

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NESPRESSO USA, INC.
Petitioner

v.

K-FEE SYSTEM GMBH
Patent Owner

IPR2023-00485

**PETITION FOR INTER PARTES REVIEW
OF U.S. PATENT NO. 11,230,430**

TABLE OF CONTENTS

	Page
I. INTRODUCTION	1
II. TECHNOLOGY BACKGROUND.....	3
A. Capsule Components and Manufacturing	5
B. Single-Serve Beverage Capsule Identification Systems	8
C. Code Placement and Positioning.....	12
III. '430 PATENT.....	13
A. Overview	13
B. Prosecution History	15
IV. SECTION 325(d) PROVIDES NO BASIS FOR DISCRETIONARY DENIAL.....	17
A. <i>Advanced Bionics</i> Part 1	19
B. <i>Advanced Bionics</i> Part 2	19
1. Factor (c) (extent to which the art was evaluated during prosecution)	20
a) Rossi (EX1041)	21
b) Jarisch (EX1005)	22
2. Factor (e) (how the examiner erred).....	24
3. Factor (f) (extent to which additional evidence and facts presented in the petition warrant reconsideration).....	29
V. PERSON OF ORDINARY SKILL IN THE ART	31
VI. CLAIM CONSTRUCTION	31
VII. PETITION GROUNDS	33
VIII. PRIOR ART.....	33
A. Yoakim	34
B. Jarisch.....	35
C. Rossi	36
D. Castellani	37

TABLE OF CONTENTS
(continued)

	Page
E. Patent Owner’s Foreign Priority Documents Do Not Support the Claims	38
IX. CLAIMS 1-10 ARE UNPATENTABLE UNDER §103	46
A. Ground 1: Claims 1-10 Would Have Been Obvious Over Yoakim in view of Jarisch, Rossi and Castellani	46
1. Motivation to Combine Yoakim, Jarisch and Rossi	46
2. Motivation to Combine Castellani	51
3. Claim Elements	54
a) Preamble: Claims 1, 7	54
b) Element [1.a], [7.a]	54
c) Element [1.b], [7.b]	55
d) Element [1.c], [7.c]	56
e) Element [1.d], [7.d]	56
f) Element [1.e], [7.e]	58
g) Element [1.f], [7.f]	58
h) Element [1.g], [7.g]	61
i) Element [1.h], [7.h]	62
j) Element [1.i], [7.i]	62
k) Element [1.j], [7.j]	64
l) Element [1.k], [7.l]	65
m) Element [1.l], [7.m]	66
n) Element [1.m], [7.n]	70
o) Element [1.n], [7.o]	71
p) Element [1.o]	71
4. Claim 2	73
5. Claim 3	74

TABLE OF CONTENTS
(continued)

	Page
6. Claim 4.....	74
7. Claim 5, [7.k]	75
8. Claim 6.....	76
9. Independent Claim 7	77
a) Elements [7a]-[7.o].....	77
b) Element [7p]	77
10. Claim 8.....	81
11. Claim 9.....	81
12. Claim 10.....	81
X. SECTION 314 DENIAL UNDER <i>NHK/FINTIV</i> IS ALSO INAPPROPRIATE	81
XI. MANDATORY NOTICES PURSUANT TO 37 C.F.R. §42.8.....	82
A. Real Parties-In-Interest under 37 C.F.R. §42.8(b)(1).	82
B. Related Matters Under 37 C.F.R. §42.8(b)(2).	82
C. Lead and Back-up Counsel under 37 C.F.R. §42.8(b)(3).	82
D. Service Information under 37 C.F.R. §42.8(b)(4).....	83
XII. GROUNDS FOR STANDING.....	83
XIII. PAYMENT OF FEES	83
XIV. STATEMENT OF PRECISE RELIEF REQUESTED	83
CLAIM LISTING APPENDIX	89

TABLE OF AUTHORITIES

	Page(s)
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<i>3Shape A/S and 3Shape Inc., v. Align Tech., Inc.</i> , IPR2021-01323, Paper 16 (PTAB Jan. 31, 2022)	28
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<i>Apple, Inc. v. Omni MedSci, Inc.</i> , IPR2020-00029, Paper 7 (PTAB Apr. 22, 2020)	28
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<i>Dish Network L.L.C. v. TQ Delta LLC</i> , IPR2016-01470, Paper 1 (Jul. 20, 2016)	32
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<i>Flash-Control LLC v. Intel Corp.</i> , 2021 WL 2944592 (Fed. Cir. 2021)	41
<i>FWP IP ApS v. Biogen MA, Inc.</i> , 749 Fed.Appx. 969 (Fed. Cir. 2018).....	7
<i>Hyatt v. Dudas</i> , 492 F.3d 1365 (Fed. Cir. 2007)	40
<i>K-fee System GmbH v. Nespresso USA, Inc. et al.</i> , Case No. 2:21-cv-3402	2
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TABLE OF AUTHORITIES
(continued)

	Page(s)
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<i>Novozymes A/S v. DuPont Nutrition Biosciences APS</i> , 723 F.3d 1336 (Fed. Cir. 2013)	40, 46
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Statutes	
35 U.S.C. §102(b)	38

TABLE OF AUTHORITIES
(continued)

	Page(s)
35 U.S.C. §102(e)	34, 35
35 U.S.C. §103.....	34, 47, 84
35 U.S.C. §314(a)	81,82
35 U.S.C. §325(d)	17, 18, 19, 24, 30, 31
Other Authorities	
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37 C.F.R. §42.8(b)(1).....	83
37 C.F.R. §42.8(b)(2).....	83
37 C.F.R. §42.8(b)(3).....	83
37 C.F.R. §42.8(b)(4).....	84
37 C.F.R. §42.15(a).....	84
37 C.F.R. §42.103	84
37 C.F.R. §42.104(a).....	84
83 Fed. Reg. 51340	32
U.S. Patent No. 11,230,430.....	<i>passim</i>

Patent No. 11,230,430

Petition for *Inter Partes* Review

PETITIONER'S EXHIBIT LIST

No.	Reference	Referred To As
1001	U.S. Patent No. 11,230,430	'430 Patent
1002	Prosecution History of U.S. Patent No. 11,230,430	'430 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

Patent No. 11,230,430

Petition for *Inter Partes* Review

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/2022/08/ITC-Coffee-Capusles.pdf	Italcoat
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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>K-Fee System GmbH v. Nespresso USA, Inc. et al.</i> , Case No. 2:22-cv-00525	Complaint
1049	<i>K-Fee System GmbH v. Nespresso USA, Inc. et al.</i> , Case No. 2:22-cv-00525 – Supplemental Disclosure of Infringement Contentions (July 11, 2022)	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	Excerpt from Appl. No. 16/538,752: Nov. 8, 2019 Office Action Rejection	752 Appl. First Rejection
1058	Excerpt from Appl. No. 16/538,752: Jan. 23, 2020 Response to Office Action	752 Appl. First Response
1059	Excerpt from Appl. No. 16/538,752: Apr. 28, 2020 Office Action Rejection	752 Appl. Second Rejection
1060	Excerpt from Appl. No. 16/538,752: Jul. 27, 2020 Response to Office Action	752 Appl. Second Response
1061	Excerpt from Appl. No. 16/538,752: Nov. 3, 2020 Notice of Allowance	752 Appl. Notice of Allowance
1062	Excerpt from Appl. No. 16/860,441: Jul. 13, 2020 Office Action Rejection	441 Appl. First Rejection
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I. INTRODUCTION

Petitioner requests *inter partes* review and cancellation of claims 1-10 of U.S. Patent No. 11,230,430 Patent (“the ’430 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 Vertuo System. 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 to the allegedly patentable features. EX1053, 1-29. K-fee’s barrage of prior art led one Examiner to request clarification on the relevance of the references:

[T]he cloaking of a clearly relevant reference in a long list of references may not comply with applicants' duty to disclose, see Penn Yan Boats, Inc. v. Sea Lark Boats, Inc., 359 F. Supp. 948, aff'd 479 F.3d 1338. . . . With regard to the numerous IDS submissions, applicants are invited to indicate the relevance of the submissions to the claims. . . . Without claim listings the examiner is unable to determine how the claims in the reports relate to the claims under examination.

Id., 32-33.¹ K-fee never provided guidance on the relevance of its voluminous IDS references, and several patents ultimately issued, including the '430 Patent. But the '430 Patent would never have issued had this Examiner utilized Rossi and Jarisch, and their combination with the references cited in this Petition.

In April 2021, K-fee filed its first case against Nespresso in the Central District of California asserting three patents. *K-fee System GmbH v. Nespresso USA, Inc. et al.*, Case No. 2:21-cv-3402. Nespresso filed IPRs on those patents. IPR2021-01221, -01222, -01223. The district court granted summary judgment that Nespresso did not infringe any claim of those three patents. EX1054.

After seeing Nespresso's IPRs, K-fee drafted new claims in continuation

¹ All emphasis in this Petition is added.

Patent No. 11,230,430

Petition for *Inter Partes* Review

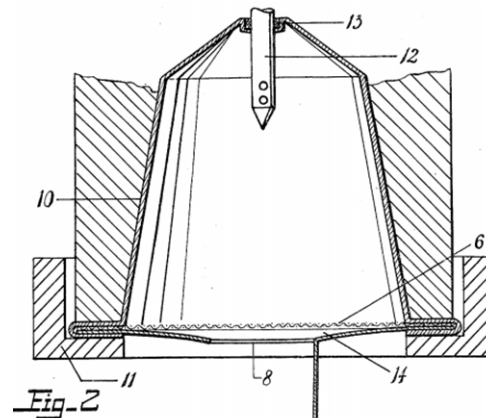
applications in an attempt to fix its patentability and priority date problems. K-fee filed a second case with its newly-issued patents, including the '430 Patent, on January 25, 2022. EX1048. However, as shown in this Petition, K-fee has not fixed its priority and patentability problems.

The '430 Patent attempts to claim a combination of prior art elements contemplated nowhere in the priority documents. EX1001, claims 1-10. Accordingly, such claims are unpatentable over the prior art as presented in this Petition. Nespresso respectfully requests institution and cancellation of K-fee's claims.

II. TECHNOLOGY BACKGROUND

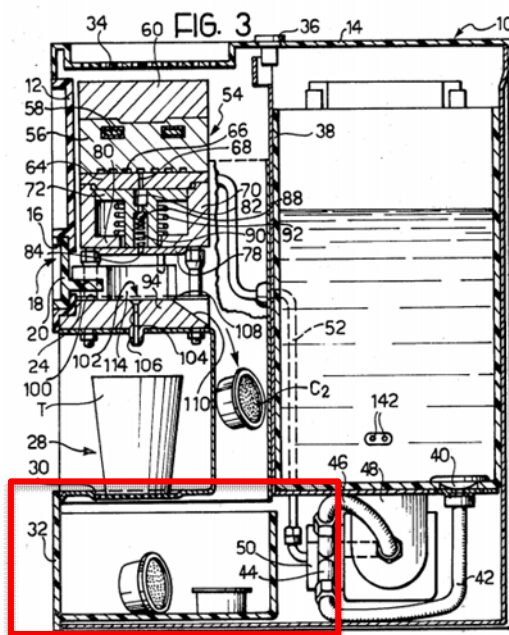
The process of coffee extraction has been known for centuries (EX1003, ¶¶53-54), and single-portion coffee offerings began to emerge in the 1960s. *Id.* ¶¶55-56. Single-serve beverage systems by Keurig, Nespresso, and others were widely available by 2010. *Id.* ¶57. The operation and components of these systems are well-known. *Id.* ¶¶58-59. 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 the beverage into a cup for drinking. *Id.*

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 water 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 the use of a subsequent capsule. Used-capsule containers, such as the drawer (32) (below), 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, 24-30, 47-55, 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 the coffee from moisture and oxygen. EX1003, ¶¶72-74; EX1018, 1:5-12; EX1015, [0014]-[0015]. Aluminum, 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 knew to use barrier layers in multi-ply coffee packaging to increase freshness and prevent moisture or aroma from escaping. EX1003, ¶83; EX1055, 205 (“Today, the most commonly used materials are the inexpensive and easy-to-manage flexible polymer-aluminum multiply laminates, which . . . ensure an efficient barrier due to the presence of a central layer of aluminum foil.”); EX1056, 246.

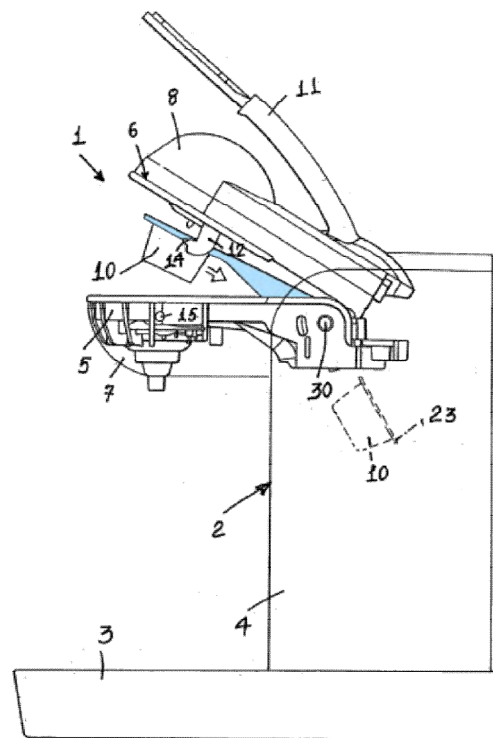
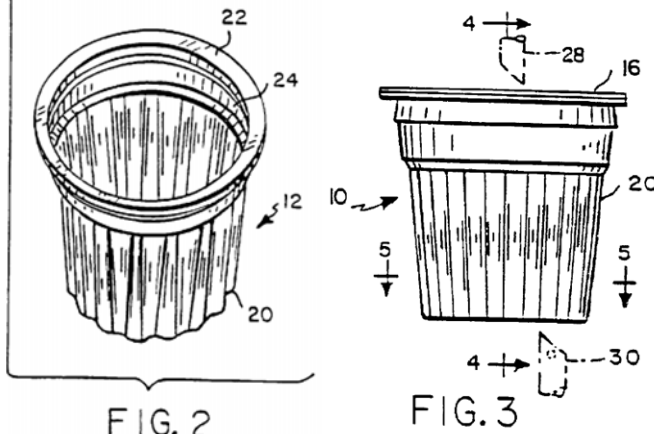
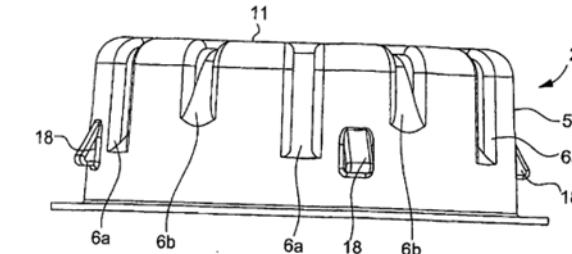
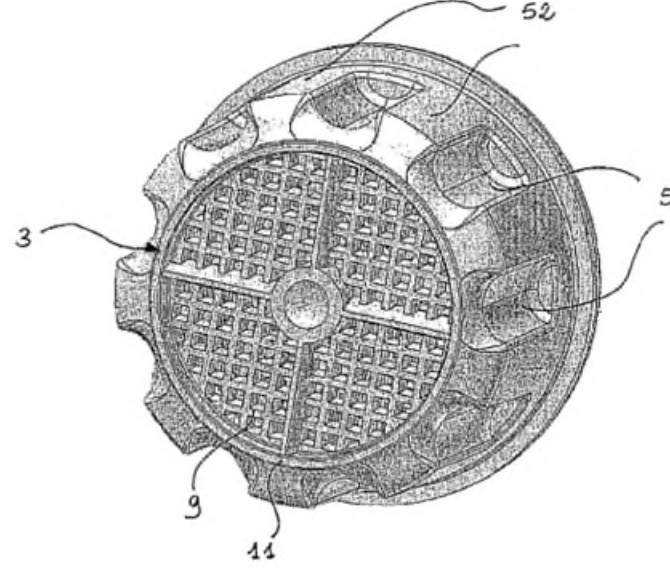
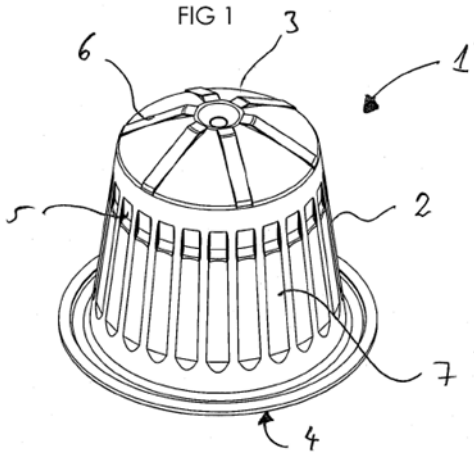
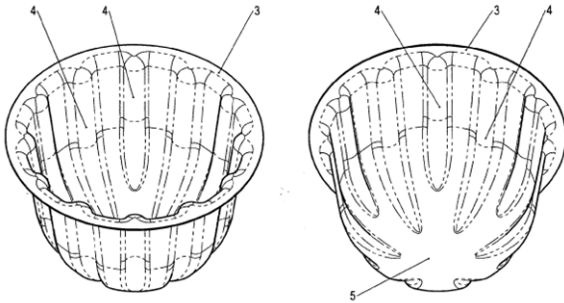


FIG. 7

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 (“[P]ressurization allows the shelf life of coffee to be extended for up to 18 months. . . . Pressurization consists of creating a pressure inside the package that is higher than atmospheric.”); EX1024, [0005]. Internal pressure inside the sealed capsule 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 physical features 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 physical features in single-serve coffee capsule structures is shown below. EX1003, ¶¶90-94.

