016]; EX1041, 3, 5-6.

Yoakim and Jarisch 929 share a common applicant—Nestec SA—and a common inventor. EX1003, ¶198. Jarisch 929 expressly discloses it is intended to be used with a centrifugal-style brewing system like the one in Denisart (EX1007), which shares two common inventors with Yoakim. *Id.*; EX1006, [0047].

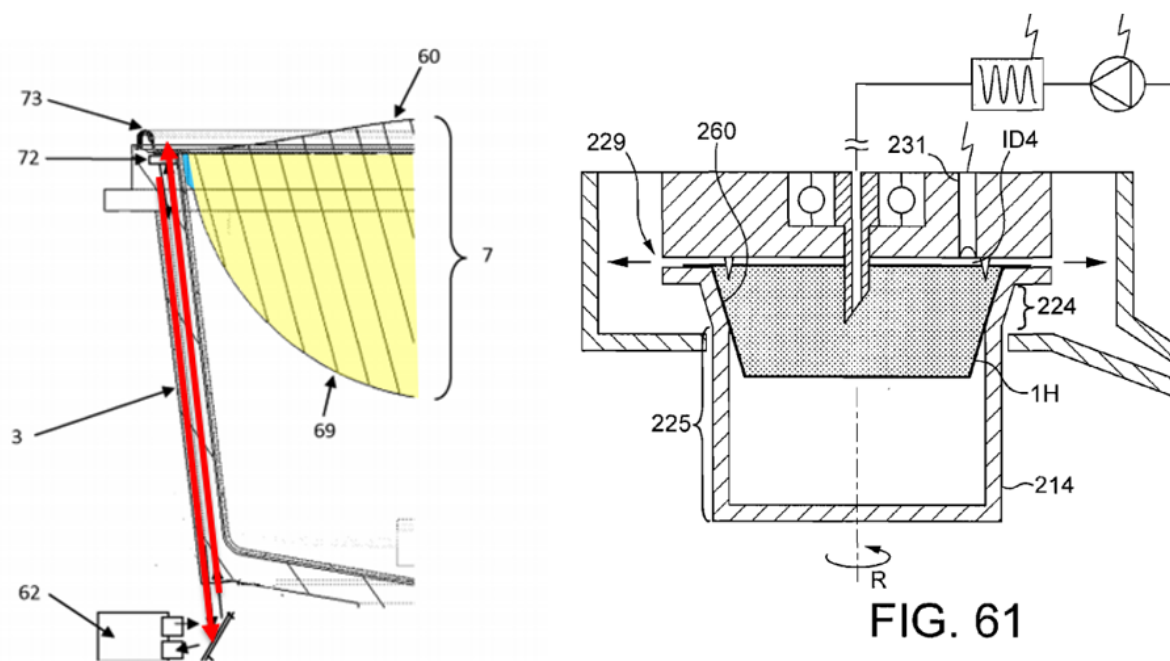
Denisart (another Nestec patent) is expressly disclosed as part of the Jarisch 929 system and is similar to the Yoakim system, both including (1) support for the capsule body; (2) elements to pierce the capsule in its center to inject fluids; (3) elements to pierce the capsule along the periphery to allow liquid to exit under centrifugal forces; and (4) compatibility with code readers to identify the capsule and adjust brewing parameters. EX1007, FIG1; EX1003, ¶¶199-200. Jarisch 929 is explicitly intended to be used with centrifugal brewing systems like Yoakim. EX1003, ¶¶199-200.

Jarisch 929 also discloses motivations for a POSITA to combine the brewing and capsule identification system of Yoakim with the repeat pattern of Jarisch 929 located on the bottom flange of the capsule. EX1003, ¶201. Jarisch 929 explicitly

teaches positioning an optical code “on the rim of the capsule, in particular, on the bottom of the rim of the capsule which is opposed to the lid or foil of the capsule.” EX1006, [0037]. Jarisch 929 explains that its proposed code positioning is desirable because it “is less prone to damages caused by the processing module and in particular by the pyramidal plate, and to ingredients projections.” *Id.*, [0017], [0063]-[0064]. “As a consequence, the amount of coded information and the reliability of the readings are both improved.” *Id.*, [0017]. Jarisch 929 further explains that repeating the code is desirable because “upon a 360-degree rotation of the capsule, the same sequence can be detected or read more than one time,” which improves reliability of reading the code. *Id.*, [0068]; EX1003, ¶202. Accordingly, a POSITA would be motivated to use Jarisch 929’s repeated optical code, and its code positioning on the bottom of the flange. EX1003, ¶¶201-203.

A POSITA would also have an expectation of success when combining Yoakim and Jarisch 929, as Jarisch 929 expressly discloses how to modify a brewing chamber like Yoakim’s to position an optical reader to read a code positioned on the bottom of the capsule flange. EX1003, ¶204. Specifically, Jarisch 929 discloses placing the light source at the bottom of the capsule support chamber, *i.e.*, the centrifugal cell 3, and configuring the capsule support chamber to be a light conductive material such that a light source will reach the bottom of the capsule flange. EX1006, [0106]; EX1003, ¶204. Jarisch 929 further discloses mirrors to

better position the optical light source and sensor. EX1006, [0106]. Thus, Jarisch 929 teaches how to position the Yoakim sensor/detector below and **away** from the flow path. EX1006, [106] (“the light source is placed at the bottom of the centrifugal cell 3. **This cell is light conductive allowing the beam to reach the bottom side** 72 of its rim 73.”). The Jarisch 929 optical reader configuration is depicted below left in order to read the code on the capsule (yellow) with the light path (red) shown from detector (62) to capsule rim (73), and an example of such a modification to Yoakim is shown right. EX1006, FIG5; EX1004, FIG61.



Jarisch 929 further discloses how to structure the code as a repeat pattern (according to K-fee’s interpretation) located on the bottom of the flange. EX1006, FIG2, [0051], [0057]-[0060], [0090]-[0106]; EX1003, ¶205. A POSITA would

therefore find it obvious to combine Yoakim and Jarisch 929 to achieve the express benefits of both the repeated code and code location.

A POSITA would further find it obvious to combine the systems of Yoakim and Jarisch 929 with the capsule recognition process of Rossi for the predictable benefit of “providing a safe and simple system and process for ensuring that an appropriate [capsule] is used” in the system. EX1041, 5; EX1003, ¶206. Yoakim discloses using a piston pump to deliver higher pressure water, if desired. EX1004, [0428]. Yoakim also discloses that its centrifugal brewing generates pressure within the system, including high pressure for espresso. EX1004, [0188] (“The higher the rotational speed, the more radial pressure is exerted. . . .”); [0191] (“The rotational speed ranges differ as a function of the coffee type to be delivered. . . .” including “espresso.”); [0369] (“maintain a pressure of several bars”). Yoakim also uses hot water. EX1004, [0506]. Thus, a POSITA would look to Rossi to address “the use of high pressure, high temperature water, which poses a potential health hazard if the machine is not used correctly or malfunctions.” EX1041, 5.

A POSITA would have further been motivated to combine the portion capsule and brewing systems of Yoakim and Jarisch 929 with the capsule recognition process of Rossi for the predictable benefit of greater specificity and accuracy of brewing conditions, and increased safety in the machine from preventing operation with unsuitable capsules. EX1003, ¶207. Rossi explains that “[u]se of an incorrect

[capsule] may cause the machine to malfunction and can prejudice the safety and integrity of the machine and [] may harm the user.” EX1041, 5. Rossi explains that “allowing the machine to take further steps only if it also recognizes on the [capsule] the validation element” results in “avoiding the production of an edible product of inferior quality and ensuring the proper functioning of the machine.” EX1041, 7. Accordingly, a POSITA would understand that Rossi provides motivation for using an optical code to ensure the capsule is suitable for use with the machine, and only initiate the brewing process upon such a determination. EX1003, ¶¶206-207.

A POSITA would also have an expectation of success when combining Rossi’s recognition system with the brewing machine and capsules disclosed in Yoakim and Jarisch 929. EX1003, ¶208. Rossi expressly discloses that its invention is intended to improve systems relating to “edible-product making machines . . . such as coffee machines fed with capsules containing coffee powder.” EX1041, 3. Rossi further explains that its system identifies the capsule using “barcodes, antennae, or paints having optically measurable properties” that can be read by a “barcode reader, radio frequency wave transmitter and receiver, or optical sensor.” EX1041, 9. Accordingly, Rossi uses technology already disclosed in Yoakim and Jarisch 929 to recognize the capsule. *Id.* Rossi also explains how to recognize a capsule, by comparing the read code “with pre-stored data in order to allow the machine to proceed to activation only if it” recognizes the capsule. *Id.* Furthermore, Yoakim

and Jarisch 929 possess capsule identification capabilities that a POSITA would expect to work with Rossi. EX1004, [0477]; EX1006, [0051]-[0055]; EX1003, ¶208.

Rossi teaches safety features—such as identification and validation elements—to determine whether to brew a suitable beverage, and offers additional advantages beyond Yoakim. Rossi includes information about the proper capsule and operating conditions that “helps to prevent [] safety hazard[s],” and prevents “re-use” of capsules that can cause “incorrect functioning of the machine and the associated health hazard.” EX1041, 7.

Rossi offers additional advantages over Yoakim, since, *e.g.*, Yoakim would allow unsafe brewing of compatibly-*shaped* capsules that otherwise are not designed for the system, or have been improperly re-used because Yoakim’s “gripping structure” only checks for a complementary shape. Thus, a POSITA would have been motivated to use Rossi’s safety features with Yoakim to improve safety, ensure proper functioning of the machine, and avoid inferior quality beverage. EX1003, ¶209.

Accordingly, it would have been obvious to a POSITA to combine the teachings of Yoakim, Jarisch 929, and Rossi to arrive at the ’094 claims. EX1003, ¶210.

2. Claims 1/12⁷

a) Preamble

Yoakim discloses a brewing system and method using centrifugal rotation to extract a beverage from a single-serve capsule containing a food substance. EX1004, [0002]; EX1003, ¶¶211-212. Yoakim's system comprises a brewing device (2), capsule (3), water heater (7), pump (6), and water reservoir (5). EX1004, [0180]; EX1003, ¶¶213-214.

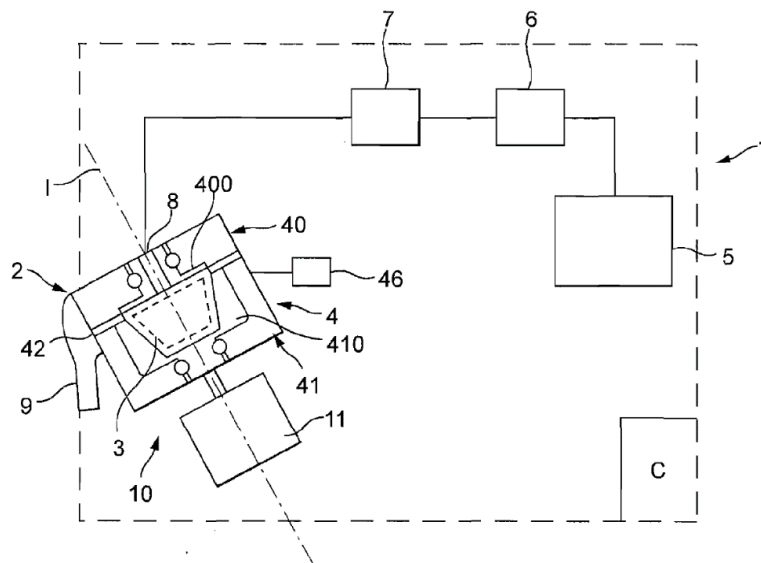


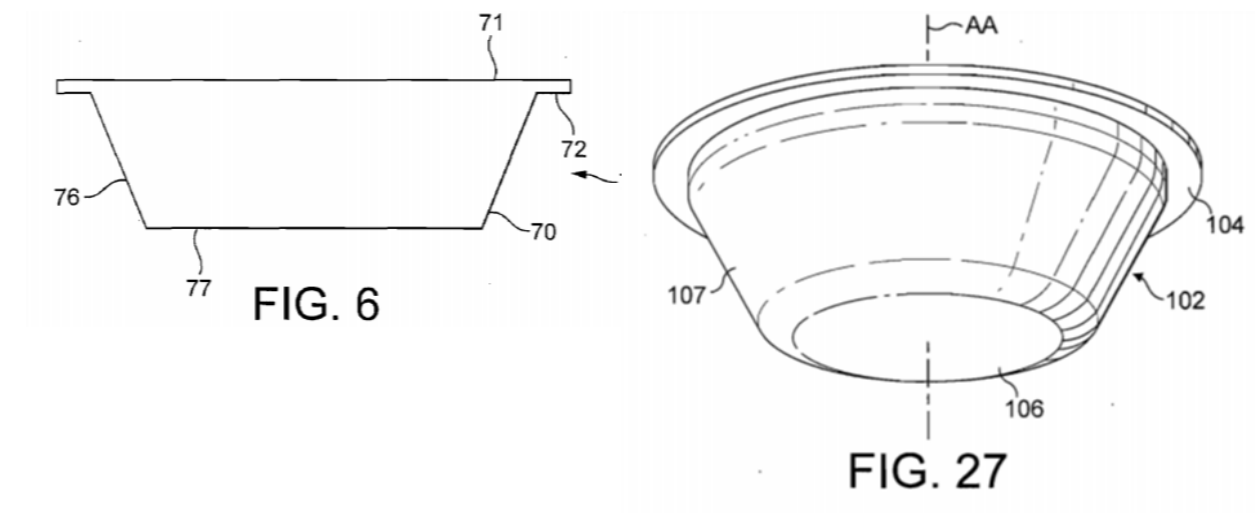
FIG. 1

b) [1.a]/[12.a]

Yoakim discloses a single-serve capsule with a base element (70, 102) having

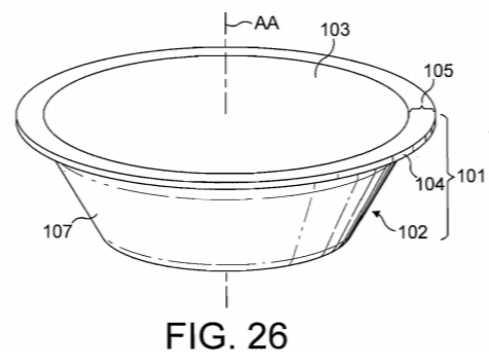
⁷ See Claims Appendix for claim language. Due to the repetition of claim language (in particular claims 1 and 12), the claim elements for later-addressed claims are only identified once herein.

a cavity that may be filled with raw beverage materials such as “ground coffee powder [and] soluble coffee.” EX1004, [0125], [0180], [0197]-[0198], [0414], FIGS6-7, 26-27; EX1003, ¶¶215-218.



c) [1.b]/[12.b]

Yoakim explicitly discloses the base element including a wall (76, 107) that is symmetrical about the central longitudinal axis (centerline AA), according to K-fee’s Contentions. EX1004, [0014], [0308], [0414]-[0415]; EX1003, ¶¶219-221.



d) [1.c]/[12.c]

Yoakim discloses a capsule with a closed, rounded bottom portion. Yoakim discloses a cup-shaped body, with a closed lower portion that can be convex or concave. EX1004, [0129], [0414], [0473]; EX1003, ¶222.

