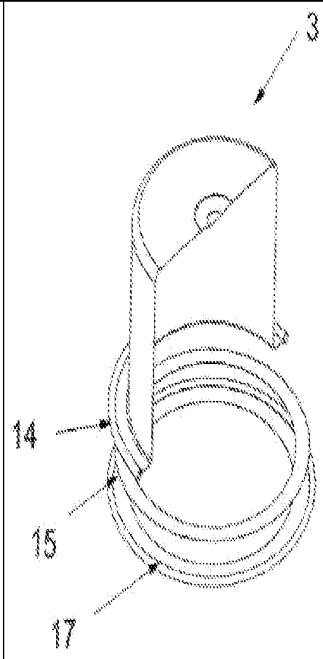
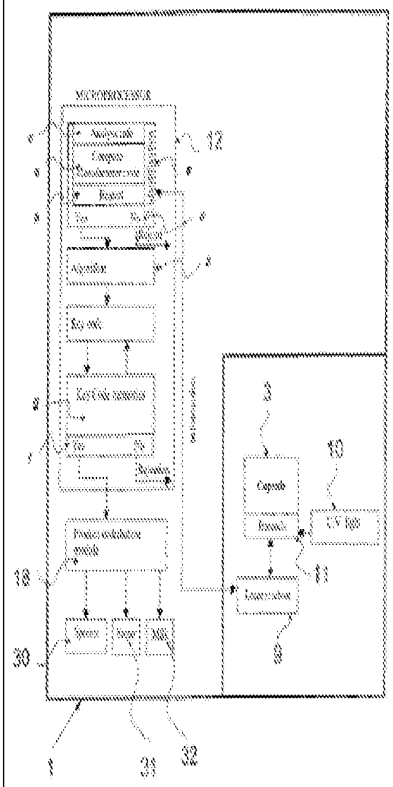
U.S. Patent No. 10,858,177	Disclosure
	 Fig.6 Ruchonnet at 1:3-9: This invention relates to the field of containers, more particularly containers enabling the storage or transport of substances intended to flavor beverages. A container is a receptacle that receives its contents from various sources. Traceability is the ability to identify the origin of a product while reconstructing its itinerary, from its production to its diffusion. It is known to use apparatuses to obtain coffee by infusion, the coffee being kept in a receptacle called a capsule. Ruchonnet at 2:6-19:

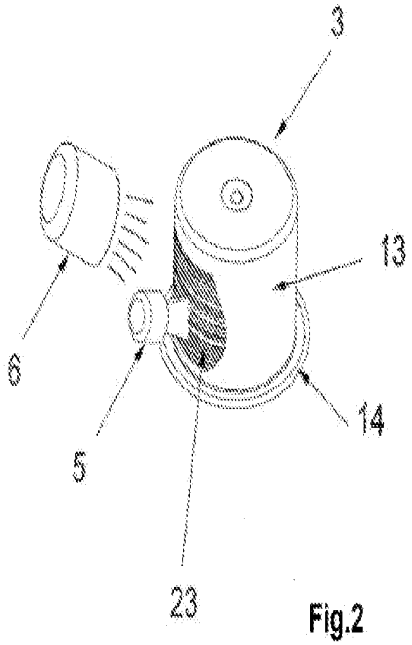
U.S. Patent No. 10,858,177	Disclosure
	This purpose is achieved by an apparatus that makes it possible to establish the traceability of the contents in a receptacle and the origin of said receptacle on which readable information is displayed, by means of an optical and/or magnetic reader but invisible to the naked eye, said receptacle being of the type comprising an upper part that can be perforated for the injection of liquid into the receptacle and a lower membrane that can be perforated under pressure for the release of said liquid flavored by the contents of the receptacle, the apparatus comprising an optical and/or magnetic reader for reading said information on a receptacle introduced into the apparatus, and a microprocessor that makes it possible to encrypt/decrypt, analyze, compare, approve/reject and store information read on a receptacle, and arranged to selectively start or not start a cycle of operations including perforating the upper part of the receptacle and injecting the liquid, as well as to store the information read in order to be ready to start a new cycle. Ruchonnet at 2:20-26: This results in a system that identifies a receptacle, compares the information it carries to the manufacturer's code contained in a system memory, accepts or refuses the information, memorizes it so as to prevent its recovery, authorizes the distribution of products and starts a new work cycle. It should be noted that the information contains the data on the product traceability but also the data on the origin of the receptacle and is affixed to the latter by the manufacturer at the time of the its production. Ruchonnet at 3:9-18: In one embodiment, the information on the receptacle is indicated in the form of a U.V. barcode located in particular around the outer lateral surface of the receptacle. In this case, the device advantageously comprises a reading device with a three-dimensional laser head. The U.V. barcode is inscribed using colorless ink, visible only when exposed to ultraviolet (U.V.) light.

U.S. Patent No. 10,858,177	Disclosure
	In another embodiment, the receptacle is made of anti-magnetic material and the information is on a circular ribbon inside said receptacle. Lastly, another variant of the invention presents a receptacle in which the magnetic code is placed between the lid and the body of the receptacle. In this case the information is stored in a flexible, ring-shaped magnetic strip. Ruchonnet at 4:20-5:5: In one embodiment, illustrated in Figures 1, 2 and 3, a system enabling the traceability of the contents in a receptacle (3) and the origin of that receptacle comprises: - a support medium (1), - a microprocessor (12), - a product distribution module (18), - a laser reading device (9), - a U.V. light emission device (10), and - a receptacle (3) comprising the traceability/origin information (11). The support medium (1) is in particular a coffee machine enabling liquid to be injected into the receptacle (3). Ruchonnet at 5:19-6:6: The product distribution module (18) comprises electronics to control the openings, particularly of the liquid to be injected into the receptacle (3), of ingredients, such as sugar (31) and milk (32), to be added to said flavored liquid delivered by the receptacle (3) and of devices such as spoons (30) that make it possible to stir the ingredients into the liquid and, by simple numbering of the latter devices, to identify the recipient. The laser reading device (9) is equipped with a reading head (5 - Fig. 2) through which information (11) is distributed to the microprocessor (12). The laser reading head (5) is

U.S. Patent No. 10,858,177	Disclosure
	attached to the support medium (1) and located in such a way as to enable the information (11) on a receptacle (3) to be read when it is introduced into the support medium (1). Ruchonnet at 6:7-20: The receptacle (3) comprises a support medium (13) that is, in particular, a cylinder or a conical trunk on which, during its packaging, the information (11) has been affixed to its edge, a circular base (14) that makes it possible to hold the substance, especially coffee, that is to be filtered. This base (14) can be perforated under the pressure of the liquid so as to allow the liquid to pass through to filter and be flavored. The information (11) is in the form of an invisible barcode (23 - Fig. 2) written with ink that is reactive to ultra-violet (U.V.) light. The barcode (23) is visible when placed under a source (6 - Fig. 2) of ultraviolet (U.V.) light. The information (11) comprises all of the indications relative to the traceability of the product contained in the receptacle (3) and the origin of the receptacle. The receptacle (3) bearing the barcode (23), is moved under the laser reading head (5). The barcode (23) is subjected to the U.V. light emitted by the source (6). Ruchonnet at 7:6-14: Figures 4 and 5 illustrate an embodiment in which the receptacle (3) is made of anti-magnetic material (10) and the information (11) is on a tape, in particular a circular magnetic tape (20) inside said receptacle (3). Figure 6 illustrates a variant of the invention that presents a receptacle (3) in which the information (11) is placed on a ring (15) between a perforable lid (17) and the base (14) of the receptacle (3).