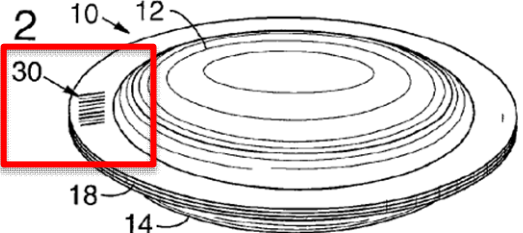
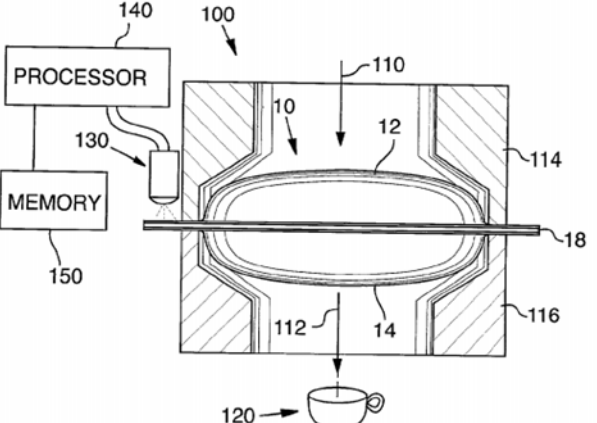
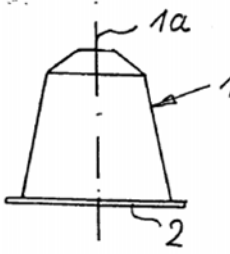
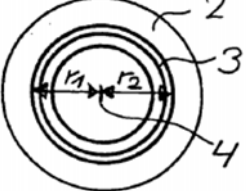
Date	Capsule	Description
2001	 FIG. 2 FIG. 3	“circumferentially spaced flutes which are strategically positioned to enhance resistance to buckling” EX1033, 2:20-25.
2006	 Fig.2	“A first series of ribs 6a plays a part in reinforcing the capsule 2.” EX1011, [0077].
2007	 FIG. 2	Indentations on the capsule wall and cavity. EX1034, [0009].

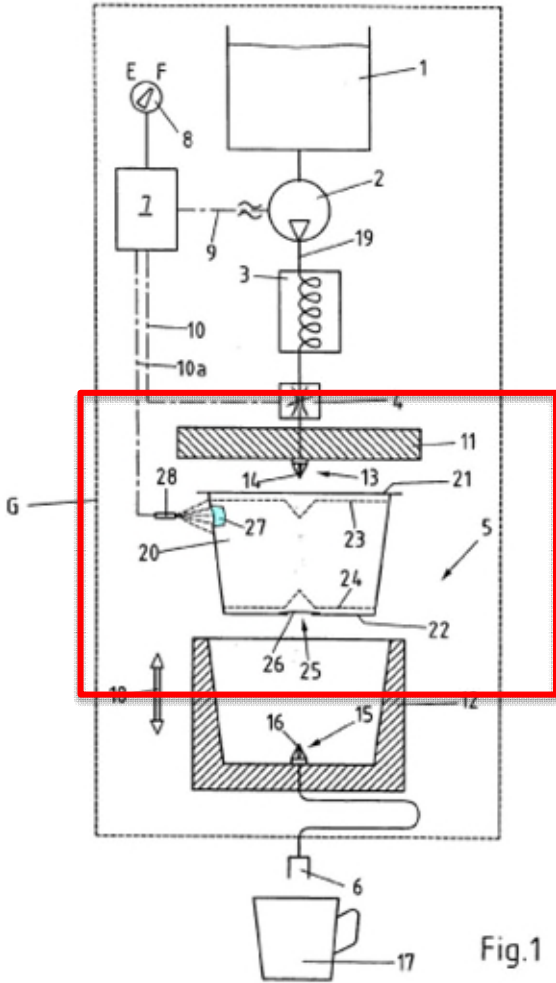
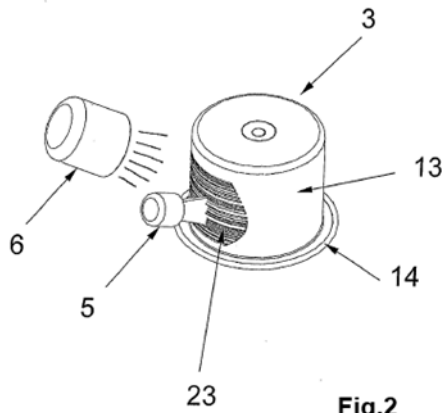
Date	Capsule	Description
2010		The grooves (7) are “side wall <i>stiffening elements</i>.” EX1035, [0027], [0037].
2010	 FIG. 6 FIG. 6 bis	The capsule body has “longitudinal <i>stiffening ribs</i>” that “allow[] the <i>optimization of the stability</i> of the container.” EX1008, [0009].

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 barcodes, or other optical codes, off the capsule surface and adjust brewing parameters accordingly. EX1003, ¶¶97-98; EX1036, 4:40-46, 5:1-53, 7:46-8:23.

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]; <i>see also</i> [0002]-[0006], [0023]-[0028], [0032]-[0033].
2004	Fig.1  Fig.1a 	Machine <i>blocks operation</i> if capsule code does not match pre-programmed identifier. EX1024, [0014].

Date	Capsule/System	Description
2005	 Fig.1	Coffee identification system with using a barcode <i>so the system can control extraction parameters, including the water pump.</i> EX1039, [0019].
2005	 Fig.2	System reads capsule barcode to “determine the origin of the containers used,” and “<i>selectively start or not start a cycle of operations.</i>” EX1040, 2:4-20.

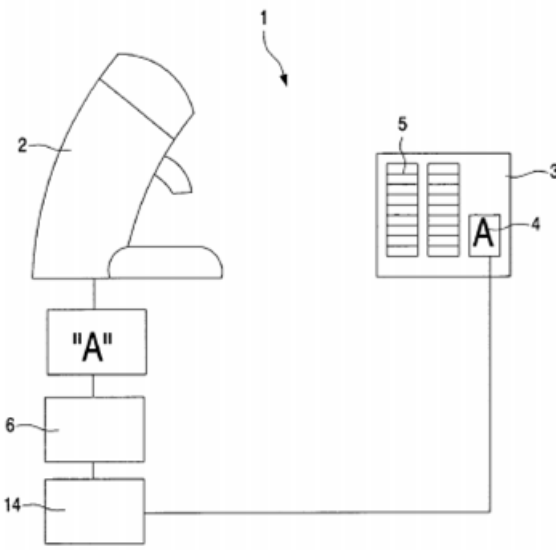
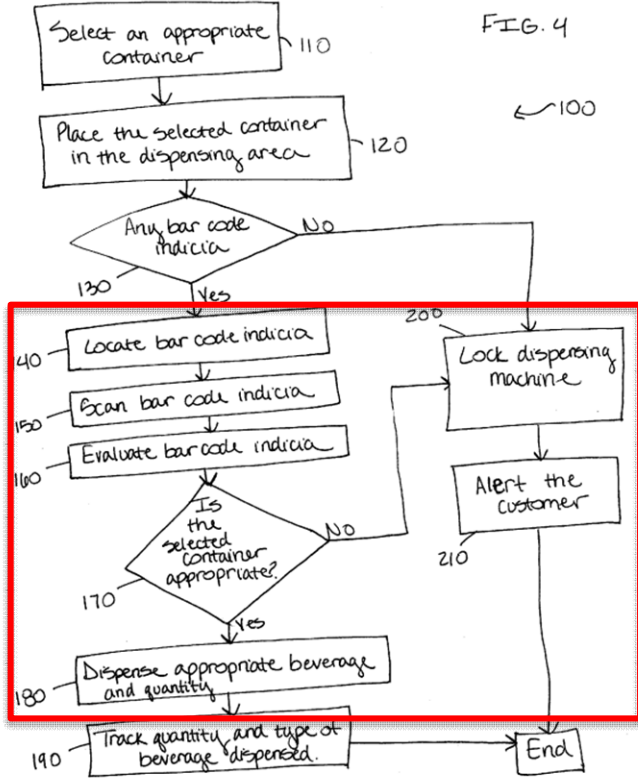
Date	Capsule/System	Description
2007	 Fig. 1	System stores pre-programmed brewing parameters that are selected based on a capsule barcode. EX1038, [0005]-[0006], [0011]-[0012], [0025]-[0028].
2009	 FIG. 4	System checks coffee barcode and either locks machine or operates based on result. EX1042, [0054]-[0055].

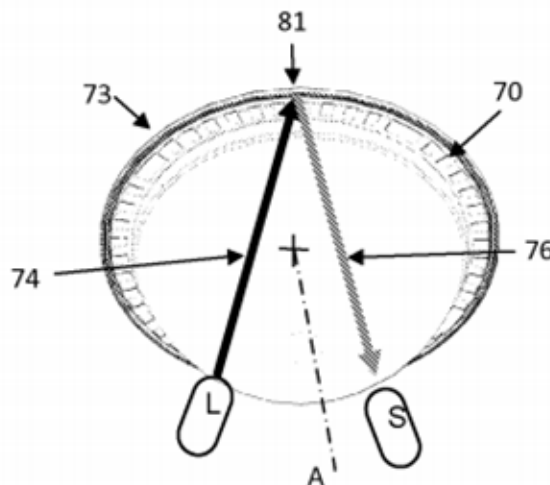
FIG. 1

C. Code Placement and Positioning

POSITAs also understood how to position optical codes on capsules to ensure proper alignment with the reader and avoid obstruction of the code during reading. EX1003, ¶¶111-112. POSITAs understood that positioning an optical code away from the liquid inlet and outlet would increase readability of the code by shielding it from liquid and loose coffee grounds. EX1003; ¶113. Panesar disclosed the benefits of positioning the barcode away from the liquid injection areas to avoid soiling or tearing the barcode. EX1003, ¶114; EX1010, 2:29-3:12, 19:22-20:13.

POSITAs also knew that positioning the code on the underside of the rim increased 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, ¶¶115-117; EX1005, [0014], [0022]; EX1006, [0017]-[0018]. FIG5 of Jarisch is shown below:



Thus, providing an optical code on the bottom of the capsule flange was known at the time of the alleged invention. EX1003, ¶118.

III. '430 PATENT

A. Overview

The '430 Patent discloses a single-serve beverage system that identifies capsules to determine whether the capsule is suitable for use with the machine. EX1001, 1:6-7, 1:22-24, 3:20-27; EX1003, ¶¶119-120. According to the '430 Patent, there is a problem that certain capsules may end up being used in a different manufacturer's brewing system, even though such a capsule is not designed for that system. EX1003, ¶120; EX1001, 1:16-21. An object of the '430 Patent invention is to solve this problem by creating a capsule that is only suitable for a specific coffee

machine. *Id.*, 1:22-24. The '430 Patent attempts to solve this problem by providing an “identifier” on the capsule that allows a brewing system to identify whether or not a capsule is suitable for use. EX1003, ¶121; EX1001, 1:28-34, 1:60-65.

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 within the base element. EX1001, 1:11-14; EX1003, ¶119. The base element further comprises a wall region, bottom, and circumferential flange. EX1001, abstract; EX1003, ¶119. The '430 Patent acknowledges these capsules were commonplace and often similar to each other. EX1001, 1:15-17; EX1003, ¶119.

The specification describes using sensors 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, 2:8-14, 2:26-34, 2:46-49, 3:1-6, 3:7-11, 8:47-48, 8:61-65, 9:21-25; EX1003, ¶¶121-122. This includes adjusting brewing parameters such as temperature, pressure and volume based on the detected code. EX1001, 3:20-27.

The '430 Patent purports to disclose a capsule with a barcode (50) placed on the top surface of the capsule flange (17) (right). Although it states that “the barcode alternatively can be attached to the base element’s edge region being averted from the membrane,” it does not provide reason to do so. EX1001, 8:54-56; EX1003, ¶123.

B. Prosecution History

U.S. Application No.

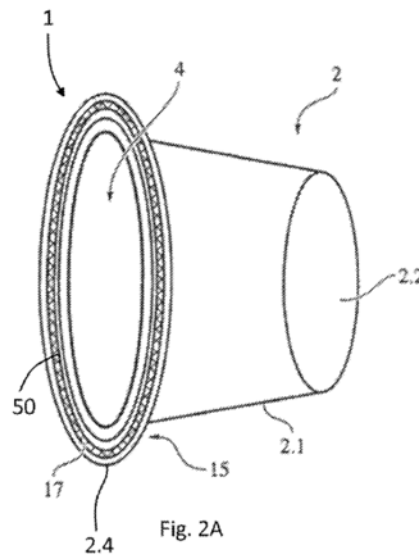


Fig. 2A

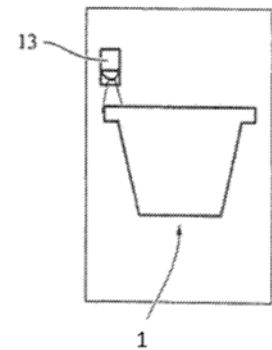


Fig. 2B

17/385,109 was filed on July 26, 2021. It claims priority to numerous continuations and divisionals, and to PCT/EP2011/003677, filed on July 22, 2011, which improperly claims priority to three foreign applications discussed below in Section VIII.E. EX1003, ¶¶126-127. The application was originally filed with twenty claims directed to a single-serve capsule made of biodegradable material with an identifier on the bottom of the flange. EX1002, 116; EX1003, ¶128. On October 21, 2021, the Applicant canceled claims 2-20, added claims 21-29, and amended claim 1, which changed the scope of the claims to a beverage system with features such as a capsule with an “annual concavity,” “annular convexity,” a barrier layer, and a barcode located on the bottom of the flange, in combination with a brewing machine containing a seal, and a pump controlled to push water into the capsule “only if the

beverage machine determines that the single-serve capsule belongs to the group of single serve capsules operable for use with the beverage machine.” EX1002, 220; EX1003, ¶129.

On November 10, 2021, the Examiner mailed a first action Notice of Allowance without issuing any rejection of the claims. EX1002, 228; EX1003, ¶130. The Examiner alleged that the claims were allowable because:

[N]one of the cited prior art discloses or suggests the flange comprising a top side and an opposing bottom side; a cover that is fastened to the top side of the flange to close the cavity; and an identifier provided on the bottom side of the flange, the identifier being a barcode, wherein the beverage machine, by reading or detecting the identifier with the sensor/detector, is configured to determine if the single-serve capsule belongs to a group of single serve capsules operable for use with the beverage machine, and only if the beverage machine determines that the single-serve capsule belongs to the group of single serve capsules operable for use with the beverage machine is the pump controlled to push the water into the single-serve capsule.

EX1002, 233; EX1003, ¶130. Notably, *claims 1-6 do not include the language*

considered to be allowable, namely a system “configured to determine if the single-serve capsule belongs to a group of single serve capsules operable for use with the beverage machine, and only if the beverage machine determines that the single-serve capsule belongs to the group of single serve capsules operable for use with the beverage machine is the pump controlled to push the water into the single-serve capsule.” EX1003, ¶131.

Although the Examiner indicated he considered the nearly 700 IDS references, the Examiner’s Notice of References Cited in connection with this Allowance did not include any of the references used in the Grounds of this Petition. EX1002, 235; EX1003, ¶132. K-fee then submitted a supplemental IDS containing over 1500 pages of invalidity contentions from a district court case dealing with related patents, and made minor grammatical amendments to the claims. One month later, the Examiner issued a Corrected Notice of Allowability. EX1002, 1897; EX1003, ¶133.

IV. SECTION 325(d) PROVIDES NO BASIS FOR DISCRETIONARY DENIAL

The Board employs a two-part test to determine whether discretionary denial under §325(d) is warranted. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 (PTAB Feb. 13, 2020) (precedential). The Board first determines “whether the same or substantially the same art previously was presented to the Office or whether the same or substantially

Patent No. 11,230,430

Petition for *Inter Partes* Review

the same arguments previously were presented to the Office[.]” *Id.*, 8. If either condition of this first part is satisfied, the Board then determines “whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of the challenged claims.” *Id.* In assessing this second part, the Board considers non-limiting factors (c), (e), and (f) of *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017) (precedential).

Although Petitioner previously filed IPRs on patents related to the ’430 Patent (IPR2021-01221, -01222, -01223), which were denied institution based on §325(d), the same result should not occur here. Those IPRs emphasized Examiner error based on improper priority afforded by the Examiner to K-fee’s patent claims, with which the PTAB disagreed and found that the Office did **not** afford K-fee priority to its foreign filings. *See, e.g.*, IPR2021-01221, Paper 11, 12-13 (PTAB May 6, 2022) (“[T]he only clear finding by the examiner in the record is that the examiner considered, **but was not persuaded**, that the pending claims were entitled to priority of the German applications.”). The PTAB also found other arguments regarding Examiner error insufficiently developed. *Id.*, 21-24. Here, the ’430 Patent claims include claim language not addressed in any of the prior IPRs, and Petitioner provides additional prior art, argument and expert testimony demonstrating that allowance of the ’430 Patent claims was material error. Thus, although the PTAB

Patent No. 11,230,430

Petition for *Inter Partes* Review

did not previously reach the merits of the combinations presented in the prior IPRs on related patents, it should do so here.