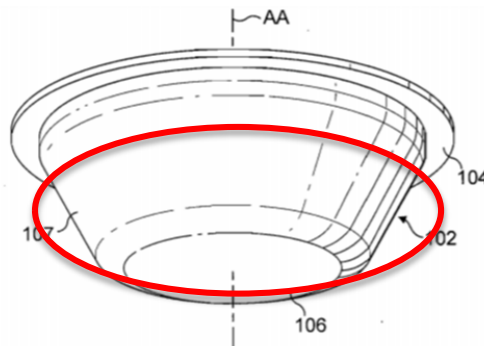


FIG. 27

Additionally, Yoakim FIGS56-60 disclose capsules where the body has a closed, rounded bottom portion. EX1004, FIGS56-60, [0510]-[0511]; EX1003, ¶¶223-224.

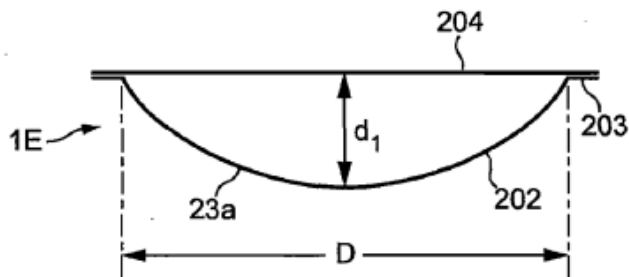


FIG. 58

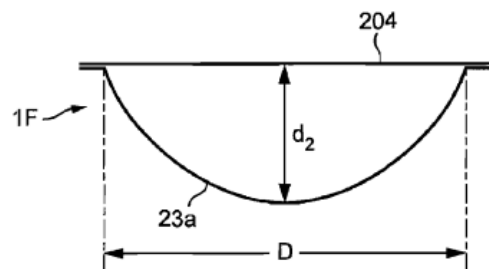


FIG. 59

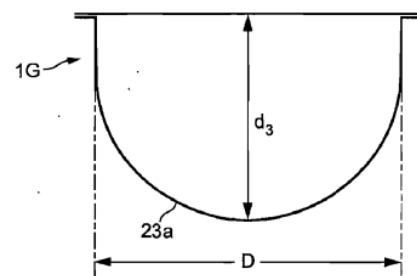


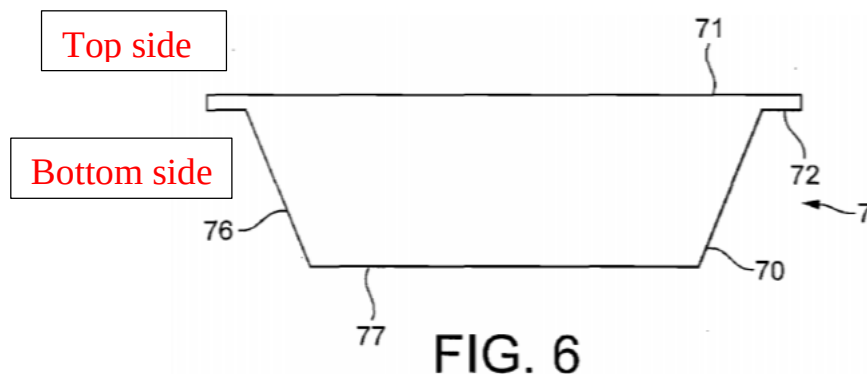
FIG. 60

e) [1.d]/[12.e]

Yoakim discloses a capsule with a base element that does not include a filter inside of the cavity, and expressly confirms that a filter is optional. EX1004, [0171] (“An additional filtering layer can be used. . .”), [0343] (disclosing optional filter embodiment); EX1003, ¶¶225-226. As depicted in FIG54, Yoakim expressly discloses embodiments using capsules without a filter in the base element cavity. EX1004, FIG54; EX1003, ¶¶227-228.

f) [1.e]/[12.f]

Yoakim discloses a capsule with a cup-shaped body, having a circumferential flange (72) extending outwardly from the base element (70) and comprising a top side and an opposing bottom side. EX1004, [0197]; EX1003, ¶229.



FIGS26-27 and 60 also show a cup-shaped body and flange having a top side and a bottom side. Yoakim explains the body (102) has a peripheral rim 104 that extends outwardly forming an annular portion. EX1004, [0414]; EX1003, ¶¶230-231.

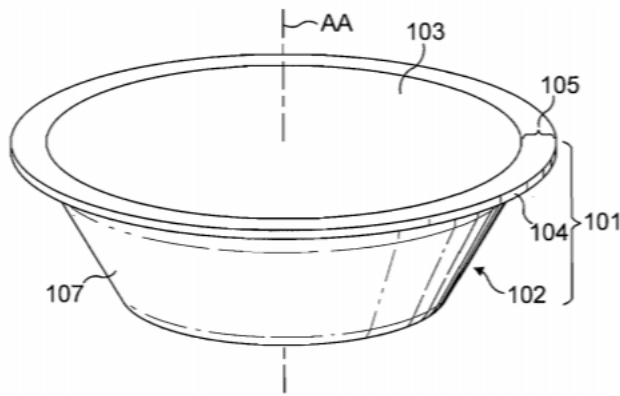


FIG. 26

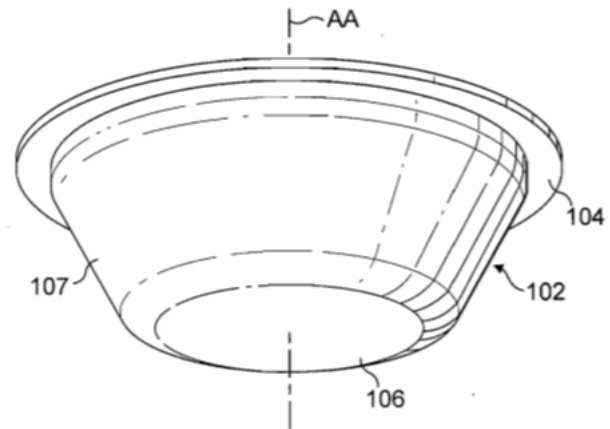


FIG. 27

g) [1.f]/[12.g]

Yoakim discloses a cover fastened to the top side of the flange. EX1003, ¶233; EX1004, [0128]. Yoakim further discloses that the foil lid is attached to the peripheral rim of the capsule body. *Id.* [0129], [0197]; FIGS6-7. Yoakim further discloses that “sealing foil 103 is sealed onto a peripheral rim 104 of the body.” EX1004, [0414]; EX1003, ¶234.

Yoakim renders obvious a cover that is bowed outwardly in a central region of the cover relative to a peripheral region of the cover. Yoakim discloses that “[t]he sealed capsule is made of materials having gas barrier properties and is ***sealed in a fluid tight manner so that ingress of air in the capsule is prevented.*** Furthermore, the capsule ***preferably contains an inert gas that improves the freshness of substance in the capsule.***” EX1004, [0121], [0128]-[0129]; EX1003, ¶235. Yoakim

further explains that CO₂ from the ground coffee can fill free volume inside the sealed capsule. EX1004, [0270]; EX1003, ¶236. A POSITA would have understood that a capsule with a foil membrane cover that is sealed fluid tight and filled with an insert gas would obviously bow outwardly under the pressure of the gas or CO₂ emitted from the ground coffee. EX1003, ¶¶237-238; *supra*, 5.

Additionally, Jarisch 929 explicitly discloses a cover that is bowed outwardly in a central region of the cover relative to a peripheral region of the cover. EX1006, FIG5 (highlighted below); EX1003, ¶239. Jarisch 929 identifies item 60 as the membrane or foil, and depicts it bowed outwardly. EX1006, [070]; FIG5. It would have been obvious for a POSITA to utilize a capsule shown in Jarisch 929 with a bowed cover because such a cover can be the result of known techniques, such as inert gas and pressurization, which preserve the quality of the ingredients over time. EX1003, ¶¶239-240.

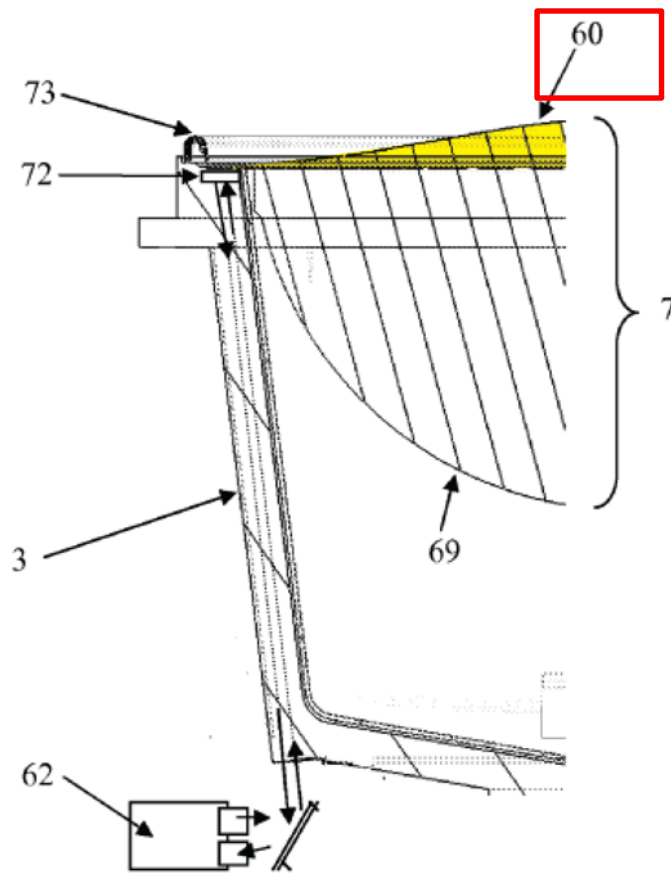


Fig. 5

h) [1.g]/[12.h]

Yoakim discloses a cover including a region configured to be pierced at a location offset from the central longitudinal axis. FIG4 depicts a series of needles (51) that pierce the capsule in areas offset from the central axis. EX1004, [0186]-[0187]; EX1003, ¶242. FIG7 depicts the capsule **after** being pierced by needles (51), showing piercing locations (74) offset from the central axis (73). EX1004, [0199]; EX1003, ¶¶243-244.

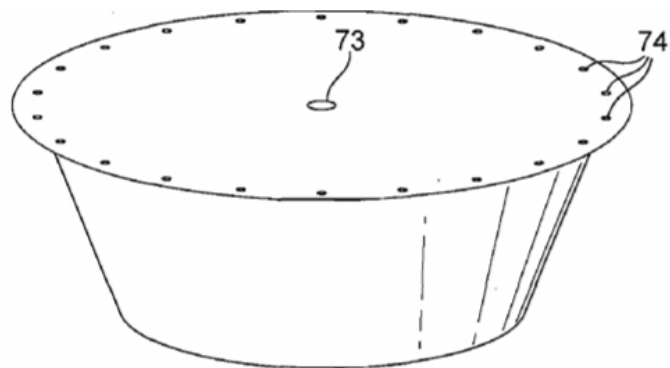


FIG. 7

i) [1.h]/[12.i]

Yoakim discloses that both the sealing lid and cup-shaped body can include gas barrier layers made of polymers, aluminum and/or aluminum alloys. EX1004, [0128]-[0129], [0197], [0121]; EX1003, ¶245. Yoakim further explains that the capsule has “gas barrier properties and is sealed in a fluid tight manner so that ingress of air in the capsule is prevented.” *Id.* [0096]. Yoakim explains that gastight packaging with at least one barrier layer is used “for maintaining the freshness of the substance in the capsule as long as possible” *Id.* [0355], [0350]. Accordingly, a POSITA would have understood that using a barrier layer to prevent the ingress of air and maintain freshness will also prevent moisture or aroma from escaping out of the single-serve capsule, and additionally it would have been obvious to do so. EX1003, ¶¶246-247; *supra* 4-5.