U.S. Patent No. 10,858,177	Disclosure
	15 Figure 7 illustrates a variant in which a wire is housed (8) in the base (14) of the receptacle (3) in such a way that the information (11) is recorded in magnetic format. Ruchonnet at Claims 1-3, 5-6, 8-9, 13.
[1.d] a beverage machine comprising: a detector to read the barcode,	Ruchonnet discloses, either expressly or inherently, a beverage machine comprising: a detector to read the barcode. *See, e.g.*: Ruchonnet at Abstract: (57) Abstract: The aim of the present invention is to provide an apparatus for determining the traceability of the contents of a container (3) as well as the origin of said container (3), wherein information (11) provided on said container can be read out using an optical and/or magnetic reader but is invisible to the naked eye. Said container (3) comprises a pierceable upper portion for injecting a liquid into the container (3), and a pressure-pierce-able lower diaphragm for discharging the liquid flavoured by the contents of the container (3). The apparatus includes an optical and/or magnetic reader (9) for reading said information (11) off a container (3) placed inside the apparatus, a microprocessor for encrypting and decrypting, processing, comparing, approving or rejecting and storing the information (11) read off a container (3), and for selectively initiating or not initiating an operative cycle which includes piercing the upper portion of the container (3) and injecting the liquid, as well as for storing (11) said information to ensure readiness for the initiation of a fresh cycle. Ruchonnet at Figures 1-2:

U.S. Patent No. 10,858,177	Disclosure
	 Fig.1

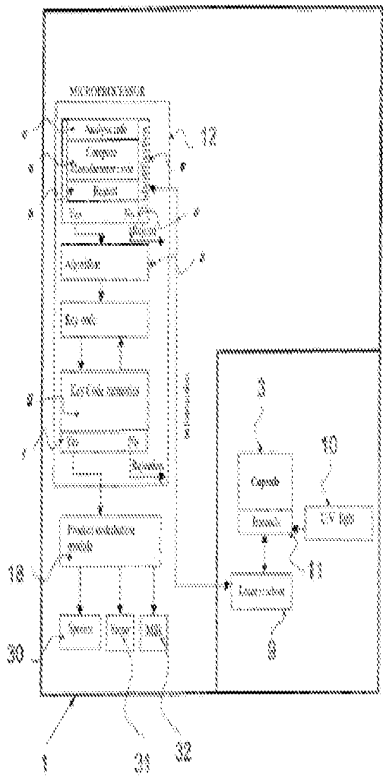
U.S. Patent No. 10,858,177	Disclosure
	 Fig.2 Ruchonnet at 2:6-19: This purpose is achieved by an apparatus that makes it possible to establish the traceability of the contents in a receptacle and the origin of said receptacle on which readable information is displayed, by means of an optical and/or magnetic reader but invisible to the naked eye, said receptacle being of the type comprising an upper part that can be perforated for the injection of liquid into the receptacle and a lower membrane that can be perforated under pressure for the release of said liquid flavored by the contents of the receptacle, the apparatus comprising an optical and/or magnetic reader for reading said information on a receptacle introduced into the apparatus, and a microprocessor that makes it possible to encrypt/decrypt, analyze, compare, approve/reject and store information read on a receptacle, and arranged to selectively start or not start a cycle of operations including perforating the upper part of the receptacle and injecting the liquid, as well as to store the information read in order to be ready to start a new cycle.

U.S. Patent No. 10,858,177	Disclosure
	Ruchonnet at 3:9-18: In one embodiment, the information on the receptacle is indicated in the form of a U.V. barcode located in particular around the outer lateral surface of the receptacle. In this case, the device advantageously comprises a reading device with a three-dimensional laser head. The U.V. barcode is inscribed using colorless ink, visible only when exposed to ultraviolet (U.V.) light. In another embodiment, the receptacle is made of anti-magnetic material and the information is on a circular ribbon inside said receptacle. Lastly, another variant of the invention presents a receptacle in which the magnetic code is placed between the lid and the body of the receptacle. In this case the information is stored in a flexible, ring-shaped magnetic strip. Ruchonnet at 4:20-5:5: In one embodiment, illustrated in Figures 1, 2 and 3, a system enabling the traceability of the contents in a receptacle (3) and the origin of that receptacle comprises: - a support medium (1), - a microprocessor (12), - a product distribution module (18), - a laser reading device (9), - a U.V. light emission device (10), and - a receptacle (3) comprising the traceability/origin information (11). The support medium (1) is in particular a coffee machine enabling liquid to be injected into the receptacle (3). Ruchonnet at 5:19-6:6:

U.S. Patent No. 10,858,177	Disclosure
	The product distribution module (18) comprises electronics to control the openings, particularly of the liquid to be injected into the receptacle (3), of ingredients, such as sugar (31) and milk (32), to be added to said flavored liquid delivered by the receptacle (3) and of devices such as spoons (30) that make it possible to stir the ingredients into the liquid and, by simple numbering of the latter devices, to identify the recipient. The laser reading device (9) is equipped with a reading head (5 - Fig. 2) through which information (11) is distributed to the microprocessor (12). The laser reading head (5) is attached to the support medium (1) and located in such a way as to enable the information (11) on a receptacle (3) to be read when it is introduced into the support medium (1). Ruchonnet at 6:7-20: The receptacle (3) comprises a support medium (13) that is, in particular, a cylinder or a conical trunk on which, during its packaging, the information (11) has been affixed to its edge, a circular base (14) that makes it possible to hold the substance, especially coffee, that is to be filtered. This base (14) can be perforated under the pressure of the liquid so as to allow the liquid to pass through to filter and be flavored. The information (11) is in the form of an invisible barcode (23 - Fig. 2) written with ink that is reactive to ultra-violet (U.V.) light. The barcode (23) is visible when placed under a source (6 - Fig. 2) of ultraviolet (U.V.) light. The information (11) comprises all of the indications relative to the traceability of the product contained in the receptacle (3) and the origin of the receptacle. The receptacle (3) bearing the barcode (23), is moved under the laser reading head (5). The barcode (23) is subjected to the U.V. light emitted by the source (6). Ruchonnet at 6:21-7:1: The information (11) is read and transmitted to the microprocessor (12) which activates, if the information is positively recognized, the aforementioned operations and, in the event of

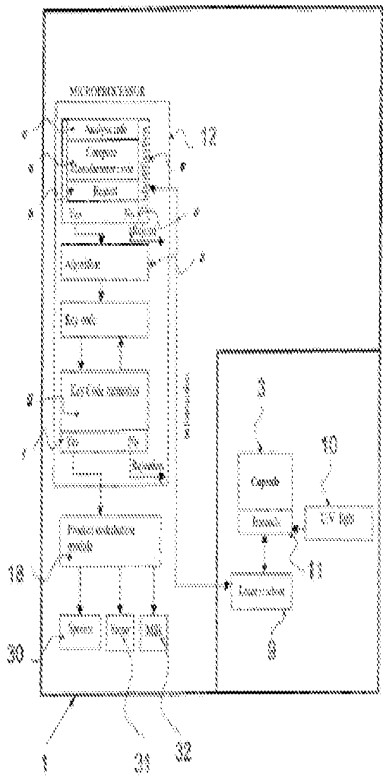
U.S. Patent No. 10,858,177	Disclosure
	negative recognition, rejects the information (11) and stops the procedure for activating the distribution module (18) to interrupt the perforation of the upper part of the receptacle (3) and extraction of the products (30, 31, 32). It should be noted that the microprocessor (12) emits a key, recalculated by an algorithm, in the form of numbers and letters, which represents the indication compared to the manufacturer's data. All keys, after processing, are stored in the internal memory of the microprocessor (12). Ruchonnet at Claims 1-3, 5-6. *See also* [1.c].
[1.e] a media chute configured to receive and support the portion capsule,	Ruchonnet discloses, either expressly or inherently, a media chute configured to receive and support the portion capsule. *See, e.g.*: Ruchonnet at Figure 1:

K-FEE SYSTEM GMBH, EX2012, page 1323
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,858,177	Disclosure
	 Fig.1 Ruchonnet at 2:6-19: This purpose is achieved by an apparatus that makes it possible to establish the traceability of the contents in a receptacle and the origin of said receptacle on which readable information is displayed, by means of an optical and/or magnetic reader but invisible to the naked eye, said receptacle being of the type comprising an upper part that can be perforated for the injection of liquid into the receptacle and a lower membrane that can be perforated under pressure for the release of said liquid flavored by the contents of the receptacle, the apparatus comprising an optical and/or magnetic reader for reading said information on a receptacle introduced into the apparatus, and a microprocessor that makes it possible to encrypt/decrypt, analyze, compare, approve/reject and store information read on a receptacle, and arranged to

U.S. Patent No. 10,858,177	Disclosure
	selectively start or not start a cycle of operations including perforating the upper part of the receptacle and injecting the liquid, as well as to store the information read in order to be ready to start a new cycle. Ruchonnet at 4:20-5:5: In one embodiment, illustrated in Figures 1, 2 and 3, a system enabling the traceability of the contents in a receptacle (3) and the origin of that receptacle comprises: - a support medium (1), - a microprocessor (12), - a product distribution module (18), - a laser reading device (9), - a U.V. light emission device (10), and - a receptacle (3) comprising the traceability/origin information (11). The support medium (1) is in particular a coffee machine enabling liquid to be injected into the receptacle (3). Ruchonnet at 5:19-6:6: The product distribution module (18) comprises electronics to control the openings, particularly of the liquid to be injected into the receptacle (3), of ingredients, such as sugar (31) and milk (32), to be added to said flavored liquid delivered by the receptacle (3) and of devices such as spoons (30) that make it possible to stir the ingredients into the liquid and, by simple numbering of the latter devices, to identify the recipient. The laser reading device (9) is equipped with a reading head (5 - Fig. 2) through which information (11) is distributed to the microprocessor (12). The laser reading head (5) is attached to the support medium (1) and located in such a way as to enable the information (11) on a receptacle (3) to be read when it is introduced into the support medium (1).

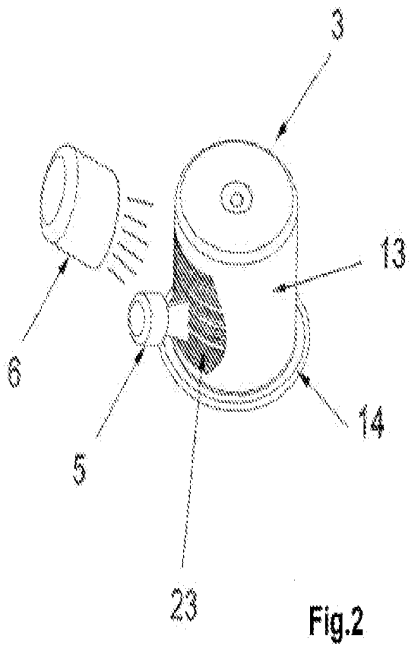
U.S. Patent No. 10,858,177	Disclosure
	Ruchonnet at Claim 1.
[1.f] and a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference,	Ruchonnet discloses, either expressly or inherently, a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference. *See, e.g.*: Ruchonnet at Abstract: (57) Abstract: The aim of the present invention is to provide an apparatus for determining the traceability of the contents of a container (3) as well as the origin of said container (3), wherein information (11) provided on said container can be read out using an optical and/or magnetic reader but is invisible to the naked eye. Said container (3) comprises a pierceable upper portion for injecting a liquid into the container (3), and a pressure-pierce-able lower diaphragm for discharging the liquid flavoured by the contents of the container (3). The apparatus includes an optical and/or magnetic reader (9) for reading said information (11) off a container (3) placed inside the apparatus, a microprocessor for encrypting and decrypting, processing, comparing, approving or rejecting and storing the information (11) read off a container (3), and for selectively initiating or not initiating an operative cycle which includes piercing the upper portion of the container (3) and injecting the liquid, as well as for storing (11) said information to ensure readiness for the initiation of a fresh cycle. Ruchonnet at Figure 1:

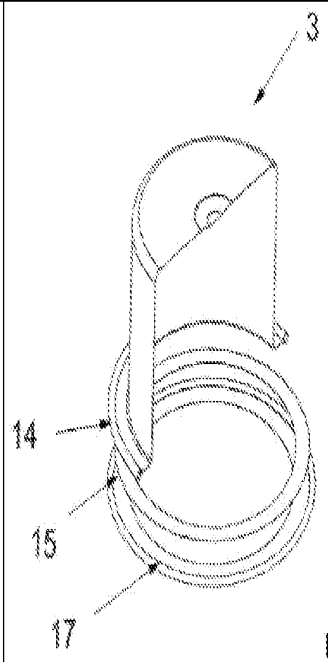
U.S. Patent No. 10,858,177	Disclosure
	 Fig.1 Ruchonnet at 2:6-19: This purpose is achieved by an apparatus that makes it possible to establish the traceability of the contents in a receptacle and the origin of said receptacle on which readable information is displayed, by means of an optical and/or magnetic reader but invisible to the naked eye, said receptacle being of the type comprising an upper part that can be perforated for the injection of liquid into the receptacle and a lower membrane that can be perforated under pressure for the release of said liquid flavored by the contents of the receptacle, the apparatus comprising an optical and/or magnetic reader for reading said information on a receptacle introduced into the apparatus, and a microprocessor that makes it possible to encrypt/decrypt, analyze, compare, approve/reject and store information read on a receptacle, and arranged to

U.S. Patent No. 10,858,177	Disclosure
	selectively start or not start a cycle of operations including perforating the upper part of the receptacle and injecting the liquid, as well as to store the information read in order to be ready to start a new cycle. Ruchonnet at 2:20-26: This results in a system that identifies a receptacle, compares the information it carries to the manufacturer's code contained in a system memory, accepts or refuses the information, memorizes it so as to prevent its recovery, authorizes the distribution of products and starts a new work cycle. It should be noted that the information contains the data on the product traceability but also the data on the origin of the receptacle and is affixed to the latter by the manufacturer at the time of the its production. Ruchonnet at 2:30-3:4: Acceptance/refusal is determined by a microprocessor which, after encrypting the original information, compares it to the manufacturer's key codes in order to enable/refuse product distribution. Memorization is provided by the manufacturer in particular by means of electronic chips that are installed on the device. Ruchonnet at 6:21-7:1: The information (11) is read and transmitted to the microprocessor (12) which activates, if the information is positively recognized, the aforementioned operations and, in the event of negative recognition, rejects the information (11) and stops the procedure for activating the distribution module (18) to interrupt the perforation of the upper part of the receptacle (3) and extraction of the products (30, 31, 32). It should be noted that the microprocessor (12) emits a key, recalculated by an algorithm, in the form of numbers and letters, which represents the indication compared to the