A. *Advanced Bionics* Part 1

The Ground in this Petition relies on Yoakim, Jarisch, Rossi, and Castellani. Yoakim and Jarisch were cited in an IDS containing nearly 700 references. EX1002, 135. Although Rossi and Castellani were mentioned within the IPRs that were cited in the IDS, these references were not cited individually to the Examiner. The Examiner never asserted any rejection over the challenged claims, let alone one using references in the Grounds of this Petition.

The Board has previously held that IDS citation was sufficient under Part 1 of the *Advanced Bionics* framework to require analysis of Part 2. *See, e.g.*, IPR2021-01221, Paper 9, 12-13 (PTAB January 18, 2022). Notwithstanding, as detailed below, Part 2 of the *Advanced Bionics* framework does not support §325(d) denial because the Examiner materially erred in allowing the '430 Patent claims.

B. *Advanced Bionics* Part 2

During prosecution, the Examiner committed errors “material to the patentability of the challenged claims” by “misapprehending or overlooking specific teachings in the relevant prior art” that, had they been properly considered, would have led the Examiner to conclude that the challenged claims are not patentable. *Advanced Bionics*, IPR2019-01469, 8 n.9, 21.

1. Factor (c) (extent to which the art was evaluated during prosecution)

The Examiner indicated that he considered nearly 700 references cited in the IDSs, which includes references used in this Petition. However, when faced with similar voluminous IDSs in a related application, the USPTO cautioned K-fee that “*cloaking of a clearly relevant reference in a long list of references may not comply with applicants’ duty to disclose[.]*” EX1053, 32-33. The USPTO further stated “[t]here is no duty for the Examiner to consider these references to a greater extent than those ordinarily looked at during a regular search by the Examiner. Accordingly, the Examiner has considered these references in the same manner as references encountered during a normal search of Office search files.” *Id.*

During prosecution of the ’430 Patent claims, the Examiner issued a First Action Notice of Allowance, and did not reject **any** claim based on **any** prior art references, let alone those presented in this Petition. *Lyft, Inc., v. Rideshare Displays, Inc.*, IPR2021-01602, Paper 7, 14-15 (PTAB Apr. 11, 2022) (“[W]hether a reference was the basis for a rejection is probative of whether the Examiner misapprehended or overlooked a specific teaching contained in the reference.”); *Philip Morris Prods., S.A., v. Rai Strategic Holdings, Inc.*, IPR2020-00921, Paper 13, 46-49 (PTAB Aug. 5, 2021). Practical considerations demonstrate that Applicant’s prosecution tactics limited the Examiner’s ability to properly evaluate the relevant disclosures in the Petition art, **particularly Rossi, which contains disclosure of the allegedly**

Patent No. 11,230,430

Petition for *Inter Partes* Review

patentable subject matter. Applicant identified so many references in IDSs throughout prosecution that they span six full pages of the published patent. This practice of “bury[ing] PTO examiners with a deluge of prior art references[,]” which taxes an Examiner’s time resources, “impair[s] patent quality.” *Therasense, Inc. v. Becton, Dickinson & Co.*, 649 F.3d 1276, 1289-90 (Fed. Cir. 2011).

Prior Panels have found such practices indicative of Examiner error under *Advanced Bionics. Sharkninja Operating LLC v. iRobot Corp.*, IPR2020-00733, Paper 11, 42-43 (PTAB Oct. 6, 2020) (“We discern that the likeliest explanation, on this record, for the Examiner’s failure to discuss Kim is that the Examiner simply overlooked Kim’s pertinence to the claims, perhaps because it was one reference among 1577 included in an IDS. Accordingly, we determine that “the Examiner erred in the evaluation of the prior art . . . [and] overlooked specific teachings in the relevant prior art. . . .”).

a) Rossi (EX1041)

Although a different Examiner used Rossi (EX1041) during prosecution of a related application, those claims did not include the ’430 Patent limitations: “*wherein the beverage machine, by reading or detecting the identifier with the sensor/detector, is configured to determine if the single-serve capsule belongs to a group of single serve capsules operable for use with the beverage machine, and only if the beverage machine determines that the single-serve capsule belongs to the*

group of single serve capsules operable for use with the beverage machine is the pump controlled to push the water into the single-serve capsule.” Thus, Rossi has never been utilized by the Office to address these features.

In Appl. No. 16/538,752 (“the ’752 Application”), the Examiner utilized Rossi for a method of making coffee with a “control unit comparing the barcode with pre-stored data (page 9, lines 19-26), and only activating the machine if the barcode is recognized.” EX1057, 8. In response, Applicant twice added further limitations to the claims, including (i) method steps using multiple capsules with multiple codes (EX1058, 2-3), (ii) a capsule having a plurality of vertically oriented grooves, and (iii) a capsule free of a filter (EX1060, 2-3). Applicant never disputed the Examiner’s use of Rossi, and instead argued that other limitations provided reasons for allowance. The Examiner then allowed those claims. EX1061.

Accordingly, the Office has never used Rossi in a rejection to disclose the specific claimed feature that led to allowance of the ’430 Patent, which was not present in the ’752 Application claims, and K-fee has never substantively disputed the Office’s prior use of Rossi over other limitations.

b) Jarisch (EX1005)

Although the Office considered Jarisch during examination of Appl. No. 16,860,441 (“the ’441 Application”) and the ’752 Application, it has never disagreed on record with the relevance of Jarisch’s disclosure to K-fee’s claim limitation of a

code on the bottom of the capsule flange. Nor has K-fee ever provided the Office with substantive explanation as to how or why Jarisch does not disclose this feature. Accordingly, the Office's prior treatment of Jarisch supports its relevance to the '430 Patent claims and the Examiner's error here.

During the '441 Application examination, the Examiner 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. Although Applicant argued that the claims were "allowable for at least their inclusion of the limitation relating to the barcode located on the bottom side of the flange," ***Applicant never provided any argument as to why this limitation was not disclosed or rendered obvious by Jarisch.*** EX1063, 16. Applicant also amended the claims to include (i) an "electrically conductive section," (ii) "vertically oriented" grooves and ribs on the capsule body, (iii) the capsule being free of a filter, and (iv) the base element made of metal. *Id.*, 2. Importantly, Applicant argued that these limitations "further differentiate from the references relied upon by the Examiner." *Id.*, 16-17. The Examiner later allowed the claims. EX1064.

During the '752 Application examination, the Examiner relied upon Jarisch to disclose the same feature. EX1057, 8. Applicant first responded by amending its claims to recite additional limitations including use of multiple capsules with multiple codes. EX1058, at 2-3. Applicant did not dispute Jarisch's teaching—only

whether it was prior art. *Id.*, 10. ***After the Examiner repeated this rejection, Applicant never argued how or why Jarisch fails to disclose the claimed feature,*** but merely argued that the claims were “allowable for at least their inclusion of the limitation relating to the barcode being located on a bottom side of the circumferential flange. . . .” EX1060, 20-21. Applicant also further amended the claims to include use of a capsule (i) having a plurality of vertically oriented grooves, and (ii) free of a filter. *Id.*, 2-3. The Examiner then allowed the claims. EX1061. The Office never stated on record that Jarisch failed to disclose the claimed feature.

Accordingly, the USPTO’s prior treatment of Rossi and Jarisch weighs against exercising §325(d) discretion.

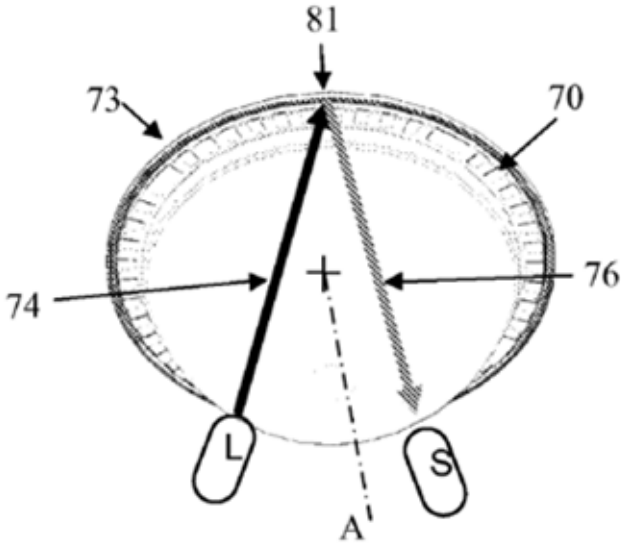
2. Factor (e) (how the examiner erred)

The Examiner materially erred by overlooking or misapprehending the specific prior art disclosures relating to at least the limitations identified in the Reasons for Allowance. The Examiner never discussed Rossi or Jarisch in connection with the current claims, and the references in this Petition explicitly negate the Examiner’s Reasons for Allowance. The USPTO has previously stated that Jarisch discloses a code on the bottom of the flange, and neither K-fee nor any Examiner have ever stated how or why that finding is incorrect. This Petition cures all of the Examiner’s errors and demonstrates why the challenged claims are unpatentable.

In the Reasons for Allowance, the Examiner stated that that none of the cited prior art discloses or suggests:

- 1) the flange comprising a top side and an opposing bottom side;
- 2) a cover that is fastened to the top side of the flange to close the cavity;
- 3) and an identifier provided on the bottom side of the flange,
- 4) the identifier being a barcode;
- 5) wherein the beverage machine, by reading or detecting the identifier with the sensor/detector, is configured to determine if the single-serve capsule belongs to a group of single serve capsules operable for use with the beverage machine,
- 6) and only if the beverage machine determines that the single-serve capsule belongs to the group of single serve capsules operable for use with the beverage machine is the pump controlled to push the water into the single-serve capsule.

EX1002, 233. But these allegedly missing limitations are disclosed or reasonably suggested by the prior art combination detailed in this Petition. EX1003, ¶134. The Examiner's error by failing to rely on the Petition references is shown in the following chart as explained by expert Michael Jobin (EX1003, ¶¶135-137):

Reasons for Allowance	Petition Disclosure
the flange comprising a top side and an opposing bottom side	<i>E.g.</i>, Yoakim (EX1004), [0197], [0414], FIG6 at 72; EX1003, ¶¶203-205.  FIG. 6
a cover that is fastened to the top side of the flange to close the cavity	<i>E.g.</i>, Yoakim (EX1004), [0128] (“The capsule can comprise a sealing lid. The sealing lid can comprise a flexible membrane.”); [0129] (“The capsule can also comprise a cup-shaped body onto which the sealing lid is sealed.”); EX1003, ¶¶207-209.
and an identifier provided on the bottom side of the flange	<i>E.g.</i>, Jarisch (EX1005), [0022] (“[T]he code is present on the bottom of the rim of the capsule which is opposed to the lid of the capsule. The bottom of the rim is sufficiently away from the liquid injection and beverage delivery areas so that there is a lower risk for the code to become unreadable[.]”), FIG5; EX1003, ¶¶212-214. 

the identifier being a barcode	<i>E.g.</i>, Yoakim (EX1004), [0525] (“The [capsule] recognition means can be any mechanical, optical, magnetic or radio-frequency recognition means capable of delivering information to the brewing device, via a sensing device 231, as to which type of capsule is inserted in the device. For example, the recognition means is a barcode....”); EX1003, ¶¶210-211.
wherein the beverage machine, by reading or detecting the identifier with the sensor/detector, is configured to determine if the single-serve capsule belongs to a group of single serve capsules operable for use with the beverage machine	<i>E.g.</i>, Rossi (EX1041), 5 (providing “a safe and simple system and process for ensuring that an appropriate load element is used”); <i>Id.</i>, 7 (“The use of an identification element and recognition means, as well as the step of recognizing the identification element allows the machine to recognize the load element and, hence, its contents.”) <i>Id.</i>, 7 (“The use of an identification element and recognition means helps to prevent the safety hazard associated with inappropriate operating conditions.”) EX1003, ¶¶288-290.
and only if the beverage machine determines that the single-serve capsule belongs to the group of single serve capsules operable for use with the beverage machine is the pump controlled to push the water into the single-serve capsule	<i>E.g.</i>, Rossi (EX1041), 8 (“The use of an activation step of automatically activating the cycle of edible-product production only when the same identifying element is recognised in combination with the validated validation element ensures that the operating conditions actually used are the correct conditions as selected by the machine in the first recognition step.”) EX1003, ¶¶292-293.

Thus, based on these references, supported by the testimony of Michael Jobin, “reasonable minds cannot disagree that the Office erred in a manner material to patentability in its treatment of the art by failing to reject the claims ... over the references cited in Petitioner’s challenges.” *Apple, Inc. v. Omni MedSci, Inc.*, IPR2020-00029, Paper 7, 55 (PTAB Apr. 22, 2020). Neither Jarisch nor Rossi should form the basis of a discretionary denial because they unequivocally teach the limitations in question and demonstrate material error. *See also Apple, Inc. v. Koss Corp.*, IPR2021-00381, Paper 15, 29 (PTAB Jul. 2, 2021) (finding examiner error when previously-considered reference disclosed the claimed feature).

Because the prior art combinations in the Petition explicitly negate the Reasons for Allowance, the Examiner materially erred by misapprehending or overlooking their respective disclosures. *EX1003*, ¶¶138-139; *3Shape A/S and 3Shape Inc., v. Align Tech., Inc.*, IPR2021-01323, Paper 16, 12 (PTAB Jan. 31, 2022) (finding petitioner demonstrated the Examiner materially erred by overlooking the combined teachings of prior art, which did not have the deficiencies noted in the Examiner’s Reasons for Allowance); *Viken Detection Corp. v. Am. Sci. and Eng. Inc.*, IPR2021-01585, Paper 11, 13-14 (PTAB May 5, 2022) (“Because Seppi indisputably discloses the very limitations that led to allowance of the claims, we find that the Examiner erred by overlooking those key disclosures in Seppi.”). Thus, Factor (e) weighs against discretionary denial.

3. Factor (f) (extent to which additional evidence and facts presented in the petition warrant reconsideration)

This Petition presents, along with the relied upon art, the declaration of Michael Jobin (EX1003), which concludes that the Examiner materially erred by allowing these specific claims (EX1003, ¶¶134-139), explains why Patent Owner is not entitled to claim priority to its foreign applications (*Id.*, Section VI), and explains how the teachings of the art render the challenged claims obvious (*Id.*, Section VII). Importantly, the expert testimony also explains why it would have been obvious to a POSITA to combine the Yoakim system with the code location of Jarisch, and why it would have been obvious based on Rossi to determine if the single-serve capsule belongs to a group of single serve capsules operable for use with the beverage machine and only operate the pump based on such a determination. EX1003, Section VII.B.1, VII.B.2.l.

Jobin's report further contains analysis of other claim limitations not found in K-fee's prior patents, such as a capsule with a "annular convexity" and "annular concavity," the beverage machine's "seal" configuration, the system's claimed determination of whether the capsule belongs to a group operable for use with the machine (and corresponding pump operation), and a lack of priority as to these specific claims. EX1003, Sections VII.B.2.f, VII.B.2.j VII.B.2.m, VII.B.2.p, VI. Thus, Factor (f) weighs against discretionary denial.

Accordingly, the strength of the Petition alone supports the Board not

exercising its discretion under § 325(d). *Lite-On Tech. Corp. v. Sensor Elec. Tech., Inc.*, IPR2022-00780, Paper 11, 32 (PTAB Oct. 28, 2022) (“Based on the strength of Petitioner’s challenge, we find that the Petition sufficiently demonstrates that the Examiner erred in overlooking the relevant disclosures of Shur.”). A full reading and analysis of the Grounds presented in this Petition as supported by Michael Jobin’s declaration demonstrates the strength of this Petition and the unpatentability of the Challenged Claims.

4. Section 325(d) Discretionary Denial Would Be Inappropriate.

Balancing of the relevant *Becton* factors demonstrates that §325(d) discretionary denial does not apply here because the Examiner materially erred by allowing these claims. Factor (c) weighs against denial because the Examiner did not use in a rejection of these claim limitations any of the references or combinations raised in this Petition. Prior rejections based on Rossi (for different claim limitations) were never challenged by K-fee, and the USPTO’s prior acknowledgement of Jarisch’s disclosure supports its relevance to the claims. Factor (e) weighs against denial because the Examiner clearly erred in allowing the claims over the art cited in this Petition. Yoakim, Jarisch, Rossi and Castellani explicitly disclose and/or render obvious the claimed features as interpreted by K-fee, including the exact features that the Examiner identified in the Reasons for Allowance. EX1003, ¶¶134-139. Factor (f) weighs against denial because this

Patent No. 11,230,430

Petition for *Inter Partes* Review

Petition presents new evidence and expert analysis regarding those (and other new) claimed features, as well as motivations for their combination. EX1003, Section VI, VII. Accordingly, the Board should decline to exercise its discretion under §325(d).

V. PERSON OF ORDINARY SKILL IN THE ART

For purposes of this Petition only, a POSITA relevant to the '430 Patent would have a bachelor's degree in engineering plus five years of experience in design of mechanical beverage systems, or similar products. EX1003, ¶40.

VI. CLAIM CONSTRUCTION

Claims in *inter partes* review are construed in accordance with *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). The Board need only construe terms that are subject to a legitimate dispute. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). The USPTO has recognized that constructions proposed by parties before the PTAB and a district court may differ because parties may dispute different issues in each forum. 83 Fed. Reg. 51340 at 51351, 51353.