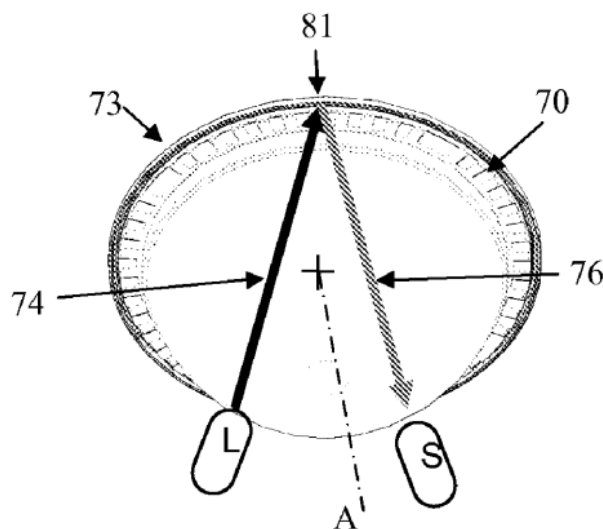
j) [1.i]/[12.j]

Yoakim discloses using an “identification” system to identify each capsule and adjust the brewing parameters accordingly. EX1004, [0477]. Yoakim discloses that this helps deliver a wider range of beverages having differentiated characteristics. *Id.*, [0477], [0526]; EX1003, ¶249. Yoakim further discloses that the identifier used on the capsule can be an optically detectable code, such as a barcode. *Id.*, [0496]; EX1003, ¶250.

Jarisch 929 discloses a near-identical centrifuge-style brewing system that

includes an optical code reader (62) to identify the capsule. EX1006, [0047]-[0048], [0106]. This identifier, accordingly to K-fee's Contentions, is used to recognize "a type associated to the capsule," brewing parameters, capsule manufacturing information. *Id.*, [0020]-[0024], [0051]-[0055]; EX1003, ¶251.

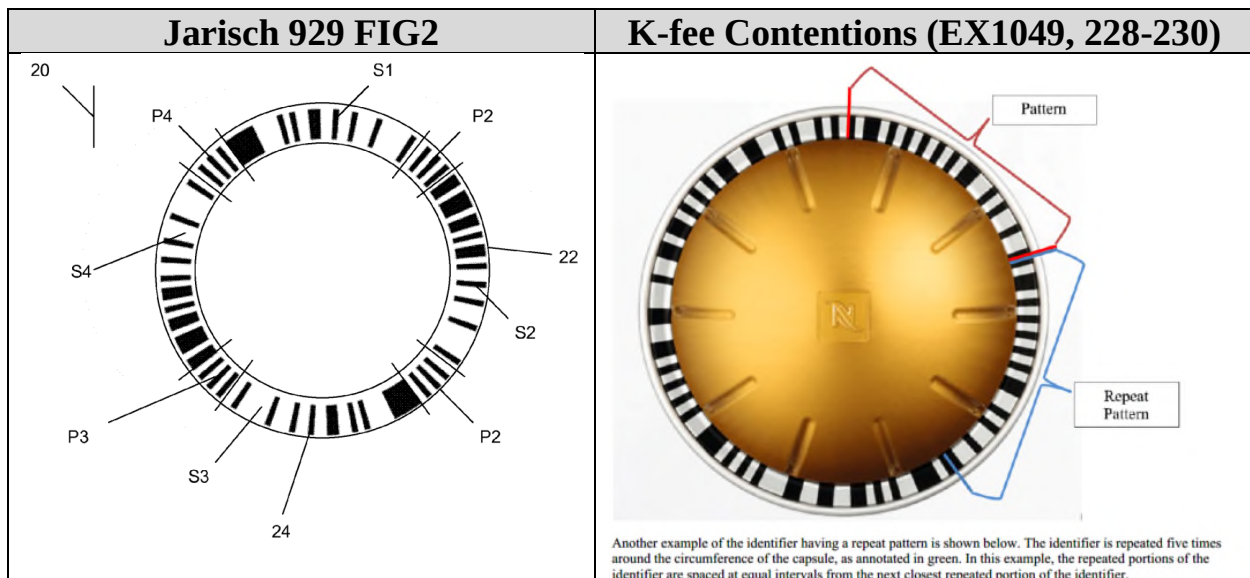
Jarisch 929 further discloses that the identifier is provided on the bottom side of the flange. It states that the code can be "present on the rim of the capsule, in particular, ***on the bottom of the rim of the capsule which is opposed to the lid or foil of the capsule.***" EX1006, [0037], [0063]-[0064]; EX1003, ¶252. This code location is depicted in FIG4 (below):



A POSITA would be motivated to utilize Jarisch 929 to place the optically detectable identifier of Yoakim on the bottom side of the flange facing away from the membrane to improve reliability of reading. *Id.*; EX1003, ¶253; Section VIII.A.1.

Jarisch 929 further discloses that the individualization identifier includes an

optically detectable repeat pattern, according to K-fee's Contentions. For example, it discloses using "redundant information" such as "repetition codes." EX1006, [0025]-[0027]. Jarisch 929 explains that "[r]epetition of the sequence means that the same sequence is duplicated and the successive sequences are positioned in series along the circumference so that upon a 360-degree rotation of the capsule, the same sequence can be detected or read more than one time," which ensures a higher probability that at least one code is readable and may potentially reduce reading time. EX1006, [0068], [0056], [0110], [0033]; EX1003, ¶¶254-255. Thus, according to K-fee's Contentions, Jarisch 929 discloses an individualization identifier, which includes an optically detectable repeat pattern, depicted in FIG2 (below left).



It would have been obvious for a POSITA to utilize the repeated code of Jarisch 929 to increase reliability of reading the code during rotation. EX1003, ¶256;

To the extent “individualization” is construed as “to determine whether the portion capsule is suitable for use with the beverage machine such that the use of unsuitable capsules is prevented,” as Nespresso has proposed in district court litigation, Rossi explicitly discloses utilizing an identifier for this purpose. For example, Rossi explains that prior art machines “are usually designed so as to operate with a certain design or type of load element” and “[u]se of an incorrect load element may cause the machine to malfunction and can prejudice the safety and integrity of the machine and [] may harm the user.” EX1041, 5. Rossi seeks to solve this problem by “providing a safe and simple system and process for **ensuring that an appropriate load element is used.**” *Id.*; EX1003, ¶257.

Rossi determines **whether it recognizes** the identification element, and a failed recognition would indicate to a POSITA that the capsule is not proper for use with the machine. EX1041, 7 (“The use of an identification element and recognition means helps to prevent the safety hazard associated with the use of inappropriate operating conditions.”); EX1003, ¶257. Rossi additionally discloses this feature through the identification of a “validation element” that ensures only capsules proper for use activate the machine. EX1041, 7; EX1003, ¶258. A POSITA would understand that already-used capsules would constitute a group of capsules that are not suitable for use with the machine. *Id.* Rossi also discloses that the identification

and verification elements can be optical codes located on the capsule, and can both be the same element. EX1041, 11, 9, 13; EX1003, ¶259.

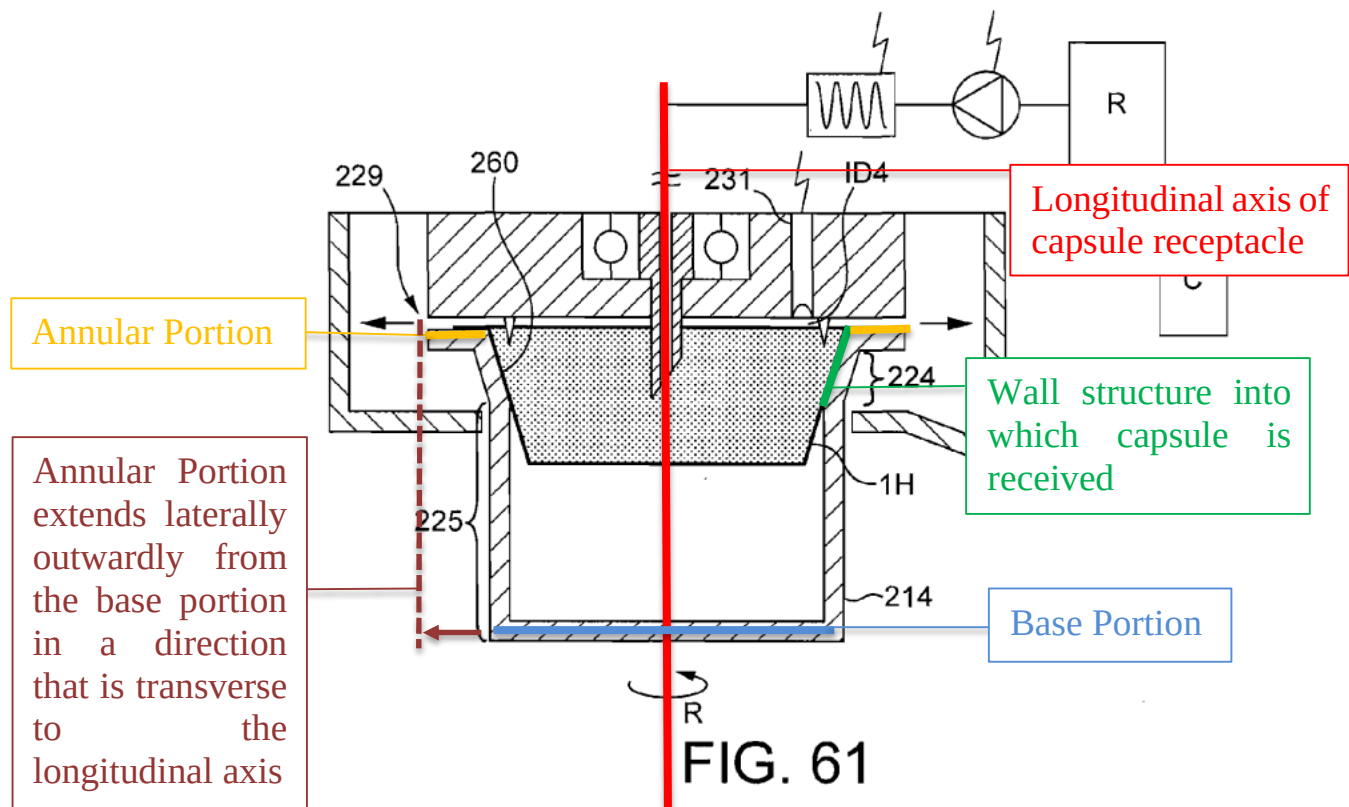
Rossi further discloses preventing use of a capsule that is not “suitable for use,” or otherwise renders this limitation obvious to a POSITA. EX1003, ¶¶260-261; EX1041, 9 (“Thus, the production process cannot be activated unless the first step has been completed.”). Rossi further explains that production of a beverage will only occur after the identifying element is recognized. EX1041, 8, 12.

It would have been obvious for a POSITA to combine the process of Rossi with Yoakim and Jarisch 929 to arrive at the claimed invention. Section VIII.A.1.

k) [1.j]/[12.k]

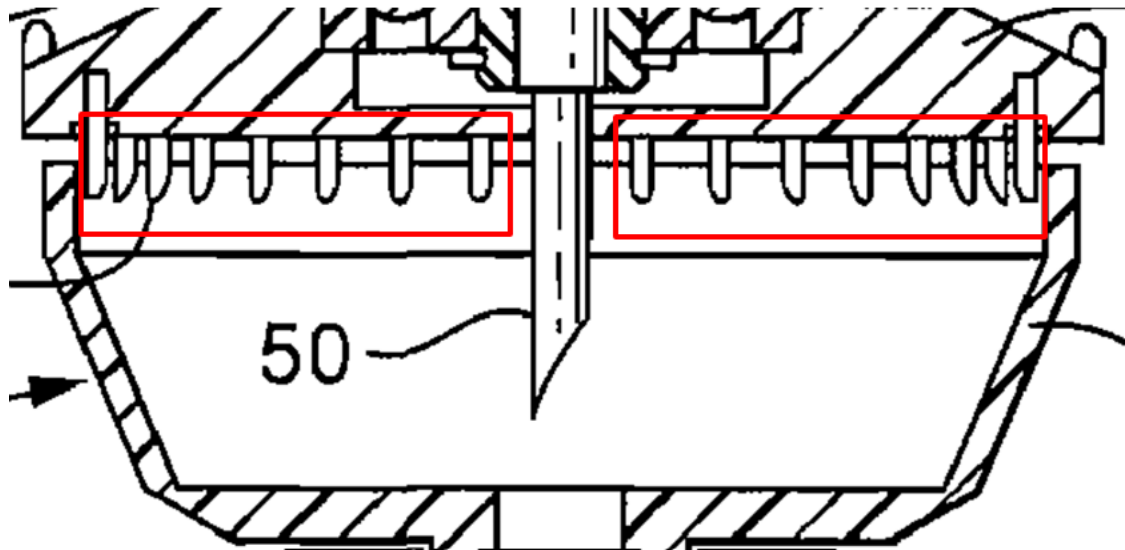
Yoakim discloses this limitation in at least FIG61, as annotated below. EX1003, ¶¶263-265; EX1004, [0187], [0024].⁸

⁸ To the extent K-fee argues that Yoakim FIG61 does not disclose this limitation, this is yet another claim limitation that is not supported by the September Application. EX1003, ¶266.



l) $[1.k]/[12.l]$

Yoakim discloses a chamfered mandrel that pierces the cover at a location that is offset from the central longitudinal axis, according to K-fee's Contentions. Yoakim discloses that the brewing machine's "lid further comprises outlet piercing elements 51 which are placed on the inside of the lid at a radial position." EX1004, [0186]-[0187], FIG4; EX1003, ¶268. These needles (51), which have "slanted cutting surfaces" are shown in FIG4 (enlarged, below). EX1004, [0435], FIG4; EX1003, ¶268, 270.