U.S. Patent No. 10,858,177	Disclosure
	manufacturer's data. All keys, after processing, are stored in the internal memory of the microprocessor (12). Ruchonnet at 7:2-5: A key is advantageously assigned to a single barcode (23) which allows the receptacle (3) to be used only once. A receptacle (3) without a barcode (23) is automatically rejected, as is an erroneous barcode (23), and the reuse of a used barcode (23) is rejected by comparison of the keys. Ruchonnet at Claims 1, 15.
[1.g] wherein the base element has a wall region with an electrically conductive section	
[1.h] and radially spaced and vertically oriented drawn grooves,	
[1.i] the cavity has radially spaced and vertically oriented drawn ribs.	
4. The beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule.	Ruchonnet discloses, either expressly or inherently, the beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule. *See, e.g.*: Ruchonnet at Abstract: (57) Abstract: The aim of the present invention is to provide an apparatus for determining the traceability of the contents of a container (3) as well as the origin of said container (3),

K-FEE SYSTEM GMBH, EX2012, page 1329
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,858,177	Disclosure
	wherein information (11) provided on said container can be read out using an optical and/or magnetic reader but is invisible to the naked eye. Said container (3) comprises a pierceable upper portion for injecting a liquid into the container (3), and a pressure-pierce-able lower diaphragm for discharging the liquid flavoured by the contents of the container (3). The apparatus includes an optical and/or magnetic reader (9) for reading said information (11) off a container (3) placed inside the apparatus, a microprocessor for encrypting and decrypting, processing, comparing, approving or rejecting and storing the information (11) read off a container (3), and for selectively initiating or not initiating an operative cycle which includes piercing the upper portion of the container (3) and injecting the liquid, as well as for storing (11) said information to ensure readiness for the initiation of a fresh cycle. Ruchonnet at Figures 2, 6:  Fig.2

U.S. Patent No. 10,858,177	Disclosure
	 Fig.6 Ruchonnet at 2:6-19: This purpose is achieved by an apparatus that makes it possible to establish the traceability of the contents in a receptacle and the origin of said receptacle on which readable information is displayed, by means of an optical and/or magnetic reader but invisible to the naked eye, said receptacle being of the type comprising an upper part that can be perforated for the injection of liquid into the receptacle and a lower membrane that can be perforated under pressure for the release of said liquid flavored by the contents of the receptacle, the apparatus comprising an optical and/or magnetic reader for reading said information on a receptacle introduced into the apparatus, and a microprocessor that makes it possible to encrypt/decrypt, analyze, compare, approve/reject and store information read on a receptacle, and arranged to selectively start or not start a cycle of operations including perforating the upper part of the

U.S. Patent No. 10,858,177	Disclosure
	receptacle and injecting the liquid, as well as to store the information read in order to be ready to start a new cycle. Ruchonnet at 4:20-5:5: In one embodiment, illustrated in Figures 1, 2 and 3, a system enabling the traceability of the contents in a receptacle (3) and the origin of that receptacle comprises: - a support medium (1), - a microprocessor (12), - a product distribution module (18), - a laser reading device (9), - a U.V. light emission device (10), and - a receptacle (3) comprising the traceability/origin information (11). The support medium (1) is in particular a coffee machine enabling liquid to be injected into the receptacle (3). Ruchonnet at 6:7-20: The receptacle (3) comprises a support medium (13) that is, in particular, a cylinder or a conical trunk on which, during its packaging, the information (11) has been affixed to its edge, a circular base (14) that makes it possible to hold the substance, especially coffee, that is to be filtered. This base (14) can be perforated under the pressure of the liquid so as to allow the liquid to pass through to filter and be flavored. The information (11) is in the form of an invisible barcode (23 - Fig. 2) written with ink that is reactive to ultra-violet (U.V.) light. The barcode (23) is visible when placed under a source (6 - Fig. 2) of ultraviolet (U.V.) light. The information (11) comprises all of the indications relative to the traceability of the product contained in the receptacle (3) and the origin of the receptacle.

U.S. Patent No. 10,858,177	Disclosure
	The receptacle (3) bearing the barcode (23), is moved under the laser reading head (5). The barcode (23) is subjected to the U.V. light emitted by the source (6). Ruchonnet at 6:21-7:1: The information (11) is read and transmitted to the microprocessor (12) which activates, if the information is positively recognized, the aforementioned operations and, in the event of negative recognition, rejects the information (11) and stops the procedure for activating the distribution module (18) to interrupt the perforation of the upper part of the receptacle (3) and extraction of the products (30, 31, 32). It should be noted that the microprocessor (12) emits a key, recalculated by an algorithm, in the form of numbers and letters, which represents the indication compared to the manufacturer's data. All keys, after processing, are stored in the internal memory of the microprocessor (12). Ruchonnet at 7:6-14: Figures 4 and 5 illustrate an embodiment in which the receptacle (3) is made of anti-magnetic material (10) and the information (11) is on a tape, in particular a circular magnetic tape (20) inside said receptacle (3). Figure 6 illustrates a variant of the invention that presents a receptacle (3) in which the information (11) is placed on a ring (15) between a perforable lid (17) and the base (14) of the receptacle (3). 15 Figure 7 illustrates a variant in which a wire is housed (8) in the base (14) of the receptacle (3) in such a way that the information (11) is recorded in magnetic format. Ruchonnet at Claims 1, 6, 15. *See also* [1].

U.S. Patent No. 10,858,177	Disclosure
[redacted]	
5. The beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis.	Ruchonnet discloses, either expressly or inherently, the beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis. *See, e.g.*: *See* [4].

K-FEE SYSTEM GMBH, EX2012, page 1334
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

Exhibit B-8 – Invalidity of U.S. Patent No. 10,858,177 in view of Schifferle

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,177 in view of Schifferle

According to its cover page, U.S. Patent Pub. US2005/0150391A1 ("Schifferle") was published on July 14, 2005 from an application filed on January 13, 2005. Schifferle therefore constitutes prior art under at least pre-AIA 35 U.S.C. § 102(b) to the '177 Patent's PCT filing date. Schifferle anticipates and/or renders obvious the Asserted Claims of the '177 Patent (at least as Nespresso understands K-fee's application of the Asserted Claims in an effort to show infringement).

To the extent K-fee argues that any element below is not disclosed by Schifferle, a person of ordinary skill in the art would have found it obvious to combine the teachings of Schifferle with the background knowledge of a person of ordinary skill in the art and/or the additional references, and exemplary teachings, set forth in the charts in Exhibits B-1 to B-9 and in Appendix B.

The chart below provides representative examples of where each element of each claim is found within Schifferle. Citations are meant to be exemplary, not exhaustive, and Nespresso reserves the right to identify and discuss additional portions of the reference in support of its contentions and/or to rebut arguments made by K-fee. Citations to figures, drawings, tables, and the like include reference to any accompanying or related text. All internal cross references are meant to incorporate the cross-referenced material as if fully set forth therein.

It is Nespresso's position that K-fee's Infringement Contentions have not established that any accused product or service infringes any valid claim. Thus, Nespresso's statements below should not be treated as an admission, implication, or suggestion that Nespresso agrees with K-fee regarding either the scope, construction, or interpretation of any of the Asserted Claims, or the infringement theories advanced by K-fee in its Infringement Contentions, including whether any Asserted Claim satisfies 35 U.S.C. §§ 101 or 112. In certain cases, Nespresso specified non-limiting examples of where its application of the prior art is based on K-fee's apparent application of the claim element. These statements are not intended to suggest that Nespresso agrees with K-fee's application of any claim term, suggest a proposed construction at this stage of the case, or suggest that construction is needed, as the parties are not required to exchange terms for construction or proposed constructions until a later date.

K-fee has yet to identify any limitation of the Asserted Claims that it contends is not anticipated and/or rendered obvious by Schifferle. Nespresso therefore expressly reserves the right to respond to any such contention, including by identifying additional obviousness combinations, if K-fee makes any such contention.