For purposes of this IPR, Petitioner applies the apparent interpretations that Patent Owner offered in District Court for all claim terms throughout this Petition. *See* EX1049. *See also 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 IPR without Petitioner acquiescing in that construction).

For example, in its Infringement Contentions, K-fee asserts that the below product in the shape of a continuous dome is a single-serve capsule that includes a “base element with a cavity” and a “cover that is fastened to the top side of the flange to close the cavity.” EX1049, 11.



K-fee further asserts that this capsule shape includes “an upper end portion that has an annular convexity and a lower end portion that has an annular concavity relative to the central axis of the base element.” EX1049, 30.

For the limitation “a mandrel,” K-fee asserts that the term includes needles that pierce the outer perimeter of the capsule to allow liquid to exit the capsule (right). EX1049, 33.



For the limitation “holding arms for engaging the single-serve capsule,” K-fee asserts that the limitation can be met by rods that lift the capsule by its rim after brewing to move it to a used-capsule container:



EX1049, 36.

Petitioner submits that, for this proceeding, no claim terms require formal construction. EX1003, ¶¶141-143. Although Judge Wu previously construed the term “barcode” in this patent family, which is currently on appeal to the Federal Circuit, Petitioner submits that the Grounds of the current Petition are not impacted by this construction and prevail under either party’s construction. EX1052; EX1003, ¶141.

VII. PETITION GROUNDS

Ground	Claims	Statutory Basis
1	1-10	35 U.S.C. §103 over US 2010/0239734 to Yoakim in view of US 2013/0064937 to Jarisch in view of WO 2010/099806 to Rossi in further view of US 2008/0105131 to Castellani.

VIII. PRIOR ART

All elements of the ’430 Patent were known and obvious before the applicable priority date of the ’430 Patent. EX1003, ¶¶161-162. The Yoakim, Rossi and

Castellani references are prior art regardless of the priority date applied to the '430 Patent, and the Jarisch reference is prior art because the '430 Patent claims are not entitled to claim priority to the related 2010 foreign filings. *Infra* Section VIII.E.

A. Yoakim

Yoakim (filed May 7, 2010) is prior art at least under pre-AIA 35 U.S.C. §102(e). EX1003, ¶163. Yoakim discloses a centrifugal beverage system with a single-serve portion capsule, brewing device, and method for preparing a liquid beverage, *e.g.*, coffee. EX1004, [0014]; EX1003, ¶164. The brewing device operates on a centrifuge principle by rotating the capsule, and includes a water heater, pump, barcode reader, and a control unit. EX1004, [0180], [0182]; EX1003, ¶¶164-165. 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, ¶166. 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]-[0187]; EX1003, ¶165.

The object of Yoakim is to improve control of brewing parameters to provide a high quality, customized beverage brewing experience. EX1004, [0010]-[0011]; EX1003, ¶167. Yoakim achieved this through a capsule recognition system that automatically adjusts various brewing parameters. EX1004, [0192], [0477]; EX1003, ¶167. The brewing parameters are recognized through association with an

identifier, which can include an optical code such as a barcode. EX1004, [0496], [0525], FIG61-62; EX1003, ¶167. The system controls the device components based on the read barcode, such as by controlling the motor and/or the pump. EX1004, [0477], [0192]; EX1003, ¶167.

B. Jarisch

Jarisch (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. EX1003, ¶168. Jarisch discloses an improved way to position an optical code on a capsule, in order to improve readability and retrieval of information about the capsule. EX1005, [0002]-[0003], [0014]-[0015]; EX1003, ¶169. Jarisch further discloses using identification of the optical code to recognize the type of capsule. *Id.*, [0014]-[0015], [0099]; EX1003, ¶169.

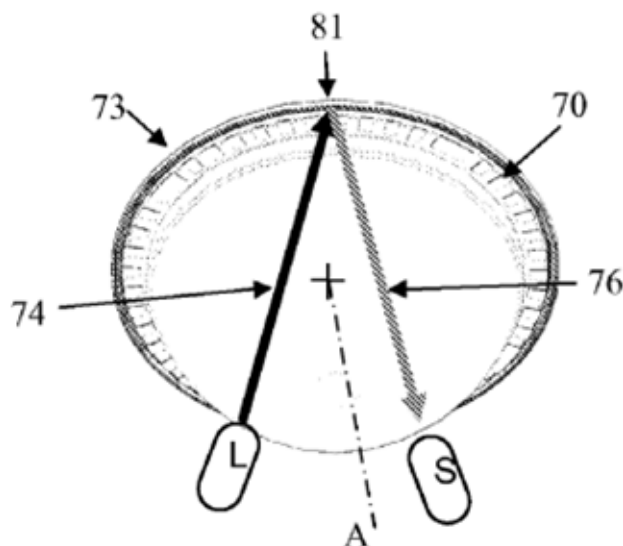
Jarisch discloses that its capsule code reading may be used by a centrifugal brewing system, such as Denisart (EX1007). EX1005, [0034]-[0035]; EX1003, ¶169. Like Yoakim, Denisart discloses a system controlled based on reading the capsule's code. EX1007, 5:19-24; EX1003, ¶169.

Jarisch discloses clear advantages of positioning the optical code on the bottom of the capsule flange in order to provide a location that is "sufficiently away from the liquid injection and beverage delivery areas so that there is a lower risk for the code to become unreadable such if partly or totally hidden or soiled by beverage

residues or otherwise,” thus improving the reliability of reading.” EX1005, [0022],

FIG5, [0014]-[0015]; EX1003, ¶¶170-171. The code on the bottom of the flange in

Jarisch FIG5 is shown below:



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 substances such as coffee. EX1041, 3; EX1003, ¶172. The capsule is placed inside the machine, pierced to allow water to enter, and the contents are brewed to create a beverage. *Id.* The parameters surrounding such brewing process, such as the amount of water, temperature, and pressure, vary based on the desired product. *Id.*, 3-4; EX1003, ¶172.

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, ¶173. 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.” *Id.*, 5.

Rossi proposes to solve this problem by “providing a safe and simple system and process” for ensuring the capsule used is suitable for the system. *Id.*, 5; EX1003, ¶174. Rossi discloses a multi-step process that includes (i) recognizing a code on the capsule, and (ii) validating the capsule. *Id.*, 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, ¶174.

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 machine. EX1009, [0001]-[002]; EX1003, ¶175. Castellani improves upon existing

systems by including ejecting fork elements (blue) to lift and remove used portion capsules into a dropping box. EX1009, [0010], [0054]; EX1003, ¶175.

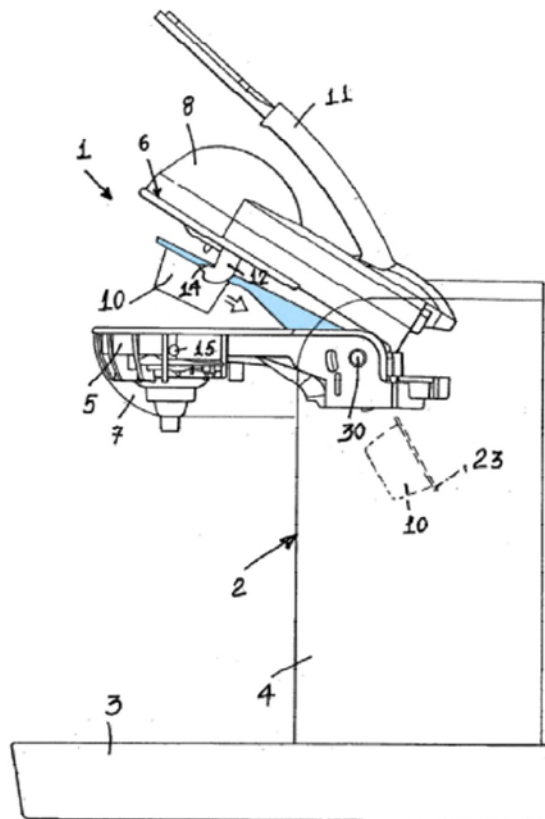


FIG. 7

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

The earliest possible priority date for the '430 Patent is the date of its PCT application filed on July 22, 2011—not its foreign applications.² EX1003, ¶144. Although the '430 Patent claims priority to three provisionals, only DE

² 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.

Patent No. 11,230,430

Petition for *Inter Partes* Review

102010044251.8, filed September 2, 2010 (“the September 2010 Application”)

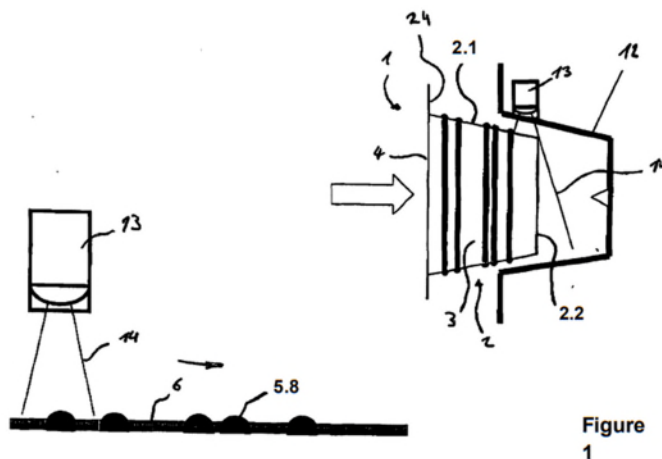
requires discussion, as other priority filings lack significant disclosure for many ’430 claim limitations.³

Patent Owner cannot demonstrate that the ’430 Patent has priority to any earlier-filed applications for claims 1-10 because the September 2010 Application fails to disclose the invention as claimed. *Novozymes A/S v. DuPont Nutrition Biosciences APS*, 723 F.3d 1336, 1341-1342 (Fed. Cir. 2013) (“Each of those limitations can be found at points within the underlying 2000 application, but, outside of the [] patent’s claims, Novozymes *never presented them together in any particular embodiment. . . .*”); *Hyatt v. Dudas*, 492 F.3d 1365, 1371 (Fed. Cir. 2007) (finding no written description because “it 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*”).

³ The February 2011 Application (EX1045) does not disclose at least a barcode on the bottom side of the capsule flange, holding arms, dropping box, a capsule with an annular convexity and concavity, a barrier layer, or the claimed seal configuration. EX1003, ¶147. The July 2010 Application (EX1046) also does not disclose at least a capsule with an annular convexity and concavity, holding arms, and dropping box, or the claimed seal configuration. *Id.* ¶148.

“The written description requirement is not met when, as here, the specification provides at best disparate disclosures that a skilled artisan might have been able to combine in order to make the claimed invention.” *Flash-Control LLC v. Intel Corp.*, 2021 WL 2944592, at *4 (Fed. Cir. 2021).

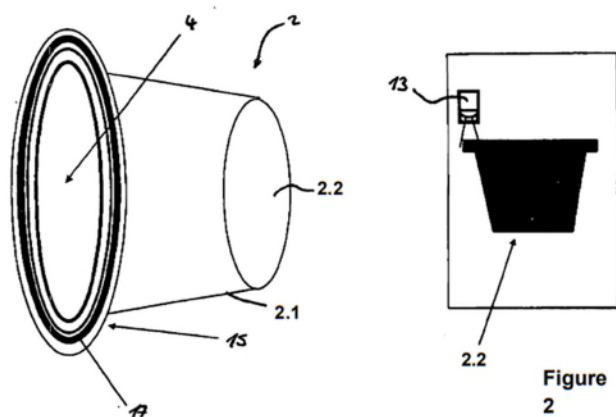
The September 2010 Application discloses several distinct embodiments to a POSITA, yet fails to disclose the '430 Patent claimed invention. EX1003, ¶149. For example, Figure 1 discloses a capsule with an identifier made of raised areas 8, with which it can be determined if the capsule is suitable for use with the machine. EX1047, 37:27-30, 37:14-19. The embodiment depicted in Figure 1 (below), however, does not disclose at least the claimed holding arms, dropping box, barcode under the flange, a capsule with an annular convexity and annular concavity, or seal. EX1003, ¶149.



The text describing Figure 1 goes on to explain how the identifier would influence the machine's operation, and clarifies 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 any specific combinations). EX1047, 37:38-38:9; EX1003, ¶150.

The text describing Figure 2 discloses an alternative embodiment of a capsule with a barcode on the edge area of the base element facing away from the membrane, but again fails to disclose at least the claimed holding arms, drop box, annular convexity and concavity, seal, and indentations on the side wall of the capsule. EX1047, 38:11-27; EX1003, ¶151.

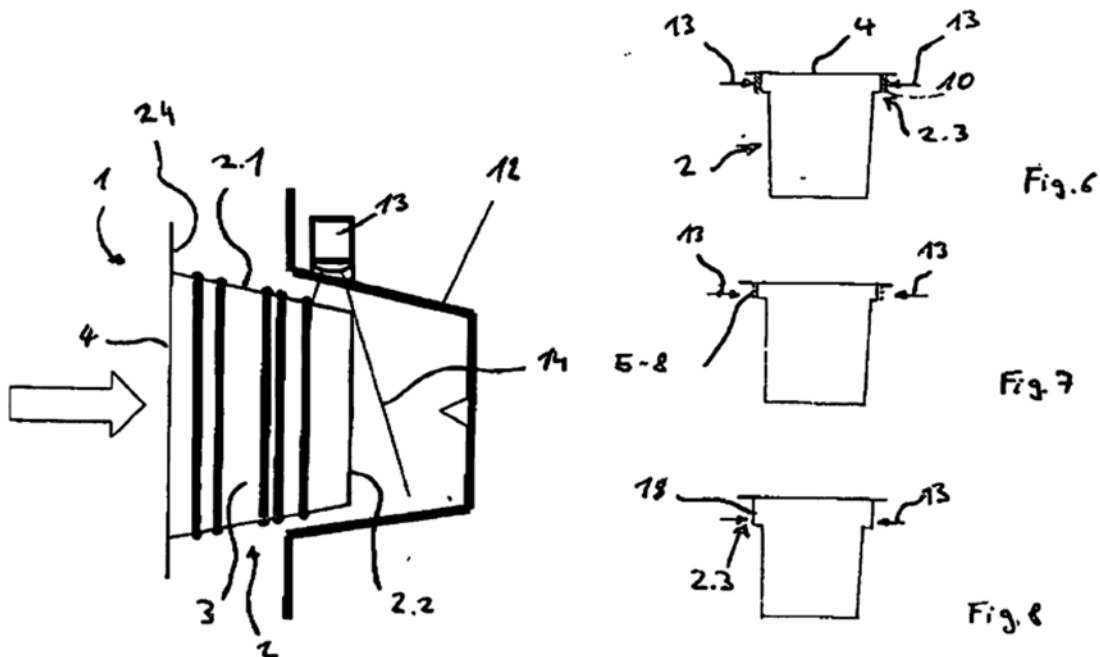


Figures 3-15 and the accompanying text in the specification disclose additional distinct embodiments, which lack all of the same claim limitations identified above. EX1047, 38:29-41:11; EX1003, ¶152.

Figures 16-17 and the accompanying text describe another distinct embodiment of a capsule that is designed with a “toothed ring” around the “outer region” of the flange. EX1047, 41:22-31; EX1003, ¶¶153-154. 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, which is arranged on the brewing chamber 27.” *Id.* The specification further explains that if this feature was not present “the capsule, rather than being introduced into the brewing chamber, would drop through into a waste container.” EX1047, 41:36-42:14; EX1003, ¶¶153-154. This embodiment does not disclose a capsule with a barcode located on the bottom side of the flange. *Id.*

Additionally, the September 2010 Application lacks **any** disclosure of a capsule with “an upper end portion that has an annular convexity and a lower end portion that has an annular concavity relative to the central axis of the base element.” Rather, a POSITA would understand that the Figures in the September 2010 Application, taken as a whole, disclose ***a capsule with a flat cover—not one with a convexity.*** EX1003, ¶158. For example, FIG1 and FIG6-8 are shown below:



A POSITA further would not consider FIG. 16 to disclose a capsule with “an upper end portion that has an annular convexity and a lower end portion that has an annular concavity relative to the central axis of the base element,” as it depicts only flat covered capsules—without convexity. Consistent with this, FIG. 16 depicts to a POSITA, at best, **the depth and inner circumference** of the capsule body and flat rim. EX1003, ¶159. Likewise, FIG16 depicts that the brewing head (27) and water inlet (28) **are flush with the flat top** of the capsule membrane, which it could not be if the capsule had an annular convexity. *Id.*

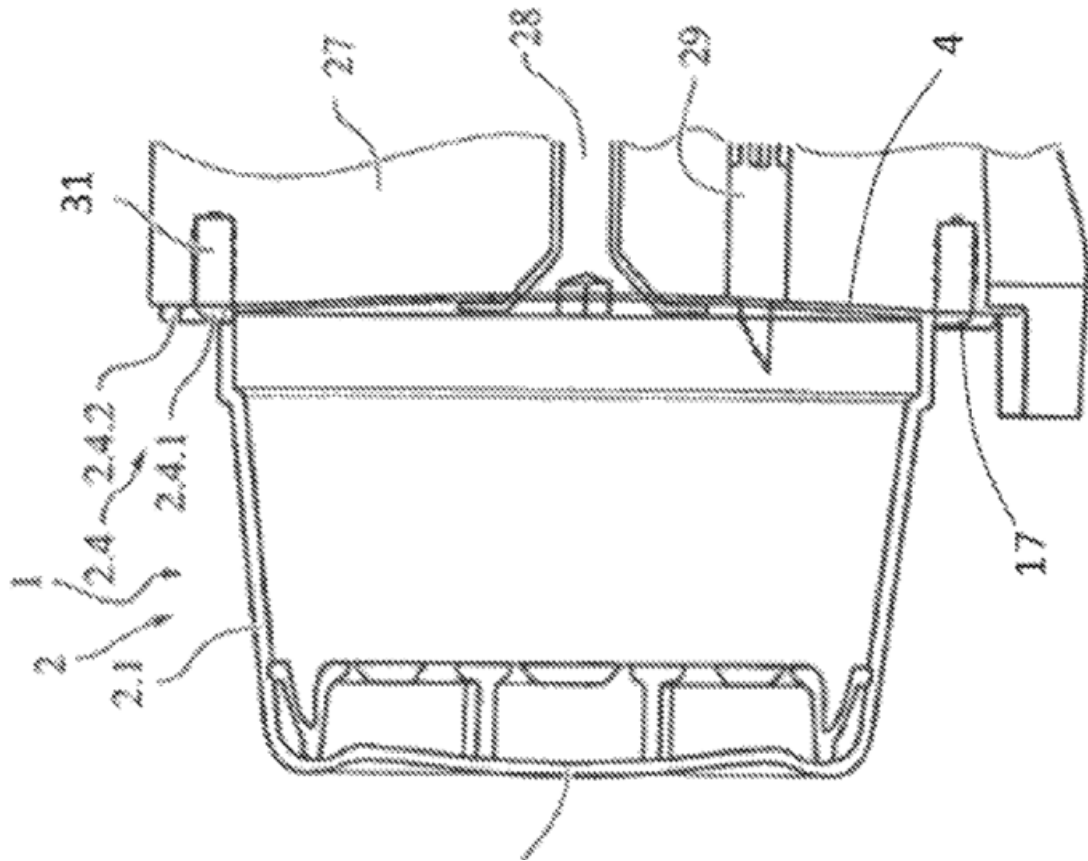


FIG. 16A

Accordingly, the specification fails to disclose any capsule with an annular convexity, and lacks any disclosure linking the remaining features across its disparate embodiments, particularly (i) a barcode located on the bottom of the capsule flange, (ii) holding arms associated with the toothed ring embodiments, (iii) a seal associated with the toothed ring embodiments, as well as (iv) a capsule with an annular convexity and concavity, and (v) a capsule including indentations in the side wall. EX1003, ¶155. Accordingly, “[t]aking each claim—as we must—as an integrated whole rather than as a collection of independent limitations, one searches the [September 2010 Application] in vain for the disclosure of even a single species

Patent No. 11,230,430

Petition for *Inter Partes* Review

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, 723 F.3d at 1349.