Additionally, FIG7 depicts holes (74) in the membrane of a capsule after having been pierced by the chamfered mandrel, which are offset from the central axis. EX1004, [0199]; EX1003, ¶269.

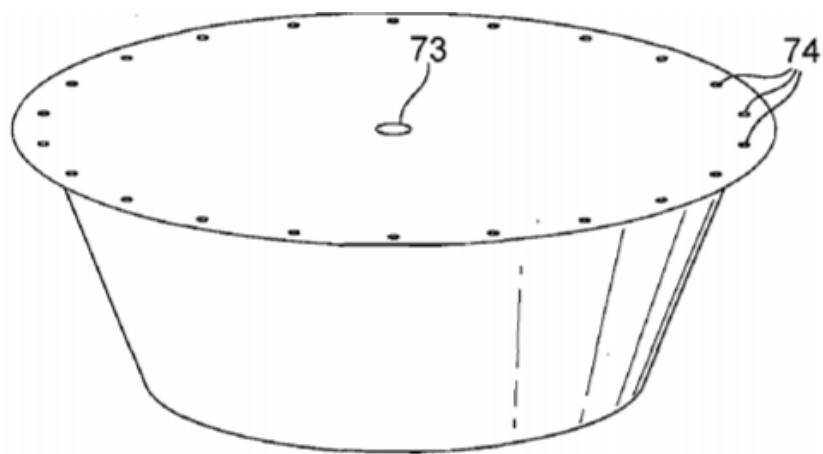


FIG. 7

m) [1.1]/[12.m]

Yoakim discloses a beverage machine (FIG4, FIG61) that includes an optical sensor/detector (231) enabled to identify and read an optical code (ID4) on a capsule. EX1004, [0025], [0525], [0192], [0477], [0494]-[0496]; EX1003, ¶¶272-274.

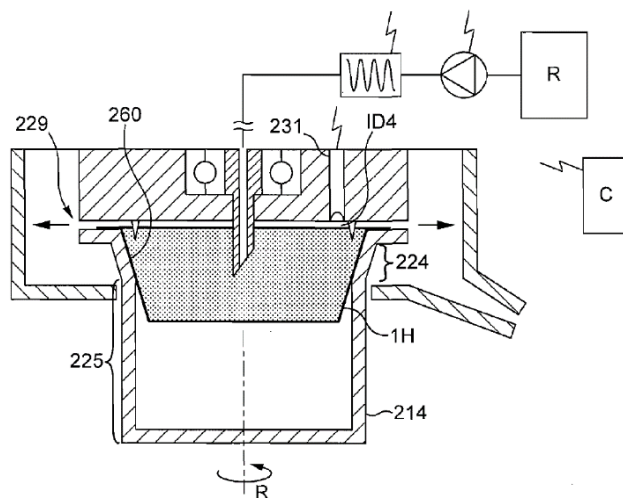


FIG. 61

Rossi also discloses that its system identifies the capsule using “barcodes, antennae, or paints having **optically** measurable properties” that can be read by a “barcode reader, radio frequency wave transmitter and receiver, or **optical sensor.**” EX1041, 9; EX1003, ¶275.

Jarisch 929 discloses an optical code detector (62) positioned outside of the base portion of the wall structure of the capsule receptacle and below the annular portion, which directs a beam through a portion of the wall structure to read the identifier on the single-serve capsule. EX1006, [0106]; EX1003, ¶¶276-277. Jarisch 929 FIG5 is shown below with the optical sensor/detector, which directs a beam through a portion of the wall structure to read the code, annotated:

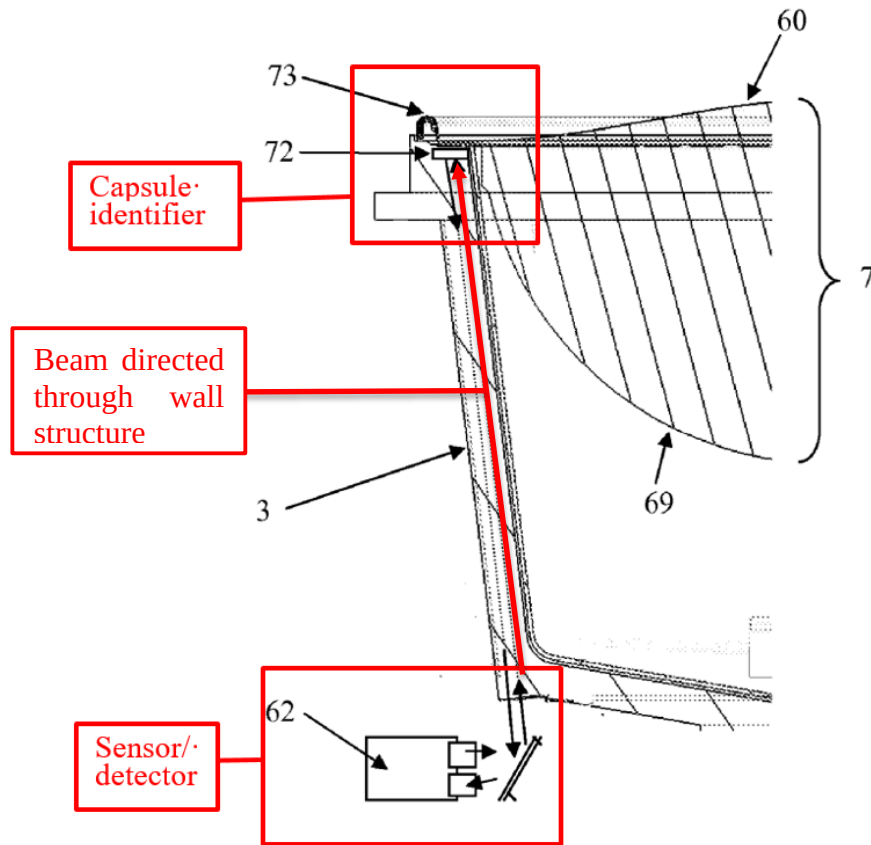


Fig. 5

Additionally, it would have been obvious to utilize this configuration in Yoakim, as depicted in FIG61. EX1003, ¶278; Section VIII.A.1.

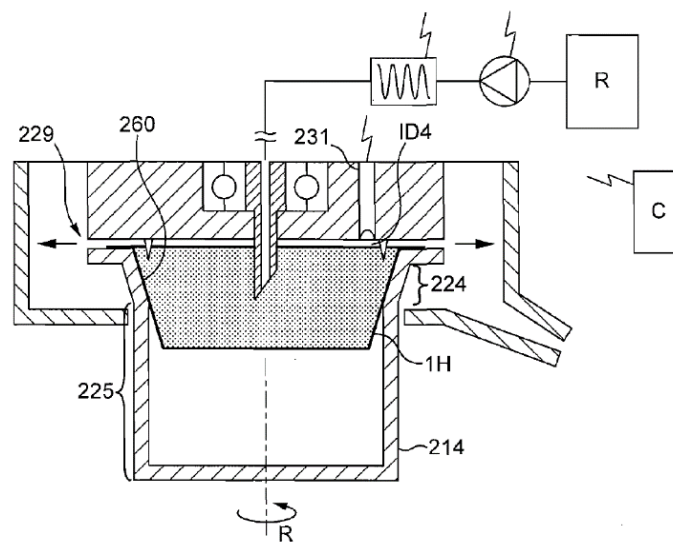


FIG. 61

n) [1.m]/[12.n]

Yoakim discloses a pump that supplies water into the single-serve capsule. EX1004, [0180] (element 6). Yoakim further discloses that the pump is controlled based on the detection of the identifier by the sensor/detector, according to K-fee's Contentions. EX1004, [0477] ("The capsule system further comprises an identification means associated to the different capsules in the set for identifying each capsule and adjusting brewing parameters accordingly The identification means are associated to control means . . . by controlling the rotational motor driving the capsule holder *or/and the pump supplying liquid in the capsule.*"), [0025], [0192], [0218], [0522]; EX1003, ¶¶279-280.

It would have been obvious to a POSITA reading Yoakim to only utilize the pump to supply water into the capsule after the identifier is read by the sensor/detector in order to allow the system to process optimal brewing parameters before beginning the brewing process. EX1003, ¶281.

Rossi discloses activating a beverage production cycle only upon reading the identifier by the sensor. EX1041, 6 ("wherein said edible-product making machine *automatically activates a cycle of production* of said edible product *only after having recognized on said load element said identifying element in combination with said validation element as validated*"); *id.* 6, 10; EX1003, ¶282.

It would have been obvious for a POSITA to combine the process of Rossi

with Yoakim to arrive at the claimed invention, in order to increase safety of the system by preventing dangerous operating conditions from improper capsules being used with the machine. Section VIII.A.1; EX1003, ¶¶283-284.

o) [1.n]/[12.o]

Yoakim discloses a seal in the form of a “flow restriction means which is arranged after the outlet(s) of the capsule” EX1004, [0370]-[0380], [0382], [0396]-[0398]; EX1003, ¶¶286-287. Specifically, Yoakim discloses the brewing machine further comprising a sealing valve system 156, which is referred to as an annular engaging portion 157, and can be in the form of a cone or V “for increasing sealing pressure.” EX1004, [0388], [0436], [0446]; EX1003, ¶¶288-289. This seal is designed to “control[] the flow of liquid that is discharged from the device. EX1004, [0436], [0384]-[0385]; EX1003, ¶¶288-290.

To the extent K-fee repeats its argument from IPR2022-01574, Paper 17, 52, Yoakim discloses a seal under K-fee’s interpretation at least because its “flow restriction means” is designed “to exert a sufficient **sealing pressure** on the capsule.” EX1004, [0388]. This sealing pressure **restricts the flow of liquid** and blocks liquid exit “until a certain pressure” is reached. *Id.*, [0385]; [0436]. This “**improve[s] the interaction between water and the substance contained in the capsule,**” *i.e.*, ensures that water flows through the portion capsule instead of around it. *Id.*, [0251]; EX1003, ¶291.

The seal is configured to bear against a top side of the cover of the capsule.

EX1004, [0436] (“The annular engaging portion [seal] includes a pressing peripheral surface 159 which applies a closing force on the peripheral rim 104 of the capsule to be able to restrict the flow of liquid under the force of the elastic loading means.”).

The seal is also positioned to bear against the cover in a region between the peripheral edge of the cover and the region that is pierced by the chamfered mandrel. EX1004, [0388] (“[T]he engaging portion of the valve means can also comprise an annular pressing edge which is arranged to seal on the engaging portion of the capsule.”), [0396] (“Preferably, the flow restriction means comprises valve means which is arranged at ***or after at least one outlet of the capsule*** for opening when a certain pressure is exerted thereon by the pressurized liquid for enabling the liquid to be released from the capsule.”); EX1003, ¶292. This is also shown in FIGS35, 37-38, which depicts sealing edge 159 on the surface of the capsule between the peripheral region and the piercing location of the chamfered mandrel (153):