Where Nespresso states that Schifferle "discloses" a limitation, that disclosure may be express, implicit, and/or inherent.

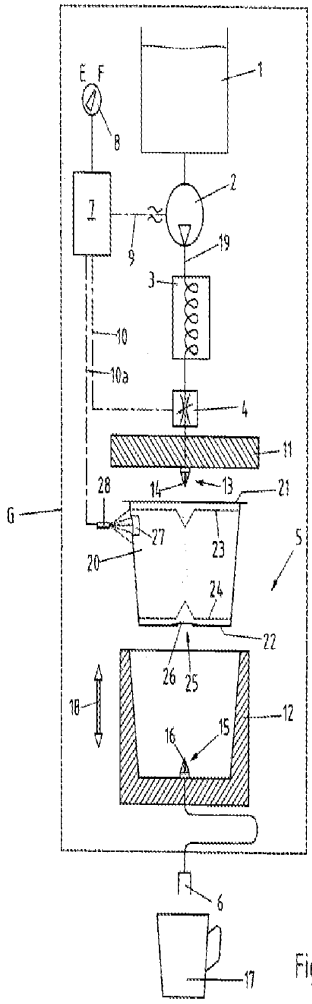
K-FEE SYSTEM GMBH, EX2012, page 1335
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

Exhibit B-8 – Invalidity of U.S. Patent No. 10,858,177 in view of Schifferle

U.S. Patent No. 10,858,177	Disclosure
[1.pre] A beverage system for producing a beverage, comprising:	Schifferle discloses, either expressly or inherently, a beverage system for producing a beverage. *See, e.g.*: Schifferle at Abstract: The coffee maker for brewing powder coffee contained in a cartridge comprises a brewing chamber adapted to receive the cartridge, at least one punching member for punching the cartridge and a pump for feeding brewing water into the brewing chamber. In order to avoid that the prepared coffee shows froth at its surface, the coffee maker comprises means for restricting the amount of water fed by the pump into the brewing chamber per unit of time. This means ensures that the brewing water flows through the cartridge essentially unpressurized. Schifferle at [0001]: The present invention refers to a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive a coffee powder cartridge, at least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Schifferle at [0010]-[0012]: It is an object of the present invention to provide a coffee maker for brewing coffee powder contained in a cartridge by means of which not only an espresso coffee beverage, but also a normal coffee beverage can be prepared, the latter one not having froth on its surface and corresponding in taste to a normal filter coffee. To meet this and other objects, the invention provides a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive the coffee powder cartridge, at least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Further, means are provided for restricting the amount of brewing water fed into the brewing chamber per unit of time to

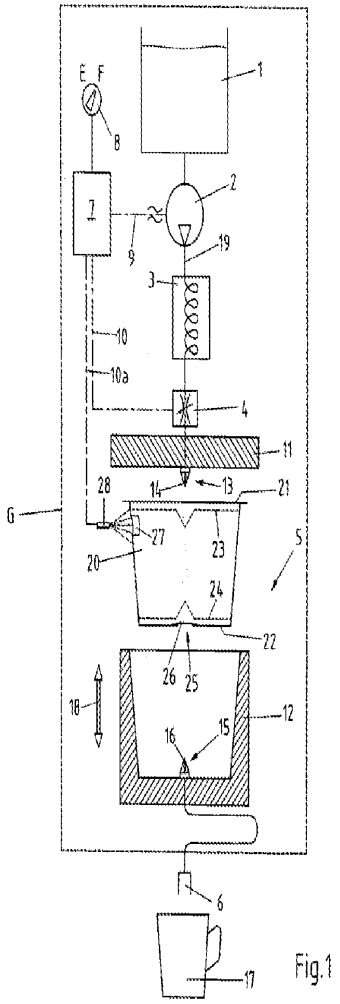
U.S. Patent No. 10,858,177	Disclosure
	such an extent that the brewing water flows through the powder coffee cartridge received in the brewing chamber essentially unpressurized. Due to the fact that means are provided for restricting the amount of brewing water fed into the brewing chamber per unit of time to such an extent that the brewing water flows through the powder coffee cartridge received in the brewing chamber essentially unpressurized, the formation of froth on the surface of the coffee beverage can be essentially avoided. Preferably, both the cover and the bottom of the cartridge are punched before the brewing operation is initiated. Schifferle at [0020]-[0021]: The brewing operation using a cartridge designated for preparing a froth-less coffee beverage, a so-called filter coffee, takes place as follows: The selector switch 8 is manually rotated into the position "F" and the cartridge 20 is inserted into the cartridge retainer 12. Then, the retainer 12 is moved upwards towards the closing plate member 11. Upon completion of this upwards movement (see FIG. 2), both the cartridge cover 21 and the bottom 22 of the cartridge 20, i.e. the foil 26, are punched. Once the upper end position is reached, the closing plate member 11 not only closes the brewing chamber 5, but also presses the cartridge cover 21 against the top end face of the cartridge retainer 12 along an annular contact area, thereby hydraulically sealing the upper portion of the cartridge 20 against the bottom 22 of the cartridge 20. As soon as the brewing chamber 5 is closed, the pump 2 is operated. The amount of brewing water fed into the brewing chamber 5 per unit of time is restricted, as compared to the brewing operation of an espresso coffee, to such an extent that the brewing water flows through the cartridge 20 essentially unpessurized. The flow restriction rate is determined either by a pre-selected, stored value or on the basis of a code contained in the label or marking 27 of the cartridge 20. The flow restriction can be realized either by reducing the flow rate of the pump 2 or by adjusting the throttle valve 4. For reducing the flow rate of the pump 2, in the case of an AC operated pump, a phase controlled modulator or a wave packet controller can be used. As an alternative, the operating frequency of the pump 2 can be changed. It is understood that in

U.S. Patent No. 10,858,177	Disclosure
	practice only one of the measures for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time is provided, i.e. either means are provided for reducing the flow rate of the pump 2, or a throttle valve 4 is provided for reducing the effective flow cross sectional area. It is further understood that other means for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time could be provided. Schifferle at [0029]: The coffee maker according to the invention is known under the designation "espresso machine"; it is suitable both for preparing a filter coffee beverage and particularly an espresso coffee beverage. The coffee maker can be designed as a manually operated machine, with a cartridge holder to be manually inserted into the machine, or as a semi- or fully-automatic coffee maker.
[1.a] a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided,	Schifferle discloses, either expressly or inherently, a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided. *See, e.g.*: Schifferle at Fig. 1:

U.S. Patent No. 10,858,177	Disclosure
	 Fig.1 Schifferle at [0016]: Schematically shown in FIGS. 1 and 2 are the essential elements of the coffee maker according to the invention, namely a fresh water tank 1, a pump 2, a boiler 3, a throttle valve