To be sure, the statement that “[t]hese explanations do not restrict the general idea of inventiveness” does not demonstrate to a POSITA that the Applicant had possession of the ’430 claimed invention, as it fails to link any of the claimed features together. EX1003, ¶156. *D-Three Enterprises, LLC v. SunModo Corp.*, 890 F.3d 1042, 1051 (Fed. Cir. 2018) (“[B]oilerplate language at the end of the 2009 Application’s specification is not sufficient to show adequate disclosure of the actual combinations and attachments used in the Washerless Claims.”). The same goes for the statement “[w]hat has been said in relation to the identifier applies to all the other examples.” This statement simply conveys to a POSITA that the machine operation (e.g., pump control) based on any of the disparate identifier embodiments would be the same—not that a POSITA would cherry-pick features through the disparate embodiments to arrive at the ’430 Patent claims. EX1003, ¶156.

Nor do the multiple-dependent claims at the end of the September 2010 Application provide written support because none of them disclose, or even provide blaze marks for, the claimed invention. EX1003, ¶157. These claims are only directed to a portion capsule, and fail to disclose any details of the brewing system claimed in the ’430 Patent. *Id.* And the Federal Circuit rejects such attempts at using

Patent No. 11,230,430

Petition for *Inter Partes* Review

multiple-dependent claims to satisfy the written description requirement. *FWP IP ApS v. Biogen MA, 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 LP v. Recro Tech. LLC*, 694 Fed.Appx. 794, 797-98 (Fed. Cir. 2017).

Accordingly, the ’430 Patent claims do not receive priority to their foreign filings and are unpatentable over the prior art. EX1003, ¶160.

IX. CLAIMS 1-10 ARE UNPATENTABLE UNDER §103

A. Ground 1: Claims 1-10 Would Have Been Obvious Over Yoakim in view of Jarisch, Rossi and Castellani

1. Motivation to Combine Yoakim, Jarisch and Rossi

Yoakim discloses nearly all elements of claims 1-10. EX1003, ¶177. A POSITA would have been motivated to combine the single-serve brewing system, capsule, and concepts of Yoakim, with Jarisch, Rossi to predictably arrive at the challenged claims. ¶¶177.

Yoakim, Jarisch 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/espresso machines. EX1003, ¶178; EX1004, [0002]-[0003]; EX1005, [0001]-

[0002]; EX1041, 3. Yoakim, Jarisch and Rossi are all designed to use capsule identifiers such as optical codes to optimize machine operation. EX1003, ¶178; EX1004, [0010]-[0011], [0025], [0494]-[0496]; EX1005, [0006], [0017], [0024]; EX1041, 3, 5-6, 11.

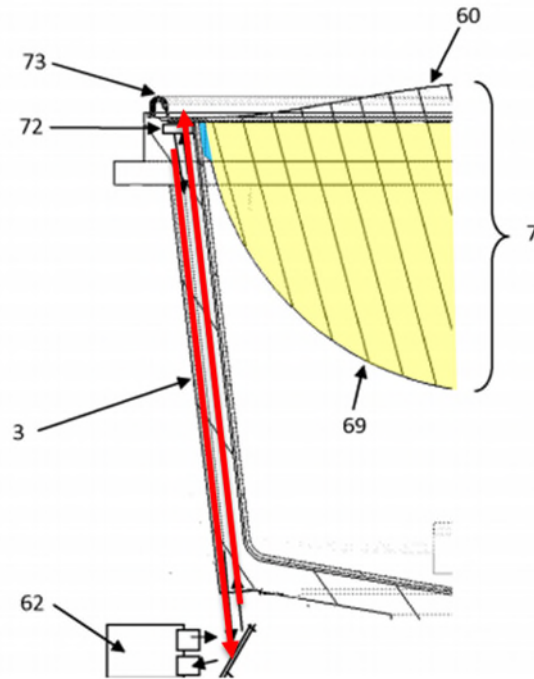
Furthermore, Yoakim and Jarisch share a common applicant—Nestec SA—and a common inventor. EX1003, ¶179. Jarisch expressly discloses it is intended to be used with a centrifugal-style brewing system like Denisart (EX1007), which shares two common inventors with Yoakim. *Id.*; EX1005, [0034]-[0035].

Denisart (another Nestec SA patent) is expressly disclosed as part of the Jarisch system and includes similar features to the Yoakim system. EX1007, FIG1; EX1003, ¶¶180-181. Jarisch is explicitly intended to be used with centrifugal brewing systems like Yoakim. *Id.*

Jarisch also discloses motivations for a POSITA to combine the brewing and barcode identification system of Yoakim with the code location of Jarisch on the bottom flange of the capsule. EX1003, ¶182. Jarisch explicitly teaches positioning an optical code “on the bottom of the rim of the capsule which is opposed to the lid of the capsule.” EX1005, [0022]. Jarisch explains that its proposed code positioning is desirable because it is “sufficiently away from the liquid injection and beverage delivery areas so that there is a lower risk for the code to become unreadable such as if partly or totally hidden or soiled by beverage residues or otherwise (e.g., coffee

particles). As a result, the reading is made more reliable.” *Id.*, [0022]; EX1003, ¶182. Accordingly, a POSITA would be motivated to use Jarisch’s optical code location on the bottom of the flange. EX1003, ¶¶180-182.

A POSITA would also have an expectation of success when combining Yoakim and Jarisch, as Jarisch 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, ¶184. Specifically, Jarisch 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. EX1005, [0082]; EX1003, ¶184. Jarisch further discloses mirrors to better position the optical light source and sensor. The Jarisch optical reader configuration is depicted below in order to read the code on the capsule (yellow) with the light path (red) shown from detector (62) to capsule rim (73). EX1005, FIG. 4 (annotated).



A POSITA would therefore find it obvious to combine Yoakim and Jarisch to achieve the express benefits of the code location of Jarisch. EX1003, ¶184.

A POSITA would further find it obvious to combine the systems of Yoakim and Jarisch 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, ¶185.

A POSITA would have further been motivated to combine the portion capsule and brewing systems of Yoakim and Jarisch with the machine activation control 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, ¶185. Rossi explains that “use 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 said [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 belongs to a group of capsules operable for use with the machine, and only initiate the brewing process upon such a determination. EX1003, ¶¶185-186.

A POSITA would also have an expectation of success when combining Rossi’s operation with the brewing machine and capsules disclosed in Yoakim and Jarisch. EX1003, ¶187. 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, 5. 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, 11. Accordingly, Rossi uses technology already disclosed in Yoakim and Jarisch 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

Patent No. 11,230,430

Petition for *Inter Partes* Review

and Jarisch possess capsule identification and pump control capabilities that a POSITA would expect to work with Rossi's invention. EX1004, [0477]; EX1005, [0051]-[0055]; EX1003, ¶187.

Accordingly, it would have been obvious to a POSITA to combine the teachings of Yoakim, Jarisch, and Rossi to arrive at the challenged claims. EX1003, ¶188.

2. Motivation to Combine Castellani

Yoakim, Jarisch, and Rossi disclose all elements of the claims except for (1) the holding arms for engaging the single-serve capsule; and (2) a waste container. EX1003, ¶189. However, a POSITA would have been motivated to combine the single-serve brewing system, capsule, and concepts of Yoakim, the code location of Jarisch, the machine activation control of Rossi, with the ejection mechanism and drop box of Castellani to arrive at the '430 Patent claims. *Id.*

Castellani is also in the field of portion capsule beverage extraction and is analogous art. EX1003, ¶190. Further, Castellani is intended to be used with beverage extraction systems that utilize single-serve capsules, like Yoakim, Jarisch, and Rossi. 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 motivated to adopt Castellani’s ejection system. EX1003, ¶191. 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, ¶191. 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 system (in order to facilitate controlled centrifuge extraction and barcode reading), and to ease the use of the product by facilitating ejection. EX1003, ¶192.

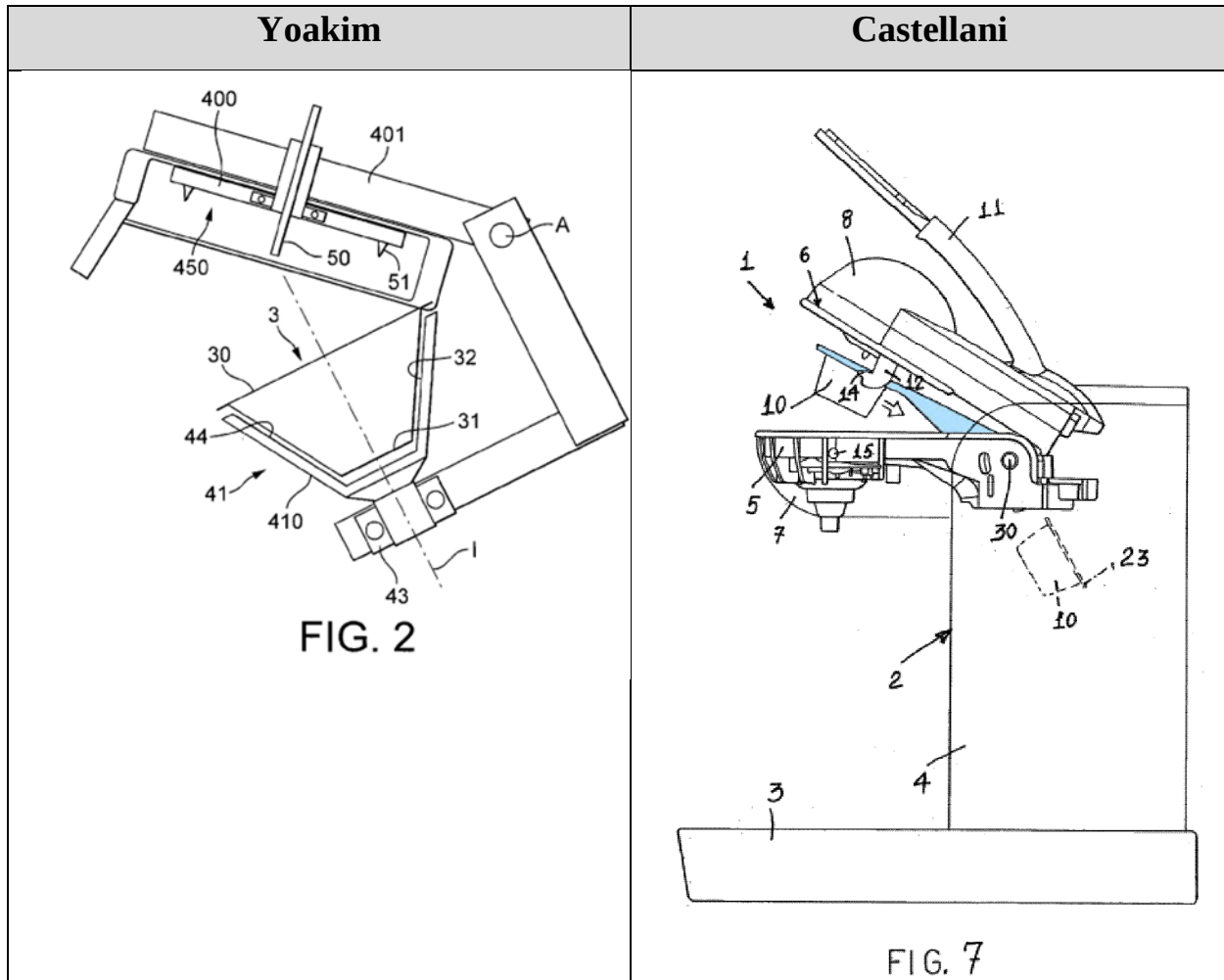
A POSITA would have been further motivated to combine the dropping box of Castellani with Yoakim, Jarisch and Rossi because users of the those systems would benefit from having a dropping box for collecting used capsules, to avoid users having to throw out/recycle individual capsules and physically handle dirty or high temperature capsules after extraction. EX1003, ¶193.

A POSITA would have an expectation of success when combining the

Patent No. 11,230,430

Petition for *Inter Partes* Review

Yoakim, Jarisch, Rossi and Castellani systems because the systems are structurally similar and compatible, and are directed to single-serve brewing solutions. EX1003, ¶194; EX1009, [0012]-[0013]. For example, both the Yoakim and Castellani systems utilize top-mounting capsule insertion into a brewing head as shown below:



3. Claim Elements⁴

a) Preamble: Claims 1, 7

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, ¶¶196-197. Yoakim's system is depicted below, which comprises a brewing device (2), capsule (3), water heater (7), pump (6), and water reservoir (5). EX1004, [0180]; EX1003, ¶¶197-198.