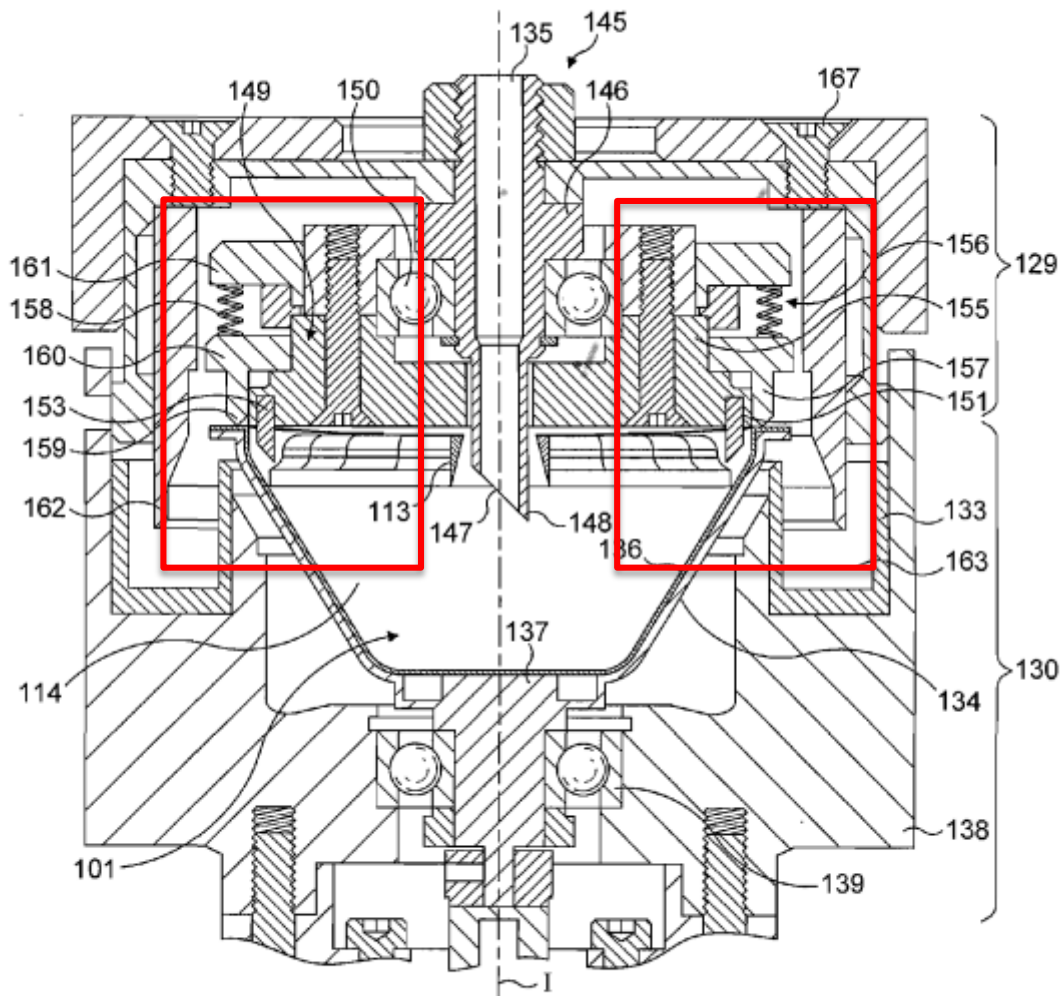
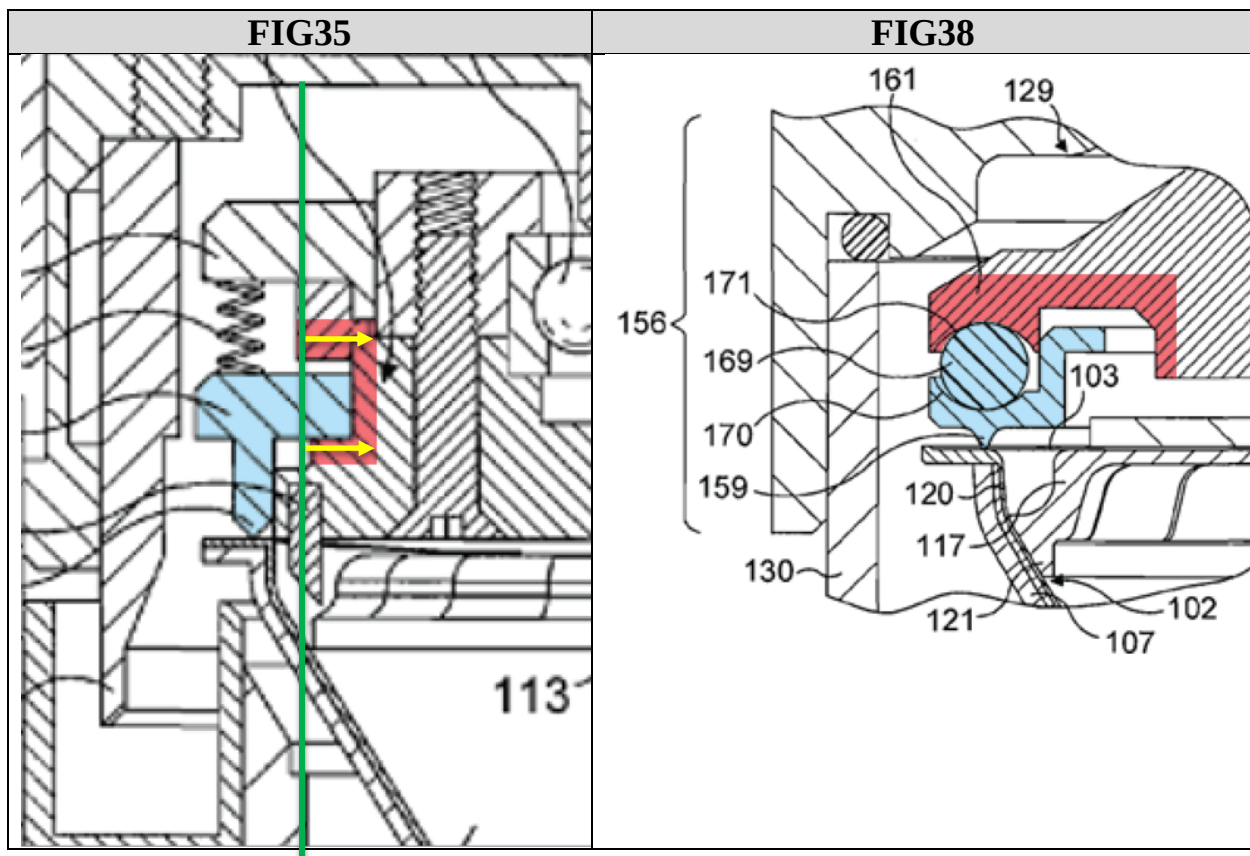


FIG. 35

Yoakim further discloses *a groove that is laterally offset from the chamfered mandrel, which the seal at least partially sits in.* EX1004, [0436] (“The elastic loading means 158 is thus inserted in a space located between the base portion 160 and a counter-force portion 161 for the engaging part 149. Therefore, at a rest position, the engaging portion 157 of the valve system keeps closing on the rim of the capsule under the compressive effect of the resilient means.”); [0446] (“The O-

ring is maintained in place between two concave surfaces 170, 171 of the valve system.”); EX1003, ¶293. Based on the claim language, this means off to the side (in either direction) of the central axis of the chamfered mandrel. EX1003, ¶294; EX1059-1061. The seals (blue) and grooves (red) are shown in close ups of FIGS. 35 and 38 and are off to the side (lateral offset shown in yellow arrows) of the central axis of the chamfered mandrel (green):



To the extent FIG35 or 38 do not constitute a groove, it would have been obvious to a POSITA to position a sealing member in a groove, in order to solidify the placement of the seal and improve its sealing stability and strength. EX1003,

It would also have been obvious to a POSITA to utilize the claimed groove and seal configuration in the brewing head of the centrifugal brewing unit in order to achieve “the advantage of a control of the pressure of liquid exerted in the capsule at the level of the device,” as well as “optimize interaction of water and the ground coffee particles to obtain a good extraction of the coffee and aroma compounds,” and “improve the creation of foam or coffee crema.” EX1004, [0384]-[0385]; EX1003, ¶¶296-297.

3. Claim 2

Yoakim in view of Rossi discloses and/or renders this limitation obvious. As discussed in [1.m], [12.n], Yoakim discloses a pump that supplies water that is controlled based on the detection of the identifier by the sensor/detector.

Rossi discloses determining whether the capsule is “compatible” with the beverage machine. Rossi explains that prior art machines “are usually designed so as to operate with a certain design or type of load element” and “[u]se of an incorrect load element may cause the machine to malfunction and can prejudice the safety and integrity of the machine and [] may harm the user.” EX1041, 5. Rossi seeks to solve this problem by “providing a safe and simple system and process for **ensuring that an appropriate load element is used.**” *Id.*; EX1003, ¶¶298-299.

For example, Rossi determines **whether it recognizes** the identification

element, and a failed recognition would indicate to a POSITA that the capsule is not compatible with the machine. EX1041, 7 (“The use of an identification element and recognition means helps to prevent the safety hazard associated with inappropriate operating conditions.”); EX1003, ¶300. Rossi additionally discloses this limitation through the identification of a “validation element” that ensures only compatible capsules activate the machine. EX1041, 7; EX1003, ¶¶300-301. A POSITA would understand that already-used capsules would constitute a group of capsules that are not compatible for use with the machine. *Id.*

Rossi also discloses only operating the pump after both detecting an identifier and determining whether the capsule is “compatible” with the machine. EX1041, 9 (“Thus, **the production process cannot be activated** unless the first step has been completed.”), 8 (“[A]n activation step of **automatically activating the cycle of edible-product production only when the same identifying element is recognised** . . . ensures that the operating conditions actually used are the correct conditions. . . .”), 12; EX1003, ¶302.

A POSITA would understand Rossi’s disclosure of only activating the brewing cycle after a determination that the single-serve capsule is compatible with the machine would constitute rendering the pump inoperable (e.g., not operating the pump) upon a determination that the capsule is not compatible. EX1003, ¶303. Additionally, it would have been obvious to a POSITA reading Yoakim and Rossi

to render a pump inoperable upon a determination that the capsule is not compatible with the machine, in order to prevent safety hazards and to ensure a sufficient quality beverage. EX1003, ¶¶ 304-305.

4. Claim 3

Yoakim in view of Rossi renders this limitation obvious. As discussed in [1.i]/[12.j], [1.m]/[12.n] and claim 2, Yoakim discloses a beverage system wherein the pump supplies water into a single-serve capsule with an identification means to allow an identifier to be read and compared to stored references. EX1004, [0477]; EX1003, ¶307. Yoakim further explains that “[t]he identification means are associated to control means placed in the centrifugal brewing device which ***controls the adjustment of the said parameters, by controlling*** the rotational motor driving the capsule holder ***and/or the pump supplying liquid in the capsule.***” EX1004, [0477]; EX1003, ¶307. It would have been obvious to a POSITA reading Yoakim to only supply water from a pump after an identifier is successfully compared to stored references because otherwise the brewing device would have no information as to how to control the pump to brew the beverage, and no basis of comparison for the identifier readout. EX1003, ¶307.

Furthermore, Rossi discloses not operating the machine (and thus not activating the brewing cycle to push water into the capsule) unless there is a determination that the individualization identifier agrees with a stored reference.

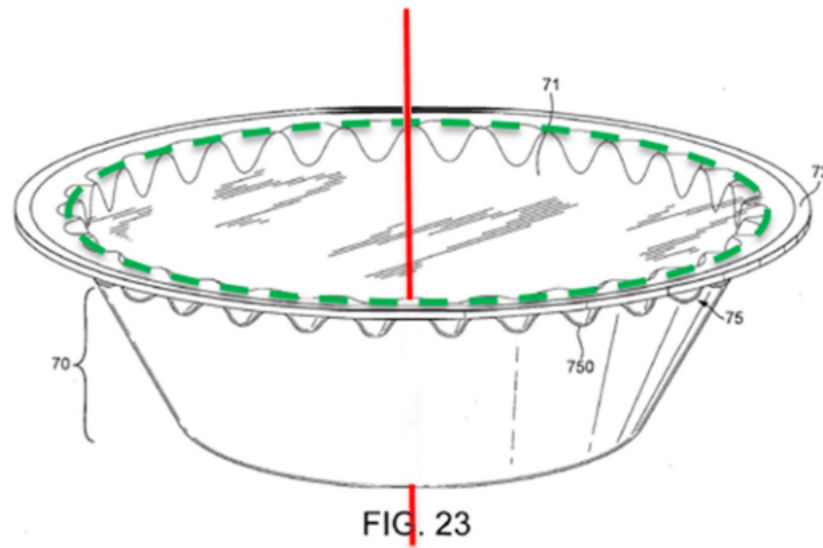
Rossi discloses that the machine's computer system includes a "checking means [that] **compares the signal** from the recognising means for the identifying element and the validation element **with pre-stored data** in order to allow the machine to proceed to activation only if it recognizes the identifying element and the unvalidated validation element." EX1041, 11; EX1003, ¶308. It would similarly have been obvious to a POSITA reading Rossi to only activate the machine's brewing cycle to supply water after an identifier is successfully compared to stored references because otherwise the brewing device would have no information to control the pump to brew the beverage, and no basis of comparison for the identifier readout. EX1003, ¶308; Section VIII.A.1.

5. **Claim 6 and [12.d]**

Yoakim discloses a base element that comprises an exterior wall that includes a plurality of indentations arranged about the central longitudinal axis. Specifically, Yoakim discloses a capsule with a body including a toothed structure around its perimeter, which Yoakim explains can be used to engage the capsule in the centrifugal brewing system to facilitate controlled rotation during brewing. EX1004, [0215] ("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."); EX1003, ¶¶310-311.

As depicted in FIG23, the indentations (green dashes) are arranged about the

central longitudinal axis (red). EX1003, ¶¶312-313.



Yoakim further discloses that “the teeth could be replaced by other equivalent structures such as series of elements in relief and/or hollow. For example, slits, pins or small needles can be envisaged.” EX1004, [0215]. Such relief structures, in particular slits, pins or small needles, would likewise constitute indentations arranged about the central longitudinal axis of the exterior wall. EX1003, ¶312.

It would also have been obvious to a POSITA to utilize indentations about the longitudinal axis on the exterior wall of the capsule in order to provide a “means for connecting [the capsule] to the external rotational driving means of the device” to facilitate controlled rotation during beverage extraction, and also because it was well-known in the art to increase mechanical stability of the capsule body wall. EX1004, [0215]; EX1003, ¶¶87-95, 314-315; EX1008, EX1030-1035.

6. Claim 7/13

Yoakim discloses a cavity defined by an inside wall that includes a ledge at an upper region thereof, the ledge projects from the inside wall towards the central longitudinal axis. EX1003, ¶¶316-317. Yoakim discloses a ledge comprising a “collecting recess 116” that includes “an outer peripheral portion 119 forming an edge bearing onto a seat portion 120 of the dished body.” EX1004, [0420], [0414]. FIG28 is covered by membrane 103, and the ledge is inside the capsule as defined by the membrane. Annotated FIG28 clearly shows the ledge in red as the upper region of the inside wall of the capsule, in the seat portion 120 of the dished body, and inside the cavity. EX1003, ¶¶317-318.