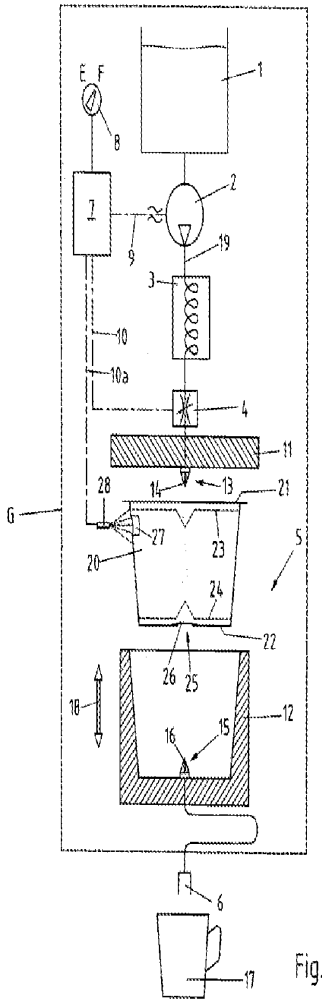
U.S. Patent No. 10,858,177	Disclosure
	4, a brewing chamber 5, a beverage outlet 6, a control unit 7 and a selector switch 8. All these elements are mounted inside a schematically indicated housing G. Located below the beverage outlet 6, there is shown a coffee mug 17 for receiving the prepared coffee beverage. The cartridge to be put into the brewing chamber 5 and containing ground coffee is designated by reference numeral 20. In the present example, the bottom 22 of the cartridge 20 is provided with an aperture 25 which is covered by a foil 26 provided at the inside of the bottom 22 of the cartridge 20. Since such a cartridge is primarily suitable for preparing filter coffee, it is designated, in the following, as a filter cartridge 20, while a conventional cartridge having a continuous bottom without any opening is designated as an espresso cartridge. Schifferle at [0020]-[0021]: The brewing operation using a cartridge designated for preparing a froth-less coffee beverage, a so-called filter coffee, takes place as follows: The selector switch 8 is manually rotated into the position "F" and the cartridge 20 is inserted into the cartridge retainer 12. Then, the retainer 12 is moved upwards towards the closing plate member 11. Upon completion of this upwards movement (see FIG. 2), both the cartridge cover 21 and the bottom 22 of the cartridge 20, i.e. the foil 26, are punched. Once the upper end position is reached, the closing plate member 11 not only closes the brewing chamber 5, but also presses the cartridge cover 21 against the top end face of the cartridge retainer 12 along an annular contact area, thereby hydraulically sealing the upper portion of the cartridge 20 against the bottom 22 of the cartridge 20. As soon as the brewing chamber 5 is closed, the pump 2 is operated. The amount of brewing water fed into the brewing chamber 5 per unit of time is restricted, as compared to the brewing operation of an espresso coffee, to such an extent that the brewing water flows through the cartridge 20 essentially unpessurized. The flow restriction rate is determined either by a pre-selected, stored value or on the basis of a code contained in the label or marking 27 of the cartridge 20. The flow restriction can be realized either by reducing the flow rate of the pump 2 or by adjusting the throttle valve 4. For reducing the flow rate of the pump 2, in the case of an AC operated pump, a phase controlled modulator or a wave packet controller can be used. As an alternative, the operating

U.S. Patent No. 10,858,177	Disclosure
	frequency of the pump 2 can be changed. It is understood that in practice only one of the measures for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time is provided, i.e. either means are provided for reducing the flow rate of the pump 2, or a throttle valve 4 is provided for reducing the effective flow cross sectional area. It is further understood that other means for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time could be provided. Schifferle at [0024]: As can be further seen in the drawings, the filter cartridge 20 is provided with an upper filter element 23 and a lower filter element 24. Such filter elements 23, 24 favor a consistent flow of the brewing water through the filter cartridge 20 and prevent the coffee powder contained in the cartridge 20 from escaping through the punched out apertures. The filter elements 23, 24 are provided each with a recess directed towards the interior of the cartridge 20 and located in the area where the cover 21 and the bottom 22, respectively, of the cartridge 20 are punched and into which the punching members 13, 15 extend once the cartridge cover 21 and bottom 22 are punched. In order to ensure that the bottom 22 of the cartridge 20 is reliably punched upon closing the brewing chamber 5, a foil 26 is provided which has a low ductility and a low tensile strength as compared to the material of the cartridge itself, such that it easily tears apart under the influence of the lower punching member 15 located at the bottom of the cartridge retainer 12. Schifferle at Claims 13-14.
[1.b] the base element comprising a circumferential flange having a top side to which the lid is attached	Schifferle discloses, either expressly or inherently, the base element comprising a circumferential flange having a top side to which the lid is attached. *See, e.g.*: Schifferle at Fig. 1:

U.S. Patent No. 10,858,177	Disclosure
	 Fig.1 Schifferle at [0016]: Schematically shown in FIGS. 1 and 2 are the essential elements of the coffee maker according to the invention, namely a fresh water tank 1, a pump 2, a boiler 3, a throttle valve 4, a brewing chamber 5, a beverage outlet 6, a control unit 7 and a selector switch 8. All these elements are mounted inside a schematically indicated housing G. Located below the

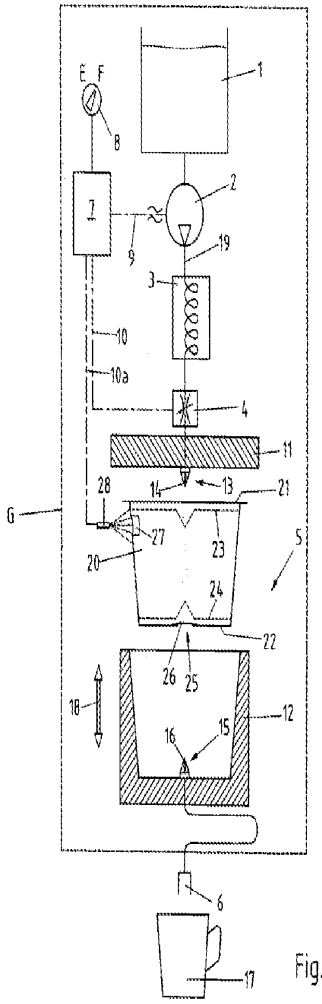
U.S. Patent No. 10,858,177	Disclosure
	beverage outlet 6, there is shown a coffee mug 17 for receiving the prepared coffee beverage. The cartridge to be put into the brewing chamber 5 and containing ground coffee is designated by reference numeral 20. In the present example, the bottom 22 of the cartridge 20 is provided with an aperture 25 which is covered by a foil 26 provided at the inside of the bottom 22 of the cartridge 20. Since such a cartridge is primarily suitable for preparing filter coffee, it is designated, in the following, as a filter cartridge 20, while a conventional cartridge having a continuous bottom without any opening is designated as an espresso cartridge. Schifferle at [0021]: The selector switch 8 is manually rotated into the position "F" and the cartridge 20 is inserted into the cartridge retainer 12. Then, the retainer 12 is moved upwards towards the closing plate member 11. Upon completion of this upwards movement (see FIG. 2), both the cartridge cover 21 and the bottom 22 of the cartridge 20, i.e. the foil 26, are punched. Once the upper end position is reached, the closing plate member 11 not only closes the brewing chamber 5, but also presses the cartridge cover 21 against the top end face of the cartridge retainer 12 along an annular contact area, thereby hydraulically sealing the upper portion of the cartridge 20 against the bottom 22 of the cartridge 20. As soon as the brewing chamber 5 is closed, the pump 2 is operated. The amount of brewing water fed into the brewing chamber 5 per unit of time is restricted, as compared to the brewing operation of an espresso coffee, to such an extent that the brewing water flows through the cartridge 20 essentially unpessurized. The flow restriction rate is determined either by a pre-selected, stored value or on the basis of a code contained in the label or marking 27 of the cartridge 20. The flow restriction can be realized either by reducing the flow rate of the pump 2 or by adjusting the throttle valve 4. For reducing the flow rate of the pump 2, in the case of an AC operated pump, a phase controlled modulator or a wave packet controller can be used. As an alternative, the operating frequency of the pump 2 can be changed. It is understood that in practice only one of the measures for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time is provided, i.e. either means are provided for reducing the flow rate of the pump 2, or a throttle valve 4 is provided for reducing the effective flow cross