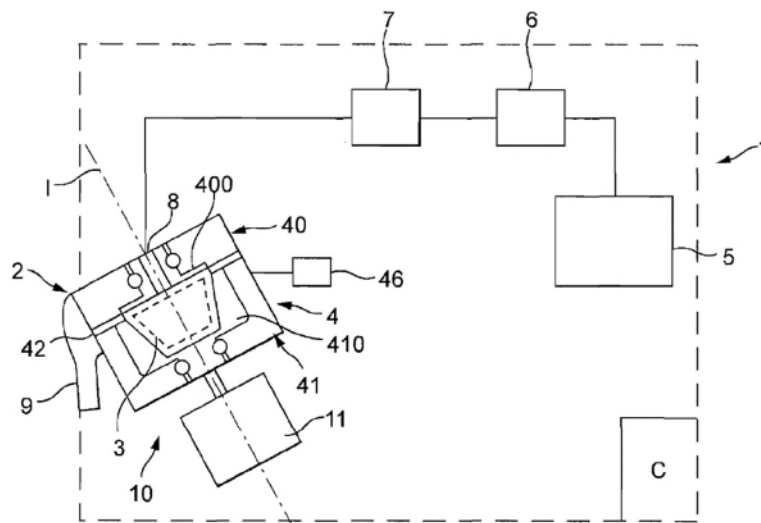


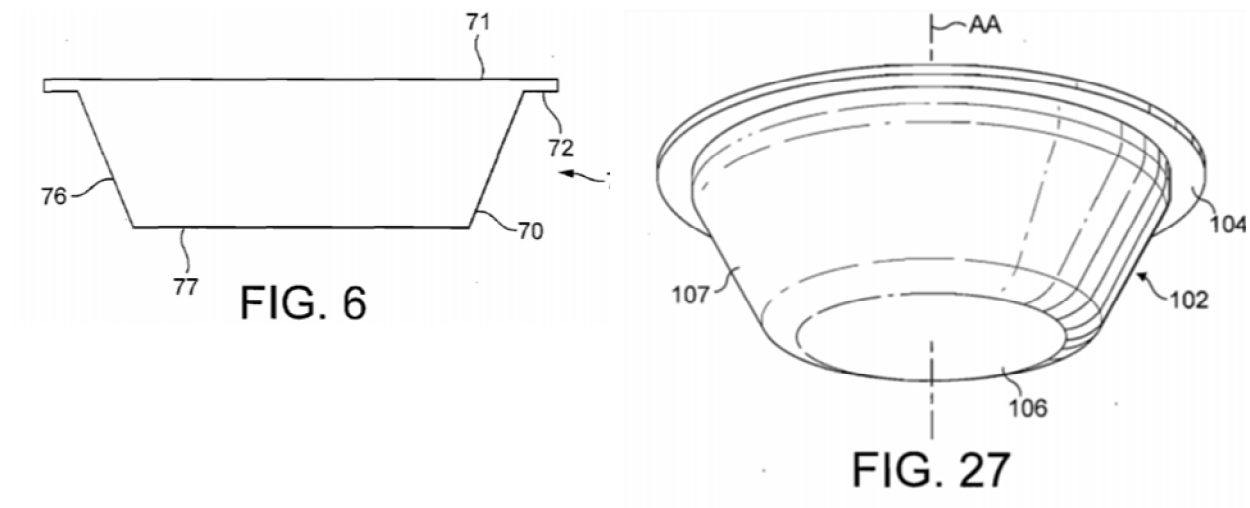
FIG. 1

b) Element [1.a], [7.a]

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

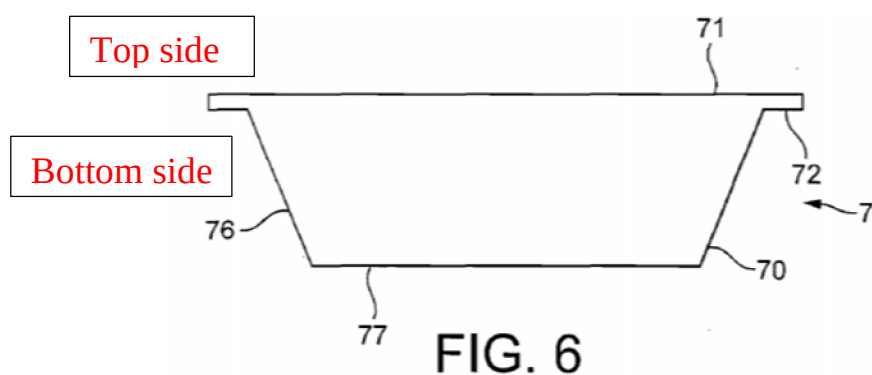
⁴ See Claims Appendix for claim language. Due to the repetition of claim language in the independent and dependent claims, duplicated claim elements in multiple claims are only identified once herein.

having a cavity that may be filled with raw beverage materials such as “ground coffee powder [and] soluble coffee.” EX1004, [0125], [0180], [0197]-[0198], [0414], FIG6-7, FIG26-27; EX1003, ¶¶199-201.

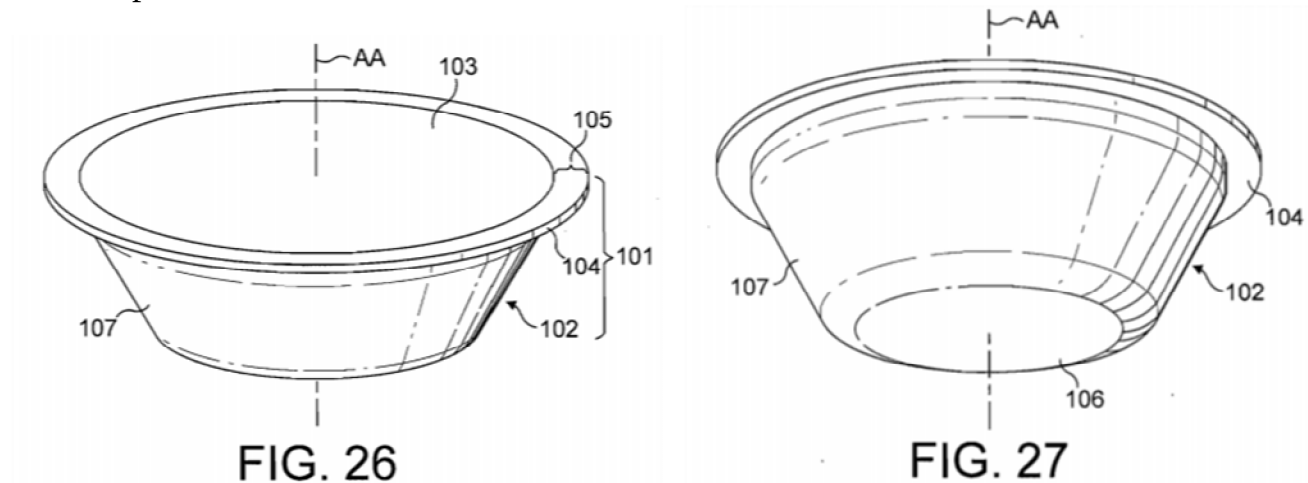


c) Element [1.b], [7.b]

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, ¶203.



Figures 26-27 also show a 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, ¶¶204-205.



d) Element [1.c], [7.c]

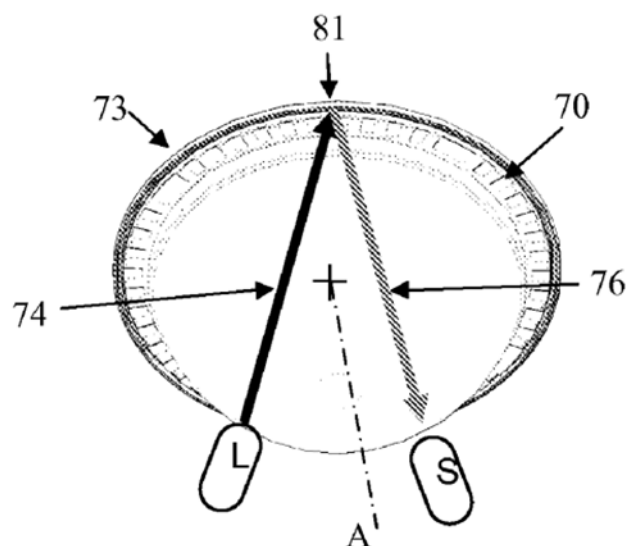
Yoakim discloses a cover fastened to the top side of the flange to close the cavity. EX1003, ¶207; EX1004, [0128] (“The capsule can comprise a sealing lid. The sealing lid can comprise a flexible membrane.”). Yoakim further discloses that the foil lid is attached to the peripheral rim of the capsule body. *Id.* [0129] (“The capsule can also comprise a cup-shaped body onto which the sealing lid is sealed.”), [0197] (“The lid can be welded on the upper edges 72 of the body.”); FIG6-7. Yoakim further discloses that “sealing foil 103 is sealed onto a peripheral rim 104 of the body.” EX1004, [0414]; EX1003, ¶208.

e) Element [1.d], [7.d]

According to K-fee’s apparent interpretation, Yoakim in combination with Jarisch discloses this limitation.

Yoakim discloses a brewing system that includes an “identification means” to adjust brewing parameters, which helps deliver a wider range of beverages having differentiated characteristics. *Id.*, [0477], [0526]; EX1003, ¶210. Yoakim further discloses that this recognition means **can be a barcode** or other visual code. *Id.*, [0496], [0525]; EX1003, ¶211.

Jarisch discloses a near-identical centrifuge-style brewing system that includes an optical code reader (62) to read a code on the capsule and adjust brewing parameters accordingly. EX1005, [0006], [0024], [0082], [0034]-[0035]; EX1003, ¶212. Jarisch further discloses the code located on the bottom of the flange (shown



right), specifying that this is the optimal location to lower the risk of the code becoming unreadable. EX1005, [0022] (“[T]he code is present on the bottom of the rim of the capsule which is opposed to the lid of the capsule. The bottom of the rim is sufficiently away from the liquid injection and beverage delivery areas so that there is a lower risk for the code to become unreadable[.]”; EX1003, ¶¶213-214. Accordingly, a POSITA would be motivated to place the barcode of Yoakim on the bottom side of the flange facing away from the membrane as disclosed in Jarisch.

f) Element [1.e], [7.e]

Yoakim discloses a beverage machine (FIG4, FIG61) that includes a sensor/detector (231) (right) enabled to identify and read a barcode (ID4) on a capsule. EX1004, [0025] (“The device . . . comprises identification means for identifying the different capsules . . .”), [0525] (“[T]he recognition means is a barcode. . .”), [0192], [0477], [0494]-[0496]; EX1003, ¶¶217-219.

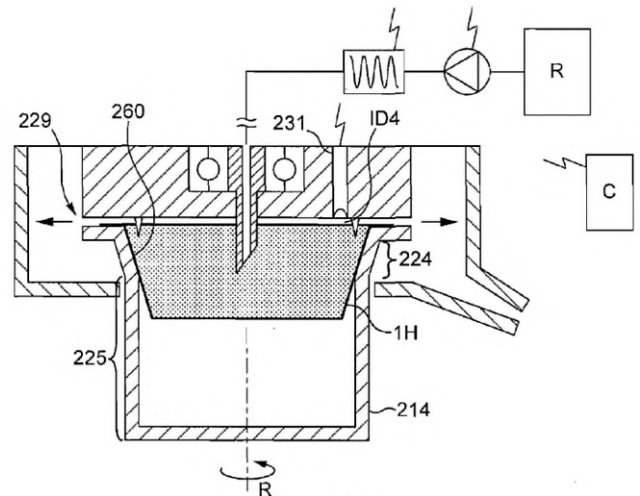


FIG. 61

Jarisch also discloses an optical code detector (62), designed to read the code positioned on the underside of the flange. EX1005, [0082] (“[T]he 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.”); EX1003, ¶¶220-221.

g) Element [1.f], [7.f]

Yoakim discloses a brewing chamber configured to receive the single-serve capsule. EX1004, [0187] (“The system comprises a capsule holder 41 which is associated to a central rotating rod 45 mounted along a lower bearing 43, which is supported on a support 46.”), [0194], [0024], [0216]; EX1003, ¶¶223-224.

The capsule holder of Yoakim is part of the brewing chamber assembly that is configured to receive the single-serve capsule. *Id.* Yoakim FIG4 (41) is shown below:

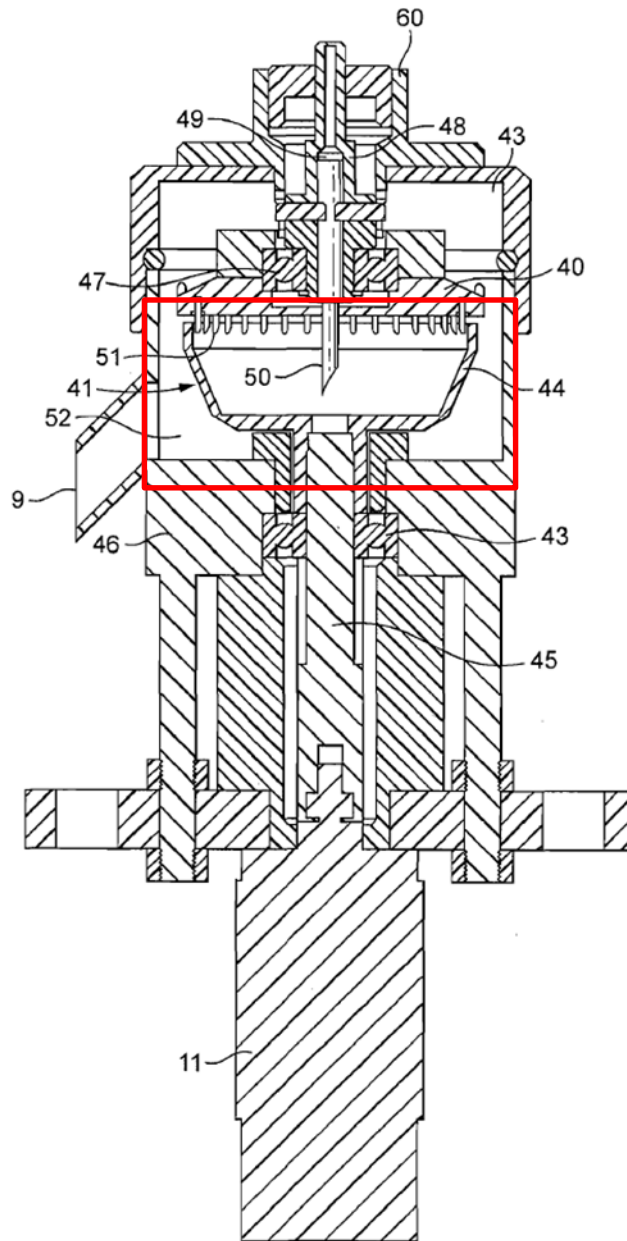


FIG. 4

Yoakim further discloses “an end portion that opposes the bottom side of the flange,” according to K-fee’s apparent interpretation, such as in FIGs. 35 and 61, shown

below. EX1004, FIG. 35, 61; EX1003, ¶225. In these figures the end portion of the capsule holder opposes the bottom side of the capsule flange.

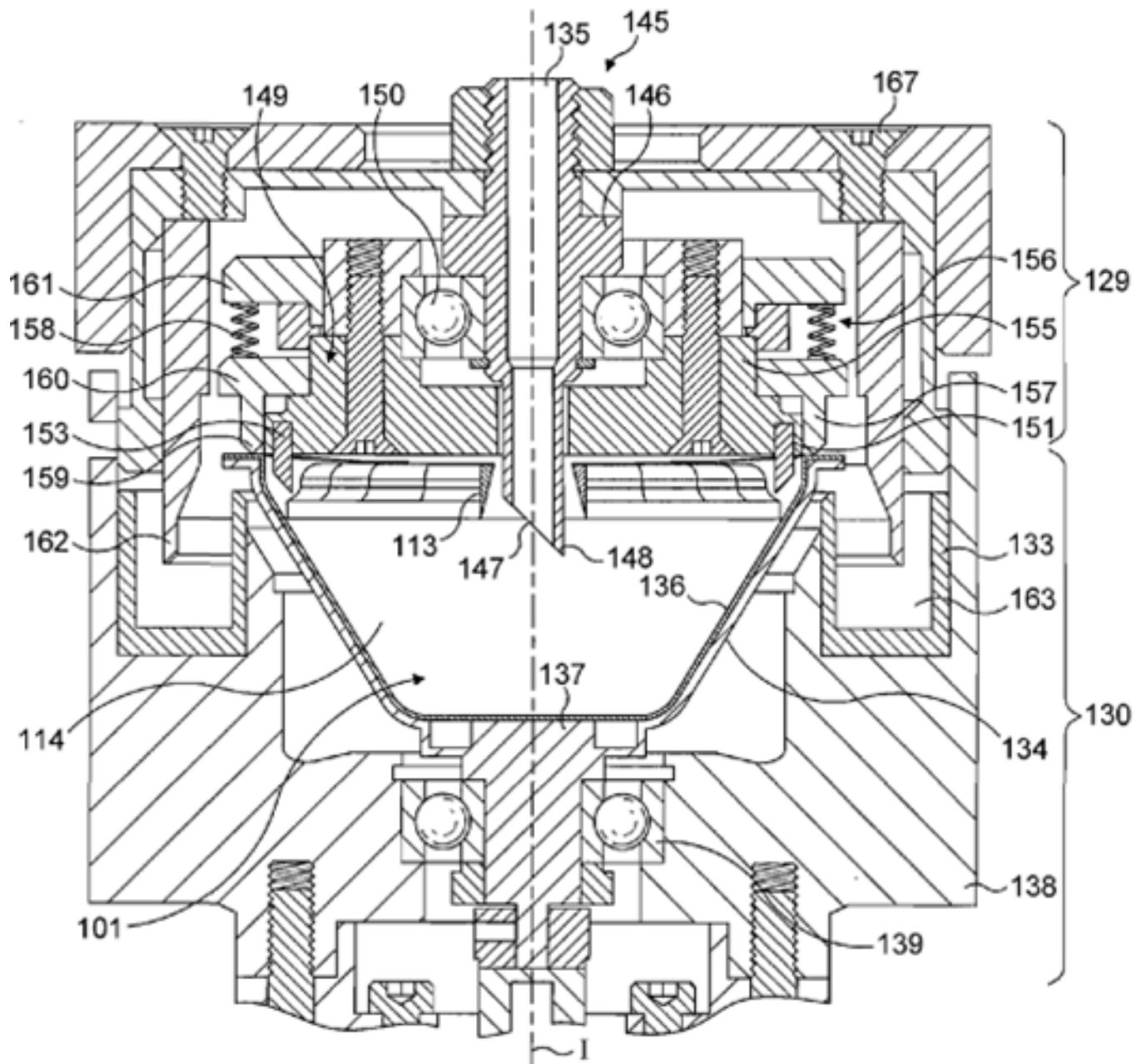


FIG. 35



h) Element [1.g], [7.g]

Yoakim discloses a pump controlled to supply water into the single-serve capsule. EX1004, [0180] (“A fluid transport means such as a low pressure pump 6 can be provided in the water circuit to transport water from the reservoir to the module. . .”). Yoakim further discloses that the pump is controlled based on the detection of the identifier by the sensor/detector. 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]; EX1003, ¶¶227-228.