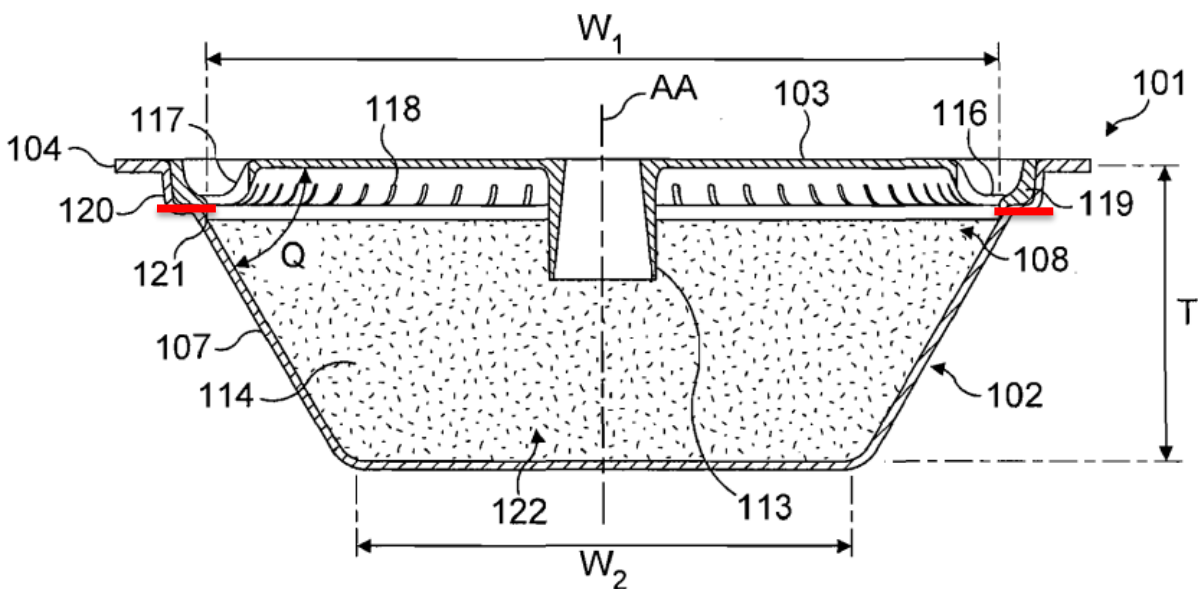
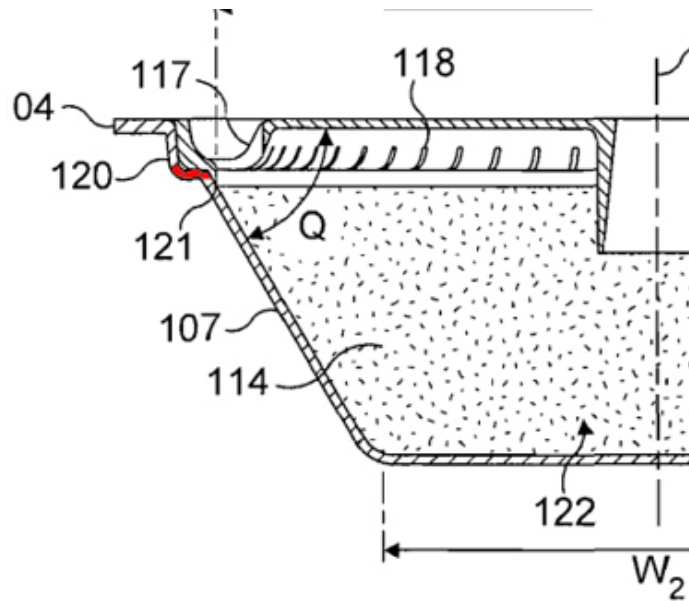


FIG. 28



In addition, it would have been obvious to a POSITA to utilize the claimed ledge configuration in a centrifugal brewing capsule to provide space for brewed coffee to gather before exiting the capsule into the user's cup, which further facilitates crema formation. EX1004, [0332]; EX1003, ¶319. It would also have been obvious to a POSITA to utilize the claimed ledge configuration as an obvious design choice, as capsules utilizing a ledge were well-known to those skilled in the art. EX1003, ¶320; EX1010, FIG14-15; EX1021, FIG7; EX1033, FIG1-8.

7. Claims 8-9

Yoakim in view of Jarisch 929 renders obvious an individualization identifier that is located both under the flange ([1.i]), and located on the exterior wall, according to K-fee's Contentions. Jarisch 929 discloses that the individualization identifier can be included on the exterior wall of the capsule, in addition to on the periphery of the flange. EX1006, [0064] ("The support can be part of, or be formed

directly on, ***the body of the capsule***. The support ***can also*** be disposed on the bottom side of the rim of the capsule.”), [0090]-[0092]; EX1003, ¶¶322-324.

Furthermore, it would have been obvious to a POSITA to utilize an individualization identifier both on the bottom of the flange and on the exterior wall of the capsule to provide an alternative location to read the code in order to increase the chances of the code being read. EX1003, ¶¶325-326.

8. Claim 10

Yoakim discloses that its capsule can be made of metal, a biodegradable material, or plastic. EX1004, [0180] (“**The capsule may be made of** materials such as **plastics, aluminium**, cellulose-based materials or other **biodegradable materials....**”); [0237], [0427], [0215], [0461], [0197], [0414]; EX1003, ¶¶327-328. Jarisch 929 further discloses that its capsule can be made of any of the claimed materials. EX1006, [0002]; EX1003, ¶¶329-330.

9. Claim 11

Yoakim discloses a capsule wherein “the body and/or lid can be deep drawn.” EX1004, [0355], [0215]; EX1003, ¶¶332-333. Furthermore, it would have been obvious to a POSITA to manufacture a capsule by deep drawing, as this is a fast and cost effective form of manufacturing thin-walled products such as coffee capsules. EX1003, ¶¶334-335; 76-78; EX1024-1029.

10. Claim 12

Yoakim, Jarisch 929, and Rossi render all elements of claim 12 obvious.

Elements [12.a]-[12.c] and [12.e]-[12.o] are discussed with claim 1 (Section VIII.A.2.a-o). [12.d] is discussed with claim 6 (Section VIII.A.5). EX1003, ¶¶336-337.

11. Claim 14

As stated for claim 3 (the “comparison” limitation) and claims 8-9 (the “exterior wall” limitation), it would have been obvious for a POSITA to combine the process of Rossi with Yoakim and Jarisch 929 to arrive at the claimed invention. Section VIII.A.4, VIII.A.7; EX1003, ¶¶338-340.

12. Claim 18

Both Yoakim and Jarisch 929 disclose that the base element and/or cover can be made of aluminum. EX1003, ¶¶341-343; EX1004, [0180], [0215], [0461], [0197], [0414]; EX1006, [0002].

13. Claim 19

Yoakim discloses that the base element has an exterior wall region that may be comprised, including partially, of an electrically conductive metal such as aluminum, which forms an electrically conductive section under K-fee’s Contentions. EX1004, [0128]-[0129]; EX1003, ¶¶344-345. Aluminum is known to be an excellent electrical conductor, and it has been acknowledged that an aluminum capsule is electrically conductive. EX1003, ¶345; EX1044, [0044]-[0045].

Yoakim further discloses that its recognition means can be “a magnetic element.” EX1004, [0496]. It would have been obvious to a POSITA to incorporate

a portion of the capsule to include a section of electrically conductive material, as a aluminum, as a recognition means. EX1003, ¶346. For example, it would have been obvious to include an electrically conductive section on the capsule to serve as a capsule recognition means as contemplated by the Yoakim system. EX1004, [0496]; EX1003, ¶346.

The limitation “the individualization identifier is located on the exterior wall region” is discussed with Claims 8-9 (Section VIII.A.7). EX1003, ¶¶347-348.

14. Claim 20

Yoakim in combination with Jarisch 929 and Rossi renders this claim obvious. Jarisch 929 discloses an optical code that has a plurality of matte and reflective zones. EX1006, [0026]-[0027] (“The symbols [on the identifier] may be printed or embossed by a pattern which possesses *surfaces having different reflective and/or absorbing properties to light*. The pattern may possess[] first surfaces having inclined *mirroring or absorbing properties to light* or flat reflective properties to light. Other variable physical characteristics may be chosen to distinguish each symbol, for example the color, *the reflectivity*, ...”); EX1003, ¶¶349-350.

Rossi also discloses that its system identifies the capsule using “barcodes, antennae, *or paints having optically* measurable properties.” EX1041, 11; EX1003, ¶351.

Yoakim discloses that both the base element and cover can be made of the

same material, such as aluminum. EX1003, ¶¶352-353; EX1004, [0128]-[0129], [0197], [0215], [0233], [0414].

B. Ground 2: Claims 4-5 and 15-17 Would Have Been Obvious Over Yoakim, Jarisch 929, Rossi and in further view of Castellani

1. Motivation to Combine Castellani

Yoakim, Jarisch, and Rossi disclose all elements of claims 4-5 and 15-17 except for (1) the holding arms for guiding the single-serve capsule; and (2) a waste container. EX1003, ¶¶354-356.⁹ However, a POSITA would have been motivated to combine the single-serve brewing system, capsule, and concepts of Yoakim, the code location of Jarisch 929, the machine operation of Rossi, with the ejection mechanism and waste container of Castellani¹⁰ to arrive at the '094 claims. *Id.*

Castellani, like Yoakim, Jarisch, and Rossi, is in the field of portion capsule beverage extraction and is analogous art. EX1003, ¶¶356-357. Further, Castellani is intended to be used with beverage extraction systems that utilize single-serve

⁹ See Ground 1 above for claim limitations duplicated in claims 4-5 and 15-17.

¹⁰ In IPR2022-01574 K-fee has not challenged the disclosure of these limitations in Castellani, nor has it provided any reasonings why a POSITA would not be motivated to combine Yoakim, Jarisch 929, and Rossi with Castellani. Paper 17.

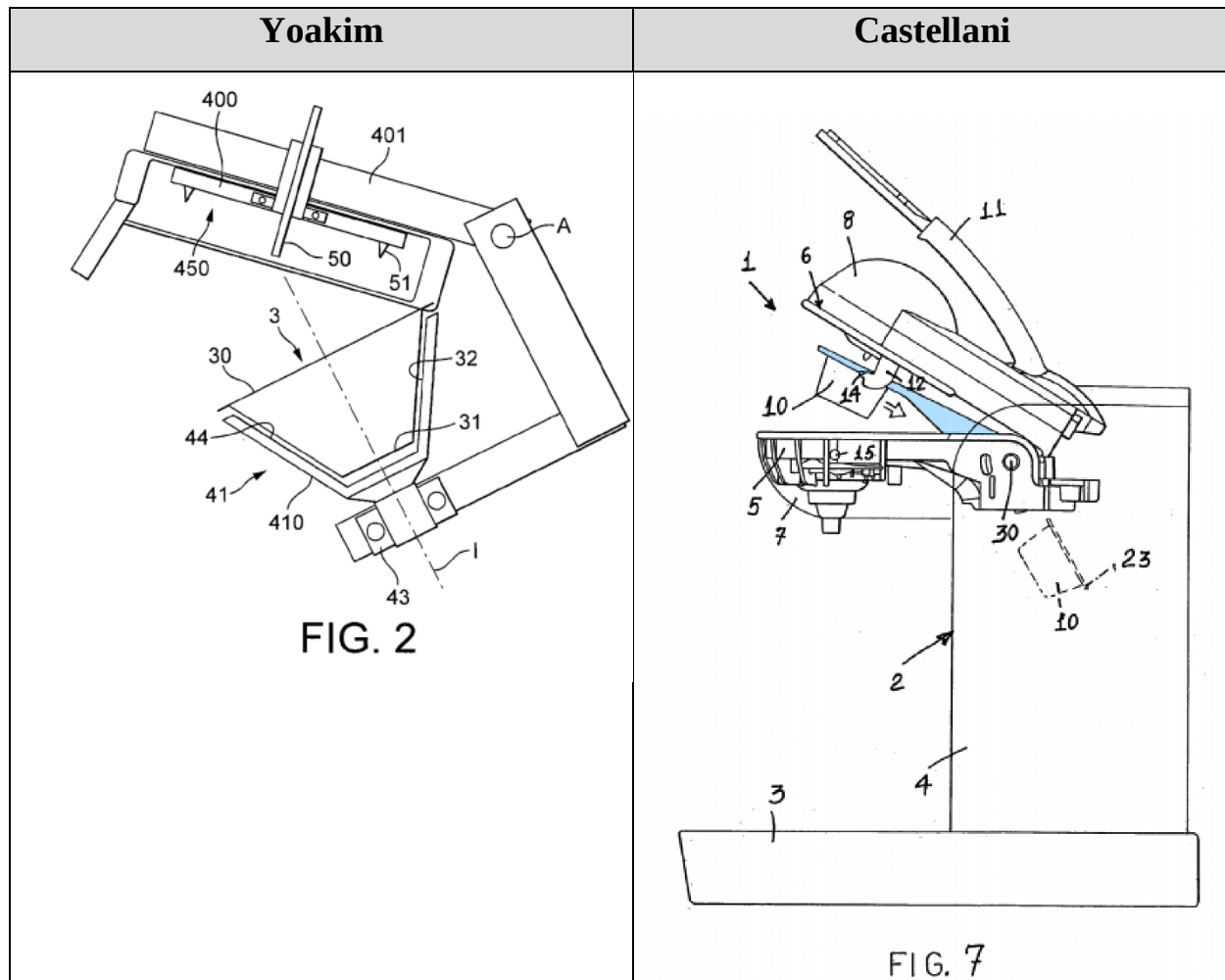
capsules, like the Yoakim, Jarisch 929, and Rossi systems. EX1009, [0009] (“[T]he aim of the present invention is to provide a delivery head, particularly for espresso coffee machines.”); [0026] (“[T]he delivery head according to the present invention, which has been generally indicated by the reference number 1, can be applied to an espresso coffee machine, generally indicated by the reference number 2, including a base or bottom 3 and an upright 4.”).