U.S. Patent No. 10,858,177	Disclosure
	sectional area. It is further understood that other means for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time could be provided. Schifferle at [0024]: As can be further seen in the drawings, the filter cartridge 20 is provided with an upper filter element 23 and a lower filter element 24. Such filter elements 23, 24 favor a consistent flow of the brewing water through the filter cartridge 20 and prevent the coffee powder contained in the cartridge 20 from escaping through the punched out apertures. The filter elements 23, 24 are provided each with a recess directed towards the interior of the cartridge 20 and located in the area where the cover 21 and the bottom 22, respectively, of the cartridge 20 are punched and into which the punching members 13, 15 extend once the cartridge cover 21 and bottom 22 are punched. In order to ensure that the bottom 22 of the cartridge 20 is reliably punched upon closing the brewing chamber 5, a foil 26 is provided which has a low ductility and a low tensile strength as compared to the material of the cartridge itself, such that it easily tears apart under the influence of the lower punching member 15 located at the bottom of the cartridge retainer 12.
[1.c] and a bottom side with a barcode located on the bottom side, and	Schifferle discloses, either expressly or inherently, a bottom side with a barcode located on the bottom side. *See, e.g.*: Schifferle at Fig. 1:

U.S. Patent No. 10,858,177	Disclosure
	 Fig.1 Schifferle at [0019]: The selector switch 8 serves for selecting the coffee beverage to be prepared. The letter "E" denotes espresso coffee, while the letter "F" denotes filter coffee. The selector switch is electrically connected to the control unit 7. The control unit is operationally connected to the pump 2 via a conductor 9 and to a throttle valve 4 via a conductor 10. The throttle valve is

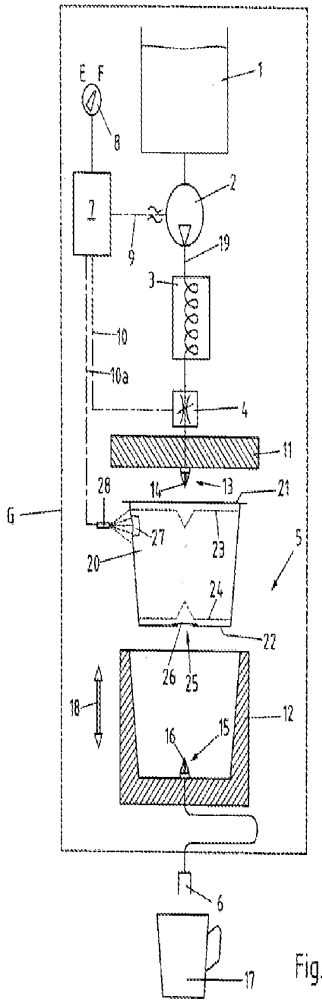
U.S. Patent No. 10,858,177	Disclosure
	inserted into a brewing water conduit 19 running from the pump 2 to the closing plate member 11. Moreover, there is provided a sensor 28, electrically connected to the control unit 7 by means of a conductor 10 a. The sensor 28 serves for detecting and reading a label or marking 27, provided on the cartridge 20 and containing information about the kind and/or content of the cartridge 20. Such a label or marking 27 can consist, for example, of a barcode printed onto the cartridge 20; however, other kinds of markings are possible, for example in electronic form. It is understood that the sensor 28 and the label or marking 27 are matched to each other to enable the sensor 28 to read the label or marking 28 and to forward the information contained therein to the control unit 7. In the case where exclusively cartridges 20 are used that are provided with such a label or marking 28, the selector switch 8 can be omitted since the kind of cartridge 20 is automatically recognized by the sensor 27, and the control unit, consequently, influences certain operating parameters of the coffee maker, e.g. the delivery rate of the pump 2, the adjustment of the throttle valve 4 et cetera. Schifferle at [0021]: The selector switch 8 is manually rotated into the position "F" and the cartridge 20 is inserted into the cartridge retainer 12. Then, the retainer 12 is moved upwards towards the closing plate member 11. Upon completion of this upwards movement (see FIG. 2), both the cartridge cover 21 and the bottom 22 of the cartridge 20, i.e. the foil 26, are punched. Once the upper end position is reached, the closing plate member 11 not only closes the brewing chamber 5, but also presses the cartridge cover 21 against the top end face of the cartridge retainer 12 along an annular contact area, thereby hydraulically sealing the upper portion of the cartridge 20 against the bottom 22 of the cartridge 20. As soon as the brewing chamber 5 is closed, the pump 2 is operated. The amount of brewing water fed into the brewing chamber 5 per unit of time is restricted, as compared to the brewing operation of an espresso coffee, to such an extent that the brewing water flows through the cartridge 20 essentially unpessurized. The flow restriction rate is determined either by a pre-selected, stored value or on the basis of a code contained in the label or marking 27 of the cartridge 20. The flow restriction can be realized either by reducing the flow rate of the pump 2 or by adjusting the throttle valve 4. For reducing the flow rate of the pump 2, in the case of an AC operated pump, a phase

U.S. Patent No. 10,858,177	Disclosure
	controlled modulator or a wave packet controller can be used. As an alternative, the operating frequency of the pump 2 can be changed. It is understood that in practice only one of the measures for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time is provided, i.e. either means are provided for reducing the flow rate of the pump 2, or a throttle valve 4 is provided for reducing the effective flow cross sectional area. It is further understood that other means for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time could be provided. Schifferle at Claim 12.
[1.d] a beverage machine comprising: a detector to read the barcode,	Schifferle discloses, either expressly or inherently, a beverage machine comprising: a detector to read the barcode. *See, e.g.*: Schifferle at Fig. 1:

U.S. Patent No. 10,858,177	Disclosure
	 Fig.1 Schifferle at [0019]: The selector switch 8 serves for selecting the coffee beverage to be prepared. The letter "E" denotes espresso coffee, while the letter "F" denotes filter coffee. The selector switch is electrically connected to the control unit 7. The control unit is operationally connected to the pump 2 via a conductor 9 and to a throttle valve 4 via a conductor 10. The throttle valve is

U.S. Patent No. 10,858,177	Disclosure
	inserted into a brewing water conduit 19 running from the pump 2 to the closing plate member 11. Moreover, there is provided a sensor 28, electrically connected to the control unit 7 by means of a conductor 10 a. The sensor 28 serves for detecting and reading a label or marking 27, provided on the cartridge 20 and containing information about the kind and/or content of the cartridge 20. Such a label or marking 27 can consist, for example, of a barcode printed onto the cartridge 20; however, other kinds of markings are possible, for example in electronic form. It is understood that the sensor 28 and the label or marking 27 are matched to each other to enable the sensor 28 to read the label or marking 28 and to forward the information contained therein to the control unit 7. In the case where exclusively cartridges 20 are used that are provided with such a label or marking 28, the selector switch 8 can be omitted since the kind of cartridge 20 is automatically recognized by the sensor 27, and the control unit, consequently, influences certain operating parameters of the coffee maker, e.g. the delivery rate of the pump 2, the adjustment of the throttle valve 4 et cetera. Schifferle at [0021]: The selector switch 8 is manually rotated into the position "F" and the cartridge 20 is inserted into the cartridge retainer 12. Then, the retainer 12 is moved upwards towards the closing plate member 11. Upon completion of this upwards movement (see FIG. 2), both the cartridge cover 21 and the bottom 22 of the cartridge 20, i.e. the foil 26, are punched. Once the upper end position is reached, the closing plate member 11 not only closes the brewing chamber 5, but also presses the cartridge cover 21 against the top end face of the cartridge retainer 12 along an annular contact area, thereby hydraulically sealing the upper portion of the cartridge 20 against the bottom 22 of the cartridge 20. As soon as the brewing chamber 5 is closed, the pump 2 is operated. The amount of brewing water fed into the brewing chamber 5 per unit of time is restricted, as compared to the brewing operation of an espresso coffee, to such an extent that the brewing water flows through the cartridge 20 essentially unpessurized. The flow restriction rate is determined either by a pre-selected, stored value or on the basis of a code contained in the label or marking 27 of the cartridge 20. The flow restriction can be realized either by reducing the flow rate of the pump 2 or by adjusting the throttle valve 4. For reducing the flow rate of the pump 2, in the case of an AC operated pump, a phase