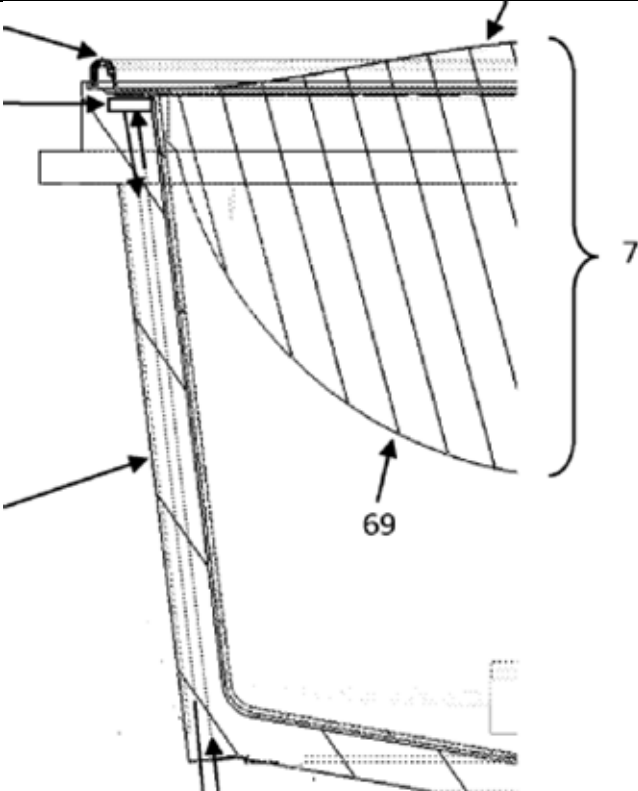
i) Element [1.h], [7.h]

To the extent the ’430 Patent describes and enables a capsule free of a filter, Yoakim discloses a capsule that does not include a filter and expressly confirms that a filter is optional. EX1004, [0171] (“An additional filtering layer can be used to filter the liquid depending on the size of the outlets.”), [0343] (disclosing optional filter embodiment); EX1003, ¶¶230-231. As depicted in FIG54 and FIG42, Yoakim expressly discloses embodiments using capsules that do not have a filter. EX1004, FIG42, FIG54; EX1003, ¶232.

j) Element [1.i], [7.i]

To the extent the ’430 Patent describes and enables a capsule with an upper end portion that has an annular convexity and a lower end portion that has an annular concavity relative to the central axis of the base element, Yoakim in view of Jarisch discloses this limitation according to K-fee’s apparent interpretation.

K-fee alleges that a domed capsule base with a pressurized foil cover meets this limitation. According to this interpretation, such a configuration is disclosed in Jarisch, shown below:

K-fee's Infringement Contentions (EX1049)	
Jarisch (EX1005)	

Jarisch explicitly discloses a capsule with an upper end portion that has an annular convexity and a lower end portion that has an annular concavity relative to the central axis of the base element, according to K-fee's apparent interpretation. EX1005, FIG4 (highlighted above); EX1003, ¶234. It would have been obvious for a POSITA to utilize a capsule shown in Jarisch because such a configuration can be the result of known techniques, such as inert gas and pressurization, which preserve

the quality of the ingredients over time. EX1003, ¶235.

Additionally, Yoakim renders obvious a capsule with an upper end portion that has an annular convexity and a lower end portion that has an annular concavity relative to the central axis of the base element, according to K-fee's apparent interpretation. 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, ¶236. 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 exhibit a convexity under the pressure of the gas or CO₂ emitted from the ground coffee, according to K-fee's apparent interpretation. EX1003, ¶236; *supra*, 6.

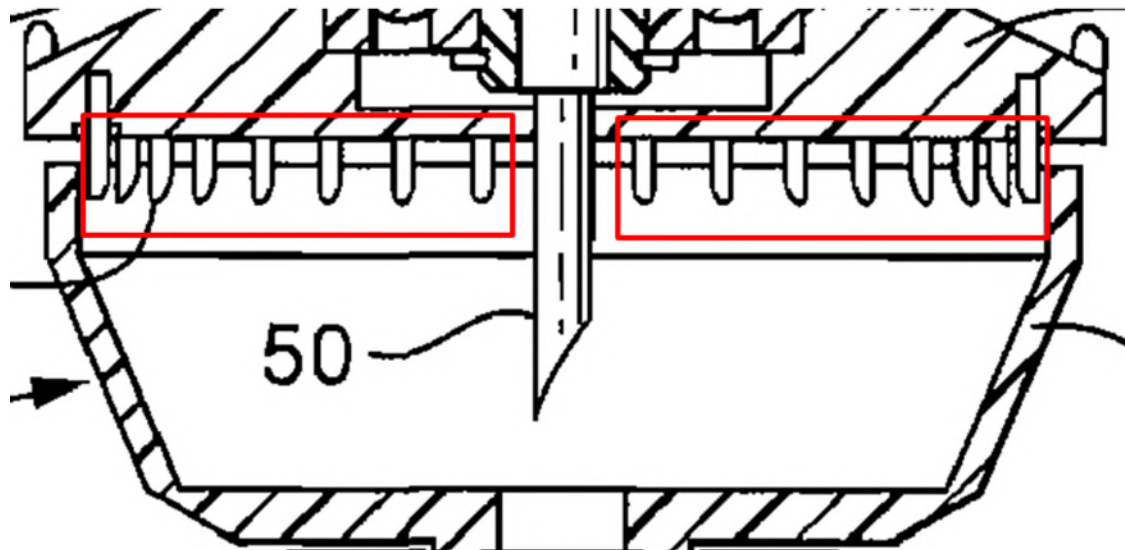
k) Element [1.j], [7.j]

To the extent this term can be understood, Yoakim discloses that both the sealing lid and cup-shaped body can include gas barrier layers made of polymers, aluminium and/or aluminium alloys based on K-fee's apparent interpretation. EX1004, [0128]-[0129], [0197], [0121]; EX1003, ¶238. 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]; EX1003, ¶239. 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]; EX1003, ¶240. 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, ¶¶238-240; *supra* 6.

l) Element [1.k], [7.l]

Yoakim discloses a mandrel that is configured to pierce the cover at a location that is offset from the central axis of the base element, according to K-fee’s apparent construction. 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, ¶242. These needles (51), are shown in FIG4 (enlarged, below). EX1004, [0435], FIG4; EX1003, ¶242.



Additionally, FIG7 (below) depicts holes (74) in the membrane of a capsule after having been pierced by the mandrel, which are offset from the central axis. EX1004, [0199]; EX1003, ¶243.

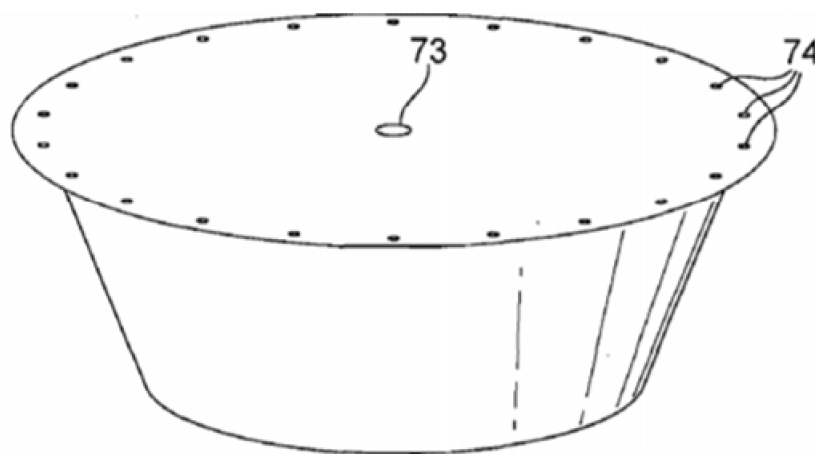


FIG. 7

m) Element [1.I], [7.m]

To the extent this limitation can be understood, Yoakim discloses this limitation 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, ¶245. 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, [0436], [0388], [0446]; EX1003, ¶¶247-248. This seal is designed to “control[] the flow of liquid that is discharged from the device.” EX1004, [0436], [0384]-[0385]; EX1003, ¶246.

The seal is configured to seal 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 seal against the cover in a region between the peripheral edge of the flange and the region that is pierced by the mandrel,*** according to K-fee’s apparent interpretation. 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.”); EX1003, ¶249.

To the extent it can be understood, Yoakim discloses that the seal is positioned to seal against the cover in a region between a peripheral edge of the flange and the region of the cover that is pierced by the mandrel. EX1004, [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.”, [0446]); EX1003, ¶250. This is also shown in FIGs. 35, 37-38, which depicts sealing edge 159 on the surface of the capsule between the peripheral edge and the piercing location of the mandrel (153):

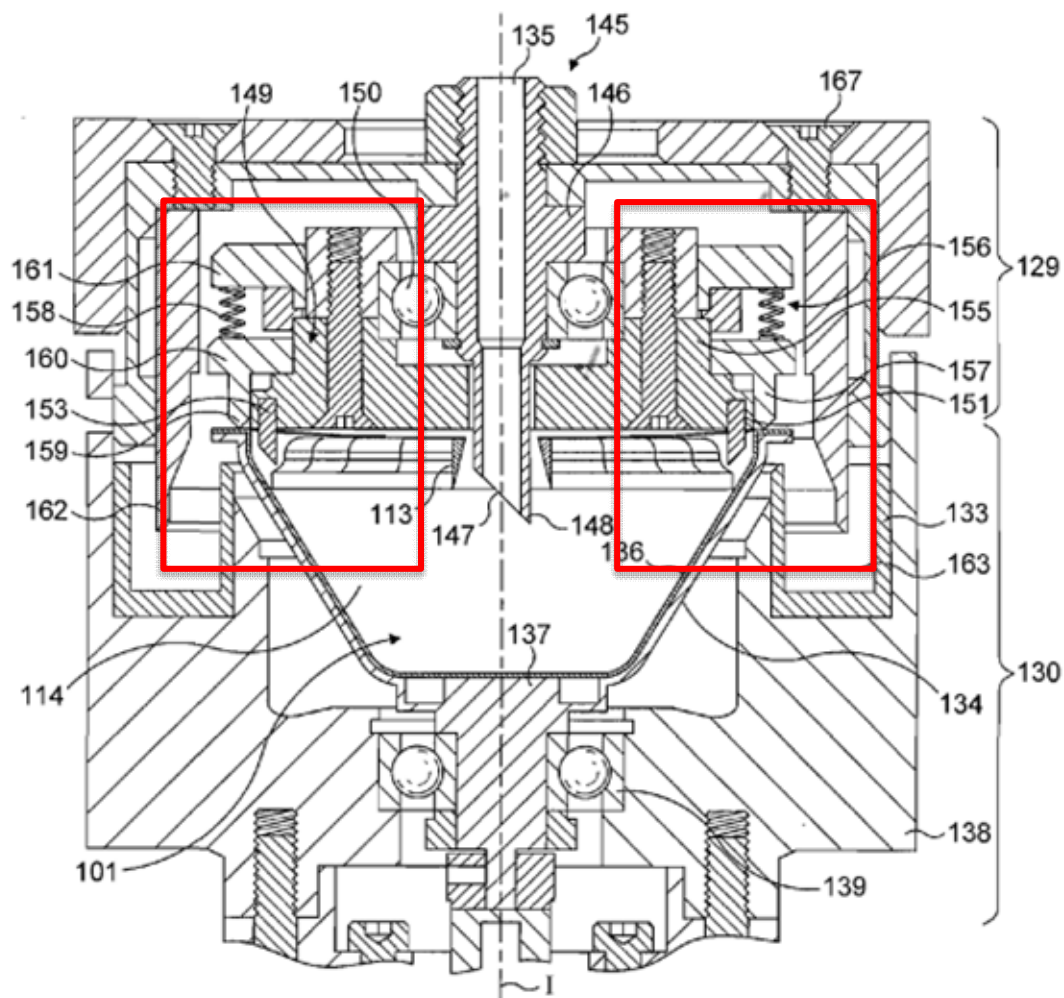
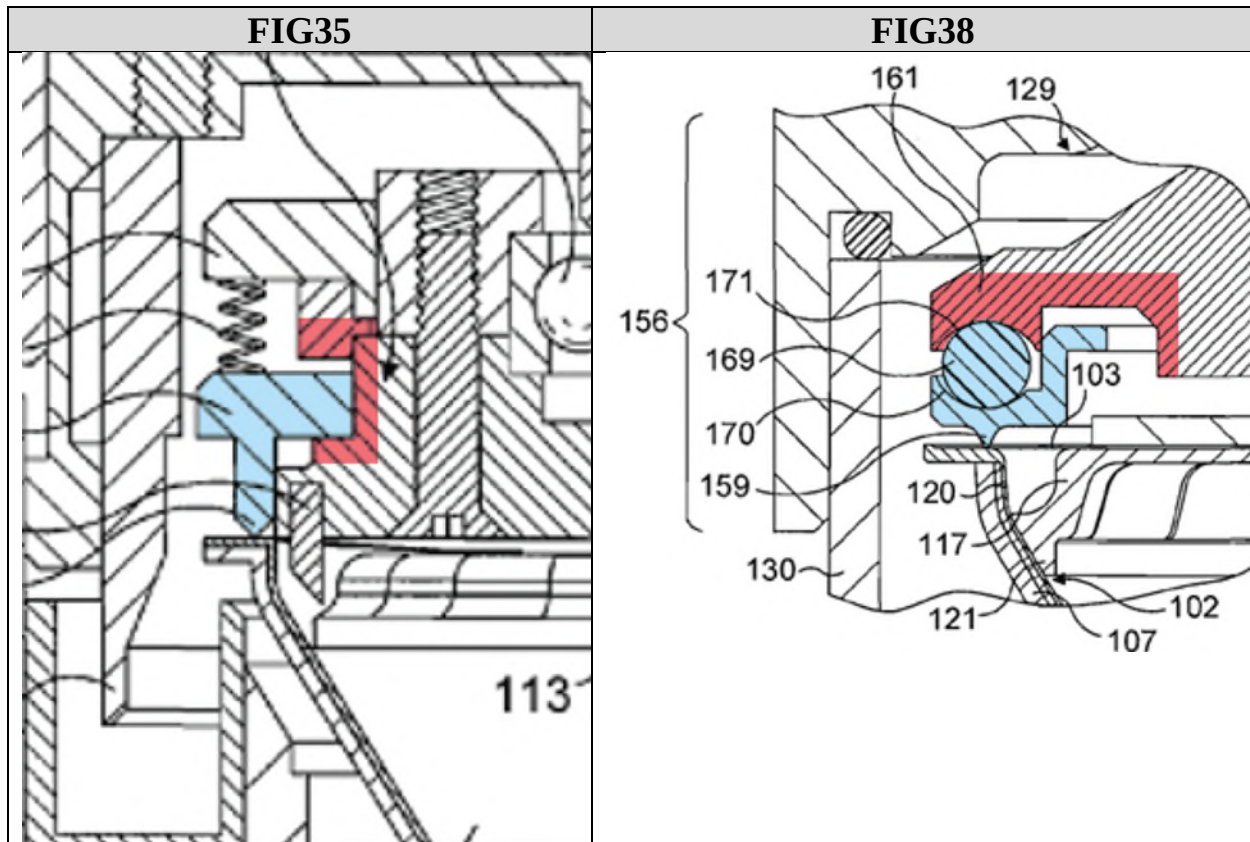


FIG. 35

The seals are shown below in blue in close ups of FIGs. 35 and 38 (EX1003,

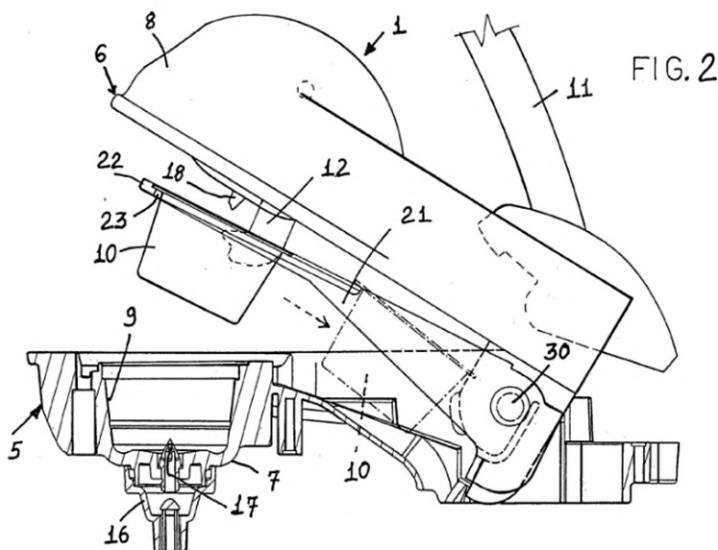
¶251):



It would also have been obvious to a POSITA to utilize the claimed 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, ¶¶252-253.

n) Element [1.m], [7.n]

Castellani discloses a pair of holding arms (fork element 21) for engaging the single-serve capsule, according to K-fee's apparent interpretation. EX1009, [0043]; EX1003, ¶¶254-255. 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, ¶255. Castellani's ejection fork element arms (21) are shown below in FIG2.



A POSITA would have been motivated to utilize the ejection fork elements of Castellani with Yoakim, Jarisch and Rossi. See Section IX.A.2; EX1003, ¶256-257.

o) Element [1.n], [7.o]

Castellani discloses a dropping box in FIG7 (below) for the single-serve capsule to fall into. EX1009, [0054]; EX1003, ¶258. It would have been obvious to a POSITA to incorporate the collecting vessel of Castellani into the brewing system of Yoakim, Jarisch and Rossi. See Section IX.A.2; EX1003, ¶¶259-260.