A POSITA would have been led by the express motivations disclosed in Castellani to adopt the disclosed ejection system. EX1003, ¶358. For example, Castellani explains its capsule unloading operation “can be performed in a very easy and safe manner” and resolves the “drawbacks” of “jammings” and the difficult “loading of the coffee capsule.” EX1009, [0010], [0007]-[0008]. Additionally, the ejection forks facilitate ejection of the capsule into a collecting vessel after extraction, which assists the user of the system such that they do not have to reach into the system to grasp a hot and wet used capsule. *Id.* [0054]; EX1003, ¶358. A POSITA would therefore have been motivated to utilize the ejection forks disclosed by Castellani to properly position and secure the capsule in the Yoakim and Jarisch 929 system in order to facilitate controlled centrifuge extraction and barcode reading, and to ease the use of the product by facilitating ejection. EX1003, ¶359.

A POSITA would have been further motivated to combine the waste container of Castellani with Yoakim, Jarisch 929 and Rossi because users of the those systems

would benefit from having a waste container for collecting used capsules, to avoid users having to throw out/recycle individual capsules and physically handle dirty or high temperature capsules after extraction. EX1003, ¶360.

A POSITA would have an expectation of success when combining the Yoakim, Jarisch 929, Rossi and Castellani systems because the systems are structurally similar and compatible, and are directed to single-serve brewing solutions. EX1003, ¶¶361-362; EX1009, [0012]-[0013]. For example, both the Yoakim and Castellani systems utilize top-mounting capsule insertion into a brewing head:



2. Claim 4

Castellani discloses a waste container in FIG7 for the single-serve capsule to fall into. EX1009, [0054]; EX1003, ¶¶363-365. It would have been obvious to a POSITA to incorporate the collecting vessel of Castellani into the brewing system of Yoakim, Jarisch 929 and Rossi. Section VIII.B.1; EX1003, ¶¶366-368.

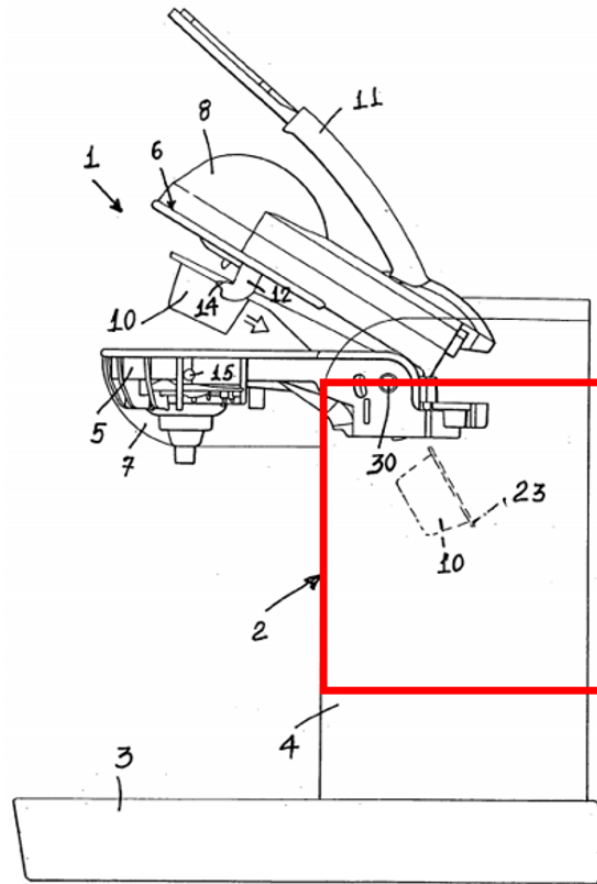
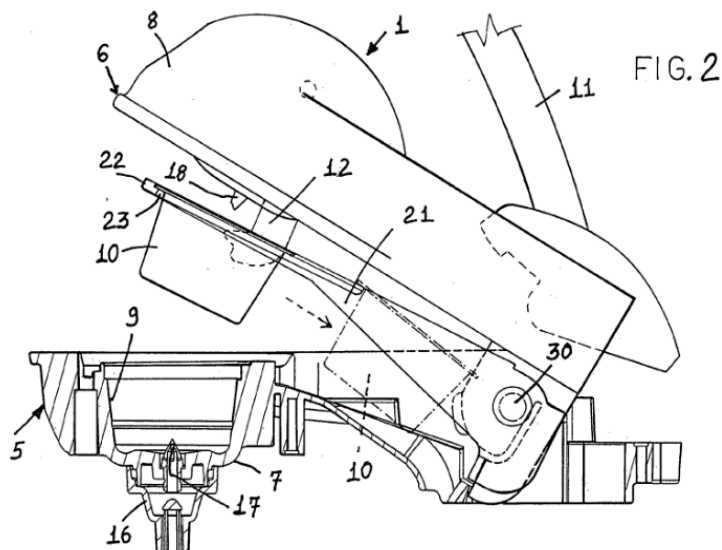


FIG. 7

3. Claim 5

Castellani discloses a pair of holding arms (fork element 21) for guiding the single-serve capsule, according to K-fee's Contentions. EX1009, [0043]; EX1003, ¶¶369-370. Castellani discloses, "the fork element 21 will rise [a] capsule 10, by its annular portion 22, which engages at the bottom thereof the bearing perimetrical edge portion 23 of the capsule 10." *Id.* [0053]. As shown in FIG2, "the 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 formed in the upright 2.” *Id.* [0054]; EX1003, ¶371.



A POSITA would have been motivated to utilize the ejection fork elements of Castellani with Yoakim, Jarisch 929 and Rossi. Section VIII.B.1; EX1003, ¶¶372-373.

4. Claim 15

Castellani discloses the features of claim 15 as set forth with claim 4 (waste container) and claim 5 (holding arms), and a POSITA would have been motivated to utilize these features of Castellani with Yoakim, Jarisch 929 and Rossi for the same reasons. EX1003, ¶¶374-377.

5. Claim 16

Yoakim, Jarisch 929, Rossi and Castellani render claim 16 obvious as shown in Claim 10/Section VIII.A.8. EX1003, ¶¶378-381.

6. Claim 17

Yoakim, Jarisch 929, Rossi and Castellani render claim 17 obvious as shown in Claim 11/Section VIII.A.9. EX1003, ¶¶382-385.

IX. DENIAL UNDER §325(d) IS INAPPROPRIATE

The Board employs a two-part test for §325(d). *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 (Feb. 13, 2020) (precedential).

A. Part 1

The prior art was all cited, directly or indirectly, in IDSs containing over 700 references. EX1002, 145-176, 364-366, 532-534.¹¹ However, analysis under Part 1 is not necessary because Part 2 does not support §325(d) denial. The Examiner materially erred in allowing the '094 claims just as the Board found in related patents—IPR2022-01574, IPR2023-00502, and IPR2023-00485.

B. Part 2

The Examiner committed material errors by “misapprehending or overlooking specific teachings in the relevant prior art” that, had they been properly considered,

¹¹ Applicant also disclosed prior IPRs and invalidity contentions during '094 prosecution, *however the Examiner never saw the Institution Decisions*. EX1002, 589, 595. These materials addressed different (though related) patents.

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would have led the Examiner to conclude that the challenged claims are unpatentable. *Advanced Bionics*, 8 n.9, 10.

Factor (c) weighs against denial because none of the Petition art was the basis of any rejection. *Trend Micro Inc. v. Cupp Comput. AS*, IPR2021-00813, Paper 7, 23 (Oct. 25, 2021) (factor (c) “strongly favors not exercising . . . discretion” where IDS reference does not form basis for rejection).

In the first/only Office Action (EX1002, 249-257), the Examiner indicated the claims contained allowable subject matter and did not reject **any** claim based on **any** prior art, let alone any of the references in this Petition. *Lyft, Inc., v. Rideshare Displays, Inc.*, IPR2021-01602, Paper 7, 14-15 (Apr. 11, 2022). The Reasons for Allowance stated:

The closest prior art of record are Jarisch [937] et al and Schmed et al (US 7,856,920). The prior art of record references neither disclose or suggests, in combination with the other limitations of independent claim 1, the detail structures of the single serve capsule in relation to detail structures of the beverage machine comprising a groove that is laterally offset from the chamfered mandrel; and a seal that is at least partially seated in the groove and configured to bear against a top side of the cover in a region between the peripheral edge of the cover and the region of the cover that is pierced by the chamfered mandrel.

EX1002, 255-256. In arriving at this, the Examiner did not cite or discuss the disclosures of Yoakim, Jarisch 929, Rossi, or Castellani. *Id.* Yet, these references,

expressly teach or suggest the elements in the reasons for allowance, including “the detail structures of the single serve capsule in relation to detail structures of the beverage machine” (Sections VIII.A.2.b-n), “a groove that is laterally offset from the chamfered mandrel” (Section VIII.A.2.o), and “a seal that is at least partially seated in the groove and configured to bear against a top side of the cover in a region between the peripheral edge of the cover and the region of the cover that is pierced by the chamfered mandrel” (Section VIII.A.2.o). Moreover, the Examiner appears to have not considered Jarisch as prior art since he incorrectly granted Applicant priority to its foreign application. Accordingly, to the extent the asserted *combination* of references was evaluated during prosecution (it was not), such evaluation was *minimal* at best. Thus, this factor weighs against exercising discretion.

Although different Examiners used Rossi,¹² Jarisch 929 and Jarisch

¹² A different Examiner used Rossi in Appl. 16/538,752, but for claims that did **not** include limitations requiring “a pump that supplies water into the single-serve capsule only after the individualization identifier is read by the sensor/detector” **or** “the pump is rendered inoperable if there is a determination that the single-serve capsule is not compatible with the beverage machine.” In response, Applicant amended the claims, and never disputed the Examiner’s use of Rossi.

(EX1005)¹³ at times during prosecution of distant related applications, those claims did not include the current language requiring “an individualization identifier, **which includes an optically detectable repeat pattern**, provided on the bottom side of the flange” and “a pump that supplies water into the single-serve capsule only after the individualization identifier is read by the sensor/detector.”

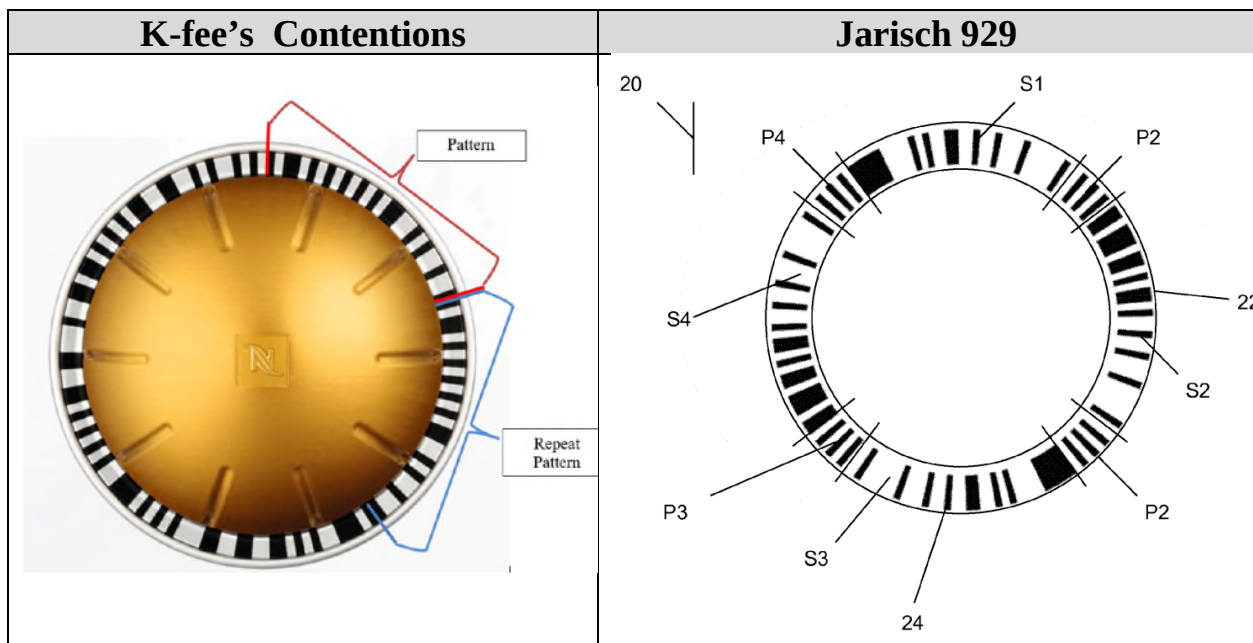
Factor (e) weighs against discretionary denial. The Examiner materially erred

EX1065, 2-3; EX1066, 2-3.

¹³ A different Examiner used Jarisch 929 in Appl. 15/211,823 relating to an identifier “included in the membrane as a partial layer of the membrane,” and other Examiners used Jarisch relating to a claimed barcode on the bottom side of the flange, but there are no “partial layer” or “barcode” limitations in the ’094 claims. A different Examiner also considered Jarisch in Appl. 16/860,441, but reiterated that Jarisch discloses that it was “well established” to place optical codes “on the bottom side of the flange of a portion capsule. . . .” EX1062, 15. K-fee added other limitations to distinguish its claims, and never disagreed on record with the relevance of Jarisch’s disclosure to K-fee’s limitation of a code on the bottom of the flange. EX1063, 16-17. During examination of 16/538,752, Applicant did not dispute reliance on Jarisch (EX1064, 8) and instead amended its claims to recite additional limitations using multiple capsules and codes. EX1065, 2-3.

by overlooking the specific prior art disclosures relating to at least the limitations identified in the Allowable Subject Matter. This Petition cures all of the Examiner’s errors and demonstrates why the challenged claims are unpatentable (Section VIII.A.2.a-n). Petitioner also explains why a POSITA would have combined the cited references to arrive at the claimed subject matter (Section VIII.A.1).