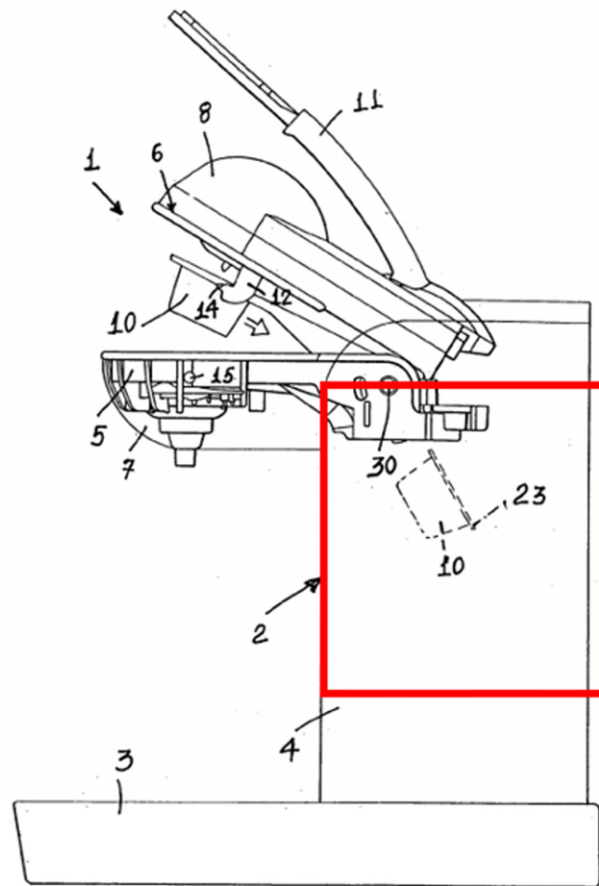


FIG. 7

p) Element [1.o]

Yoakim and Rossi disclose this limitation, according to K-fee's apparent interpretation. Yoakim discloses a pump controlled to push water into the single-

serve capsule. See Section IX.A.3.h. Yoakim further discloses that the pump is controlled based on the detection of the barcode identification means by the sensor/detector. 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]; EX1003, ¶261. A pump, including the flow rate, is one of the various parameters that may be adjusted to push water into the capsule. EX1004, [0192]; EX1003, ¶262.

Rossi discloses not operating the machine unless there is a determination that the barcode agrees with a stored reference. EX1003, ¶¶263-265. Rossi discloses that the machine’s computer system includes a “checking means [that] **compares the signal** from the recognizing 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, ¶263. A POSITA would understand this disclosure to mean controlling the pump based on the comparison, since the activation cycle involves pumping water into the system. EX1003, ¶265. Rossi discloses that both the identifying element and validation element can be a barcode.

It would have been obvious to combine the process of Rossi with Yoakim and Jarisch to arrive at the claimed invention. *Supra* Section IX.A.1.

4. Claim 2

For the same reasons as element [1.o], Yoakim and Rossi disclose a pump which is controlled to not push water into the single-serve capsule upon a determination that the read barcode does not agree with a stored reference, according to K-fee's apparent interpretation. For example, Rossi discloses that its brewing process "automatically activates a cycle of production" of the capsule "***only after*** having recognized" on the capsule the correct barcode(s). EX1041, 6; EX1003, ¶¶268-269. Rossi further explains that "the production process cannot be activated unless" the system recognizes a correct validation element (which can be a barcode). EX1041, 9; EX1003, ¶269.

It would have also been obvious to a POSITA that a pump would not push water into a single-serve capsule upon a determination that a read barcode does not agree with a stored reference because the purpose of reading the barcode is to compare it to stored references to, *inter alia*, determine whether the capsule belongs to the appropriate group, and determine the correct brewing parameters and release heated water to brew a beverage depending on the parameters with that capsule. EX1003, ¶270.

Further, a POSITA would find it obvious that a device with means to recognize pre-stored barcodes would also have the means to recognize the absence of pre-stored barcodes, or the presence of an incompatible capsule, as a safety feature to prevent possible safety hazards. EX1003, ¶271. This predictable operation was well-known in the art by 2010 and would have been obvious to a POSITA. *Id.* ¶271; EX1024, [0014]; EX1040, 23; EX1041, 6; EX1042, [0054]-[0055].

5. Claim 3

For the same reasons as element [1.o], Yoakim and Rossi disclose a sensor/detector of the beverage machine configured to compare the read barcode with the stored reference. Indeed, Yoakim and Rossi disclose the system making “a determination that the read barcode agrees with a stored reference.” *See* Section IX.A.3.p, claim [1.o]. Such a determination is the same as, and necessarily involves, comparing the read barcode with a stored reference, and would certainly have been obvious to a POSITA to undertake a comparison when making such a determination. EX1003, ¶273.

6. Claim 4

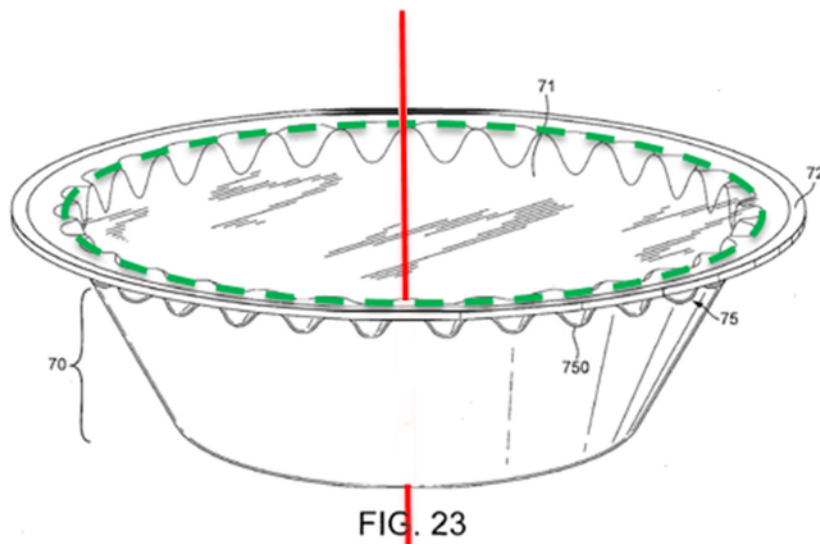
Yoakim discloses a capsule with a base element comprising a bottom having an indentation. Yoakim discloses that the bottom of the portion capsule may be indented, explaining that “[t]he lower portion can be convex, flat or *concave*.” EX1004, [0471]-[0473]; EX1003, ¶275. The base element 106 comprising a bottom

is seen opposing flange 104 in FIG27. It would also have been an obvious design choice to include a lower portion of the capsule that is concave, for example in order to facilitate movement of the coffee grounds toward the perimeter of the inner capsule wall during centrifugal extraction, or to stiffen the bottom of the capsule to better resist distortion due to pressurization. EX1003, ¶275.

7. Claim 5, [7.k]

Yoakim discloses a base element that comprises a side wall that includes a plurality of indentations. 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, ¶277.

As depicted in FIG23 (below), the indentations (green dashes) are arranged about the central longitudinal axis (shown in red). EX1003, ¶278.



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 capsule. EX1003, ¶279.

It would also have been obvious to a POSITA to utilize indentations about the longitudinal axis on the body 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. EX1004, [0215]; EX1003, ¶¶280-281.

8. Claim 6

Yoakim discloses that its capsule can be made of “biodegradable materials.” EX1004, [0180], [0237], [0427]; EX1003, ¶¶282-283. Furthermore, it would have

been obvious to utilize a capsule of biodegradable material in order to obtain the known environmental benefits that biodegradable materials provide. EX1003, ¶¶284-285; EX1006, [0002].

9. Independent Claim 7

a) Elements [7a]-[7.o]

Yoakim, Jarisch, Rossi and Castellani disclose and/or render all elements of claim 7 obvious. The elements of claim limitations [7.a]-[7.j] and [7.l]-[7.o] are discussed above in connection with Claim 1 in Section IX.A.3.a-o. The elements of [7.k] are discussed above in connection with claim 5 in Sections IX.A.7. EX1003, ¶286.

b) Element [7p]

As explained *supra* in element [1.o], Yoakim and Rossi disclose pump control based on the capsule's identifier. EX1003, ¶287. Rossi discloses (i) determining if the single-serve capsule belongs to a group of capsules operable for use with the machine, and (ii) only if the machine determinates that the capsule belongs to a group operable for use with the machine is the pump controlled to push water into the single-serve capsule (the limitation the Examiner found missing from the prior art). First, Rossi discloses detecting an identifier on the capsule by a sensor. EX1041, 6 (“a process for controlling the operation of an edible-product making machine ... characterized in that it comprises a first step of recognition wherein said edible-product making machine **recognizes an identifying element** on said load element”).

Rossi explains that the machine detects an identification element on the capsule with a machine's recognition means:

The use of an **identification element and recognition means**, as well as the step of recognising the identification element allows the machine to recognise the load element and, hence, its contents.

EX1041, 7; EX1003, ¶288.

Second, Rossi discloses determining whether the capsule belongs to a group of capsules that are “operable for use” 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, ¶289.

For example, 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 inappropriate operating conditions.”); EX1003, ¶290. Rossi additionally discloses

this limitation through the identification of a “validation element” that ensures only capsules operable for use activate the machine:

The use of a validation element and validation means, as well as the step allowing the machine to take further steps only if it also recognizes on the load element the validation element help to **prevent the use of an already-used single use load element in the machine, thereby avoiding the production of an edible product of inferior quality and ensuring the proper functioning of the machine.**

EX1041, 7; EX1003, ¶290. A POSITA would understand that already-used capsules would also constitute a group of capsules that are not operable for use with the machine. *Id.*

Third, Rossi discloses that the identification and verification elements can be optical codes located on the capsule, and can both be the same element. EX1041, 9, 11, 13; EX1003, ¶291.

Fourth, Rossi discloses only operating the pump after both detecting an identifier and determining whether the capsule is of a group “operable for use” with the machine. EX1041, 9 (“Thus, **the production process cannot be activated** unless the first step has been completed.”). Rossi further explains:

The use of an activation step of **automatically activating**

the cycle of edible-product production only when the same identifying element is recognized in combination with the validated validation element ensures that the operating conditions actually used are the correct conditions as selected by the machine in the first recognition step.

EX1041, 8, *see also* 12; EX1003, ¶292.

A POSITA would understand Rossi's disclosure to constitute operating the pump only upon a determination that the capsule belongs to a group that is operable for use with the beverage machine because the machine must both detect and read the recognizing element (and additionally the validation element) to determine whether the capsule is of a group operable for use with the machine before the machine will activate the brewing process, which uses the pump. EX1003, ¶293. At a minimum, Rossi renders obvious to a POSITA not operating a pump without a determination that a capsule belongs to a group that is operable for use with the machine in order to increase safety of the system by preventing dangerous operating conditions from improper capsules being used with the machine. *Id.*

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

10. Claim 8

The elements of claim 8 are addressed *supra* in Section IX.A.6, which overlap with Claim 4.

11. Claim 9

The elements of claim 9 are addressed *supra* in Section IX.A.8, which overlap with Claim 6.

12. Claim 10

The elements of claim 10 are addressed *supra* in Section IX.A.5, which overlap with Claim 3.

X. SECTION 314 DENIAL UNDER *NHK/FINTIV* IS ALSO INAPPROPRIATE

The *Fintiv* factors weigh against discretionary denial because the district court case is stayed pending resolution of a related Federal Circuit appeal. *K-Fee System GmbH v. Nespresso USA, Inc.*, 2:22-cv-00525-GW (Dkt. 88). This strongly weighs against discretionary denial. *Microsoft Corp. v. Worlds Inc.*, IPR2021-00277, Paper 11 at 21 (PTAB June 16, 2021) (“It is unlikely that the completion of the appeal process and any trial on obviousness in the Texas Court will occur before a final written decision will be due in this IPR.”); *Unified Patents v. Causam Enterprises, Inc.*, IPR2022-00404, Paper 10 at 3-4 (PTAB July 22, 2022) (finding stay of district court litigation pending related proceeding weighs “strongly toward” institution).

Other factors strongly weigh against discretionary denial. No trial date has

Patent No. 11,230,430

Petition for *Inter Partes* Review

been set (Factor 2), no *Markman* exchanges have occurred (Factor 3), there is no substantive overlap because the district court action is currently stayed (Factor 4), and the merits of the Petition strongly weigh against denial by clearly showing the unpatentability of the claims, including the limitation the Examiner cited as lacking in the prior art (Factor 6). Thus, the *Fintiv* factors weigh against exercising §314(a) discretion.

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).

The '430 Patent is asserted in *K-Fee System GmbH v. Nespresso USA, Inc. et al.*, Case No. 2:22-cv-00525-GW. This case is currently stayed (Dkt. 88) pending resolution of Federal Circuit Appeal No. 2022-2042.

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 '430 Patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review of the '430 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 1-10 because they are unpatentable under 35 U.S.C. §103 based on the foregoing grounds.

Date: January 24, 2023

Respectfully submitted,

By:/ B. Clayton McCraw /

Patent No. 11,230,430
Petition for *Inter Partes* Review

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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 January 24, 2023 a copy of the attached PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 11,230,430, 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

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Date: January 24, 2023

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Petition for *Inter Partes* Review

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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. 11,230,430, 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: January 24, 2023

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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. 11,254,430, 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 13,944/14,000 words, excluding the parts of the paper exempted by 37 C.F.R. §§ 42.24(a)(1).

Date: January 24, 2023

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CLAIM LISTING APPENDIX

1.	A beverage system for making a beverage, comprising:
[1.a]	a single-serve capsule comprising: a base element with a cavity, in which a raw beverage material is provided
[1.b]	a flange extending outwardly from the base element, the flange comprising a top side and an opposing bottom side;
[1.c]	a cover that is fastened to the top side of the flange to close the cavity;
[1.d]	and a barcode provided on the bottom side of the flange; and
[1.e]	a beverage machine comprising: a sensor/detector configured to read the barcode;
[1.f]	a brewing chamber configured to receive the base element of the single-serve capsule and having an end portion that opposes the bottom side of the flange; and
[1.g]	a pump controlled to supply water into the single-serve capsule;
[1.h]	wherein the single-serve capsule is free of a filter that is located inside of the cavity,
[1.i]	the single-serve capsule also comprises: (i) an upper end portion that has an annular convexity and a lower end portion that has an annular concavity relative to the central axis of the base element; and
[1.j]	(ii) a barrier layer to prevent moisture or aroma from escaping out of the single-serve capsule;
[1.k]	wherein the beverage machine also comprises: (i) a mandrel that is configured to pierce the cover in a region that is offset from the central axis of the base element;
[1.l]	(ii) a seal that is configured to seal against the cover in a region between a peripheral edge of the flange and the region of the cover that is pierced by the mandrel;
[1.m]	(iii) a pair of holding arms for engaging the single-serve capsule; and
[1.n]	(iv) a dropping box for the single-serve capsule to fall into;
[1.o]	wherein the pump is controlled to push the water into the single-serve capsule only upon a determination that the read barcode agrees with a stored reference.
2.	The beverage system according to claim 1, wherein the pump is controlled to not push water into the single-serve capsule upon a determination that the read barcode does not agree with a stored reference.

3.	The beverage system according to claim 1, wherein the sensor/detector of the beverage machine is configured to compare the read barcode with the stored reference.
4.	The beverage system according to claim 1, wherein the base element comprises a bottom having an indentation.
5.	The beverage system according to claim 4, wherein the side wall of the base element includes indentations.
6.	The beverage system according to claim 1, wherein the base element is made of a biodegradable material.
7.	A beverage system for making a beverage, comprising:
[7.a]	a single-serve capsule comprising: a base element with a cavity, in which a raw beverage material is provided,
[7.b]	a flange extending outwardly from the base element, the flange comprising a top side and an opposing bottom side;
[7.c]	a cover that is fastened to the top side of the flange to close the cavity;
[7.d]	and an identifier provided on the bottom side of the flange, the identifier being a barcode; and
[7.e]	a beverage machine comprising: a sensor/detector,
[7.f]	a brewing chamber configured to receive the base element of the single-serve capsule and having an end portion that opposes the bottom side of the flange; and
[7.g]	a pump controlled to supply water into the single-serve capsule;
[7.h]	wherein the single-serve capsule is free of a filter that is located inside of the cavity,
[7.i]	the single-serve capsule also comprises: (i) an upper end portion that has an annular convexity and a lower end portion that has an annular concavity relative to the central axis of the base element;
[7.j]	(ii) a barrier layer to prevent moisture or aroma from escaping out of the single-serve capsule; and
[7.k]	(iii) a side wall having indentations;
[7.l]	wherein the beverage machine also comprises: (i) a mandrel that is configured to pierce the cover in a region that is offset from the central axis of the base element;
[7.m]	(ii) a seal that is configured to seal against the cover in a region between a peripheral edge of the flange and the region of the cover that is pierced by the mandrel;

[7.n]	(iii) a pair of holding arms for engaging opposite sides of the single-serve capsule; and
[7.o]	(iv) a dropping box for the single-serve capsule to fall into;
[7.p]	wherein the beverage machine, by reading or detecting the identifier with the sensor/detector, is configured to determine if the single-serve capsule belongs to a group of single serve capsules operable for use with the beverage machine, and only if the beverage machine determines that the single-serve capsule belongs to the group of single serve capsules operable for use with the beverage machine is the pump controlled to push the water into the single-serve capsule.
8.	The beverage system according to claim 7, wherein the base element comprises a bottom having an indentation.
9.	The beverage system according to claim 7, wherein the base element is made of a biodegradable material.
10.	The beverage system according to claim 7, wherein the sensor/detector of the beverage machine is configured to read the barcode and compare the read barcode with a stored reference.