The Examiner did not discuss Yoakim in connection with the detailed structures of the single serve capsule in relation to detail structures of the beverage machine, including the claimed groove and seal, despite the fact that it explicitly teaches all of these features. Section VIII.A.2.a-i, VIII.A.2.k-o; EX1003, ¶142. Nor did the Examiner discuss Jarisch 929 for the “individualization identifier, which includes an optically detectable repeat pattern.” Yet a Jarisch 929-style configuration is what K-fee accuses as satisfying this:



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EX1003, ¶143; *compare* EX1049, 22-28, *with* EX1006, FIG2 [0017], [0022], [0063]-[0064].

The Examiner also failed to discuss Rossi for the claimed beverage machine operation, including determining compatibility with the beverage machine (Claim 2) and identifier comparison to a stored reference (Claim 3). EX1003, ¶143. Accordingly, the combination of Yoakim, Jarisch 929 and Rossi (along with Castellani (Ground 2)) teach every limitation of the claims. Section VIII; EX1003, ¶¶145-146.

Additionally, the Examiner erred by explicitly granting K-free foreign priority (thus falsely antedating Jarisch references). EX1002, 406-409; Section VII.E.1-5; IPR2022-01574, Paper 12, 17-27; IPR2023-00502, Paper 9, 9-14; IPR2023-00485, Paper 9, 9-18.

Because the Petition Grounds explicitly negate the Reasons for Allowance, the Examiner materially erred by misapprehending or overlooking their disclosures. *3Shape A/S and 3Shape Inc., v. Align Tech., Inc.*, IPR2021-01323, Paper 16, 12 (Jan. 31, 2022); *Viken Detection Corp. v. Am. Sci. and Eng. Inc.*, IPR2021-01585, Paper 11, 13-14 (May 5, 2022).

Factor (f) weighs against discretionary denial. This Petition is supported by the Jobin declaration, which provides new analysis as to why K-free is not entitled to foreign priority (EX1003, ¶¶152-178). EX1003 further contains analysis of other

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claim limitations not found in K-fee's prior patents, such as an optical sensor/detector "direct[ing] a beam through a portion of the wall structure to read the identifier on the single-serve capsule," and a lack of priority as to this limitation. EX1003, ¶¶272-278.

The prior art renders obvious the Challenged Claims, and the strength of the Petition alone supports the Board not exercising its discretion. *Apple, Inc. v. Omni MedSci, Inc.*, IPR2020-00029, Paper 7, 55 (Apr. 22, 2020).

Thus, §325(d) denial is inappropriate.

X. DENIAL UNDER *NHK/FINTIV* IS INAPPROPRIATE

Factor 1 weighs against denial or is at least neutral: The litigation is in its early stages. And while a stay has not been granted, Petitioner intends to move for a stay pre-institution, and if denied, will renew its motion if the IPRs are instituted. Here, IPRs are being filed on all asserted patents and Judge Wu has granted stays pending IPR even where a claim construction order has already been issued. *Vivint, Inc. v. SkyBell Technologies, Inc.*, 2022 WL 18587113, *4 (C.D. Cal. Nov. 10, 2022).

Factor Two weighs against denial: Trial will likely occur "after the projected statutory deadline for the PTAB's final written decision." Interim Procedure, 9. The current case schedule concludes with the *Markman* hearing and thus ***no trial date has been set***. The median time to trial in this district is

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approximately 28 months. EX1057, 68. For Judge Wu and patent cases in this district, average approximately 33 months to trial (*roughly September 2025*). EX1058. Thus, it is more likely that the trial will occur long after conclusion of this IPR.

“[W]hen analyzing the proximity of the court’s trial date ... when other relevant factors weigh against exercising discretion to deny institution or are neutral, the proximity to trial should not alone outweigh all of those other factors.” Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation, 8 (June 21, 2022).

Factor Three weighs against denial: Investment in the case has not been significant. Motion practice has been minimal and discovery is in its early stages. The *Markman* hearing is not scheduled until January 2024. Petitioner also diligently filed these IPRs within approximately three months of the PTAB instituting IPRs addressing similar issues, including §325(d) and priority issues. IPR2023-00502; IPR2023-00485.

Factor Four is neutral: There may be little to no substantive overlap if a stayed is granted.

Factor Five is neutral: The parties are the same.

Factor Six strongly weighs against denial: As evidenced by related institutions (IPR2023-01574, IPR2023-00502, IPR2023-00485) the merits of the

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Petition are compelling and strongly weigh against denial by clearly showing the unpatentability of the claims, including the limitations the Examiner cited as lacking.

Interim Procedure, 4-5.

Thus, §314(a) denial is inappropriate.

XI. MANDATORY NOTICES PURSUANT TO 37 C.F.R. §42.8

A. Real Parties-In-Interest under 37 C.F.R. §42.8(b)(1).

Nestlé USA, Inc., Nestlé Nespresso SA, and Société Des Produits Nestlé SA are real parties-in-interest with Petitioner.

B. Related Matters Under 37 C.F.R. §42.8(b)(2).

Nespresso USA, Inc. is seeking declaratory judgment that it does not infringe the '094 Patent in *Nespresso USA, Inc. v. K-Fee System GmbH*, Case No. 2:22-cv-09295-GW.

C. Lead and Back-up Counsel under 37 C.F.R. §42.8(b)(3).

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D. Service Information under 37 C.F.R. §42.8(b)(4).

Please direct all correspondence to lead counsel at the address identified above. Petitioner consents to electronic service on counsel of record.

XII. GROUNDS FOR STANDING

Petitioner certifies that the '094 Patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review of the '094 Patent. 37 C.F.R. §42.104(a).

XIII. PAYMENT OF FEES

A fee of \$41,500 charged to Deposit Account 130019 was paid with the filing this petition. 37 C.F.R. §§42.15(a), 42.103. Should any further fees be required by the present Petition, the Board is hereby authorized to charge the above-referenced Deposit Account.

XIV. STATEMENT OF PRECISE RELIEF REQUESTED

Petitioner requests IPR and cancellation of claims 1-20 because they are unpatentable under 35 U.S.C. §103 based on the foregoing grounds.

Date: December 6, 2023

Respectfully submitted,

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Counsel for Petitioner

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§42.6 and 42.105, I hereby certify that on December 6, 2023, a copy of the attached PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 11,542,094, together with all exhibits, and all other papers filed therewith, including a Power of Attorney on behalf of Petitioners, was served via Priority Mail Express on the attorneys of record for the patent owner at the following address:

Attorney of Record for Patent Owner

The Dobrusin Law Firm P.C. (Customer No 25215)
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Date: December 6, 2023

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Counsel for Petitioner

CERTIFICATION PURSUANT TO 37 C.F.R. § 42.11

Pursuant 37 C.F.R. § 42.11, the undersigned certifies that this PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 11,542,094, and accompanying evidence are not being presented for an improper purpose and that all legal contentions, allegations, and denials are warranted and have evidentiary support.

Date: December 6, 2023

Respectfully submitted,

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CERTIFICATION PURSUANT TO 37 C.F.R. § 42.24(d)

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that this PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 11,254,491, complies with the type-volume limitation of 37 C.F.R. § 42.24(a). The word count application of the word processing program used to prepare this paper states that the paper contains 13,997/14,000 words, excluding the parts of the paper exempted by 37 C.F.R. §§ 42.24(a)(1).

Date: December 6, 2023

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CLAIM LISTING APPENDIX

1.	A beverage system comprising:
[1.a]	A) a single-serve capsule comprising: (i) a base element with a cavity, in which a beverage material is provided,
[1.b]	the base element including a wall that is symmetrical about a central longitudinal axis thereof
[1.c]	and having a closed, rounded bottom portion,
[1.d]	the base element is free of a filter inside of the cavity;
[1.e]	ii) a flange extending outwardly from the base element, the flange having a top side and an opposing bottom side;
[1.f]	iii) a cover fastened to the top side of the flange, the cover is bowed outwardly in a central region of the cover relative to a peripheral region of the cover,
[1.g]	the cover includes a region configured to be pierced at a location that is offset from the central longitudinal axis;
[1.h]	iv) a barrier layer to prevent moisture or aroma from escaping out of the single-serve capsule; and
[1.i]	v) an individualization identifier, which includes an optically detectable repeat pattern, provided on the bottom side of the flange;
[1.j]	B) a beverage machine comprising: (i) a capsule receptacle having a wall structure into which the single-serve capsule is received, the capsule receptacle defined by a base portion and an annular portion laterally extending outwardly from the base portion in a direction that is transverse to a longitudinal axis of the capsule receptacle;
[1.k]	ii) a chamfered mandrel that pierces the cover at the location that is offset from the central longitudinal axis;
[1.l]	iii) an optical sensor/detector positioned outside of the base portion of the wall structure of the capsule receptacle and below the annular portion, which directs a beam through a portion of the wall structure to read the individualization identifier on the single-serve capsule;
[1.m]	iv) a pump that supplies water into the single-serve capsule only after the individualization identifier is read by the sensor/detector;
[1.n]	v) a groove that is laterally offset from the chamfered mandrel; and vi) a seal that is at least partially seated in the groove and configured to bear against a top side of the cover in a region between the peripheral region of the cover and the region of the cover that is pierced by the chamfered mandrel.

2.	The beverage system according to claim 1, wherein the pump is rendered inoperable if there is a determination that the single-serve capsule is not compatible with the beverage machine.
3.	The beverage system according to claim 2, wherein the pump supplies the water into the single-serve capsule only after the individualization identifier is compared to a stored reference.
4.	The beverage system according to claim 2, wherein the beverage machine comprises a waste container for the single-serve capsule to fall into.
5.	The beverage system according to claim 4, wherein the beverage machine comprises a pair of holding arms for guiding the single-serve capsule.
6.	The beverage system according to claim 3, wherein the base element comprises an exterior wall that includes a plurality of indentations arranged about the central longitudinal axis.
7.	The beverage system according to claim 6, wherein the cavity is defined by an inside wall that includes a ledge at an upper region thereof, the ledge projects from the inside wall towards the central longitudinal axis.
8.	The beverage system according to claim 6, wherein the individualization identifier is located on the exterior wall of the base element.
9.	The beverage system according to claim 7, wherein the individualization identifier is located on the exterior wall of the base element.
10.	The beverage system according to claim 9, wherein the base element is made of metal, a biodegradable material, or plastic.
11.	The beverage system according to claim 9, wherein the base element is deep drawn.
12.	A beverage system comprising:
[12.a]	A) a single-serve capsule comprising: (i) a base element with a cavity, in which a beverage material is provided,
[12.b]	the base element including a wall that is symmetrical about a central longitudinal axis thereof
[12.c]	and having a closed, rounded bottom portion,
[12.d]	the base element having an exterior wall that includes a plurality of indentations arranged about the central longitudinal axis,
[12.e]	the base element is free of a filter inside of the cavity;

[12.f]	ii) a flange extending outwardly from the base element, the flange having a top side and an opposing bottom side;
[12.g]	iii) a cover fastened to the top side of the flange, the cover is bowed outwardly in a central region of the cover relative to a peripheral region of the cover,
[12.h]	the cover includes a region configured to be pierced at a location that is offset from the central longitudinal axis;
[12.i]	iv) a barrier layer to prevent moisture or aroma from escaping out of the single-serve capsule; and
[12.j]	v) an individualization identifier, which includes an optically detectable repeat pattern, provided on the bottom side of the flange;
[12.k]	B) a beverage machine comprising: (i) a capsule receptacle having a wall structure into which the single-serve capsule is received, the capsule receptacle defined by a base portion and an annular portion laterally extending outwardly from the base portion in a direction that is transverse to a longitudinal axis of the capsule receptacle,
[12.l]	ii) a chamfered mandrel that pierces the cover at the location that is offset from the central longitudinal axis;
[12.m]	iii) an optical sensor/detector positioned outside of the base portion of the wall structure of the capsule receptacle and below the annular portion, which directs a beam through a portion of the wall structure to read the identifier on the single-serve capsule,
[12.n]	iv) a pump that supplies water into the single-serve capsule only after the individualization identifier is read by the sensor/detector;
[12.o]	v) a groove that is laterally offset from the chamfered mandrel; and vi) a seal that is at least partially seated in the groove and configured to bear against a top side of the cover in a region between the peripheral region of the cover and the region of the cover that is pierced by the chamfered mandrel.
13.	The beverage system according to claim 12, wherein the cavity is defined by an inside wall that includes a ledge at an upper region thereof, the ledge projects from the inside wall towards the central longitudinal axis.
14.	The beverage system according to claim 13, wherein the pump supplies the water into the single-serve capsule only after the individualization identifier is compared to a stored reference, and the individualization identifier is located on the exterior wall of the base element.

15.	The beverage system according to claim 14, wherein the beverage machine comprises a waste container for the single-serve capsule to fall into and a pair of holding arms for guiding the single-serve capsule.
16.	The beverage system according to claim 15, wherein the base element is made of metal, a biodegradable material, or plastic.
17.	The beverage system according to claim 16, wherein the base element is deep drawn.
18.	The beverage system according to claim 13, wherein the base element and/or the cover are made of aluminum.
19.	The beverage system according to claim 13, wherein the base element has an exterior wall region with an electrically conductive section, and the individualization identifier is located on the exterior wall region.
20.	The beverage system according to claim 19, wherein the individualization identifier has a plurality of matte and reflective zones, and the base element and the cover are made of the same material.