U.S. Patent No. 10,858,177	Disclosure
	controlled modulator or a wave packet controller can be used. As an alternative, the operating frequency of the pump 2 can be changed. It is understood that in practice only one of the measures for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time is provided, i.e. either means are provided for reducing the flow rate of the pump 2, or a throttle valve 4 is provided for reducing the effective flow cross sectional area. It is further understood that other means for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time could be provided. Schifferle at Claim 12. *See also* [1.c].
[1.e] a media chute configured to receive and support the portion capsule,	Schifferle discloses, either expressly or inherently, a media chute configured to receive and support the portion capsule. *See, e.g.*: Schifferle at Fig. 1:

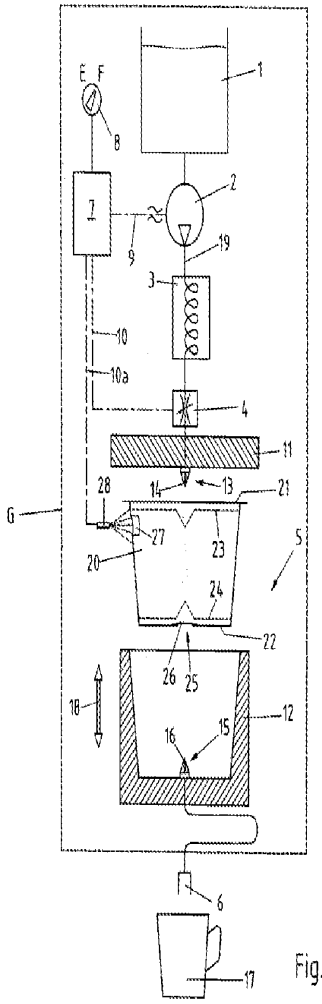
U.S. Patent No. 10,858,177	Disclosure
	 Fig.1 Schifferle at [0001]: The present invention refers to a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive a coffee powder cartridge, at

U.S. Patent No. 10,858,177	Disclosure
	least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Schifferle at [0003]: For brewing the coffee powder contained in the cartridge, either manually operated or semi-automatic as well as fully automatic coffee makers are used. Usually, in a manually operated coffee maker, the cartridge is inserted into a cartridge holder that in turn is inserted into the coffee maker. In the semi-automatic coffee makers, the cartridge is inserted into a cartridge retainer or directly into the brewing chamber of the machine, whereby the brewing chamber is manually closed by means of a central lever mechanism. In a fully automatic coffee maker, however, the cartridge is removed from a cartridge magazine and automatically inserted into the brewing chamber; after the brewing operation, the cartridge is removed from the brewing chamber and discarded into a trash receptacle without any intervention of the operator. Schifferle at [0011]-[0012]: To meet this and other objects, the invention provides a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive the coffee powder cartridge, at least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Further, means are provided for restricting the amount of brewing water fed into the brewing chamber per unit of time to such an extent that the brewing water flows through the powder coffee cartridge received in the brewing chamber essentially unpressurized. Due to the fact that means are provided for restricting the amount of brewing water fed into the brewing chamber per unit of time to such an extent that the brewing water flows through the powder coffee cartridge received in the brewing chamber essentially unpressurized, the formation of froth on the surface of the coffee beverage can be essentially avoided. Preferably, both the cover and the bottom of the cartridge are punched before the brewing operation is initiated.

U.S. Patent No. 10,858,177	Disclosure
	Schifferle at [0016]-[0017]: Schematically shown in FIGS. 1 and 2 are the essential elements of the coffee maker according to the invention, namely a fresh water tank 1, a pump 2, a boiler 3, a throttle valve 4, a brewing chamber 5, a beverage outlet 6, a control unit 7 and a selector switch 8. All these elements are mounted inside a schematically indicated housing G. Located below the beverage outlet 6, there is shown a coffee mug 17 for receiving the prepared coffee beverage. The cartridge to be put into the brewing chamber 5 and containing ground coffee is designated by reference numeral 20. In the present example, the bottom 22 of the cartridge 20 is provided with an aperture 25 which is covered by a foil 26 provided at the inside of the bottom 22 of the cartridge 20. Since such a cartridge is primarily suitable for preparing filter coffee, it is designated, in the following, as a filter cartridge 20, while a conventional cartridge having a continuous bottom without any opening is designated as an espresso cartridge. The brewing chamber 5 comprises an upper closing plate member 11 and a lower cartridge retainer 12. The inner contour of the cartridge retainer 12 essentially corresponds to the outer contour of the filter cartridge 20. In the drawings, both the closing plate member 11 and the cartridge retainer 12 are shown in a cross sectional view. The cartridge retainer 12 is movable in vertical direction, as shown by the double-arrow 18. The means for moving the cartridge retainer up and down, as well as possibly provided means for feeding and removing a cartridge, are not shown since the design thereof is well within the skill of a professional person. Schifferle at [0021]: The selector switch 8 is manually rotated into the position "F" and the cartridge 20 is inserted into the cartridge retainer 12. Then, the retainer 12 is moved upwards towards the closing plate member 11. Upon completion of this upwards movement (see FIG. 2), both the cartridge cover 21 and the bottom 22 of the cartridge 20, i.e. the foil 26, are punched. Once the upper end position is reached, the closing plate member 11 not only closes the brewing chamber 5, but also presses the cartridge cover 21 against the top end face of the cartridge

U.S. Patent No. 10,858,177	Disclosure
	retainer 12 along an annular contact area, thereby hydraulically sealing the upper portion of the cartridge 20 against the bottom 22 of the cartridge 20. As soon as the brewing chamber 5 is closed, the pump 2 is operated. The amount of brewing water fed into the brewing chamber 5 per unit of time is restricted, as compared to the brewing operation of an espresso coffee, to such an extent that the brewing water flows through the cartridge 20 essentially unpessurized. The flow restriction rate is determined either by a pre-selected, stored value or on the basis of a code contained in the label or marking 27 of the cartridge 20. The flow restriction can be realized either by reducing the flow rate of the pump 2 or by adjusting the throttle valve 4. For reducing the flow rate of the pump 2, in the case of an AC operated pump, a phase controlled modulator or a wave packet controller can be used. As an alternative, the operating frequency of the pump 2 can be changed. It is understood that in practice only one of the measures for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time is provided, i.e. either means are provided for reducing the flow rate of the pump 2, or a throttle valve 4 is provided for reducing the effective flow cross sectional area. It is further understood that other means for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time could be provided. Schifferle at [0029]: The coffee maker according to the invention is known under the designation “espresso machine”; it is suitable both for preparing a filter coffee beverage and particularly an espresso coffee beverage. The coffee maker can be designed as a manually operated machine, with a cartridge holder to be manually inserted into the machine, or as a semi- or fully-automatic coffee maker. Schifferle at Claims 1, 4, 11.
[1.f] and a pump controlled to push water into the portion capsule only upon a determination that the read	Schifferle discloses, either expressly or inherently, a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference. *See, e.g.*:

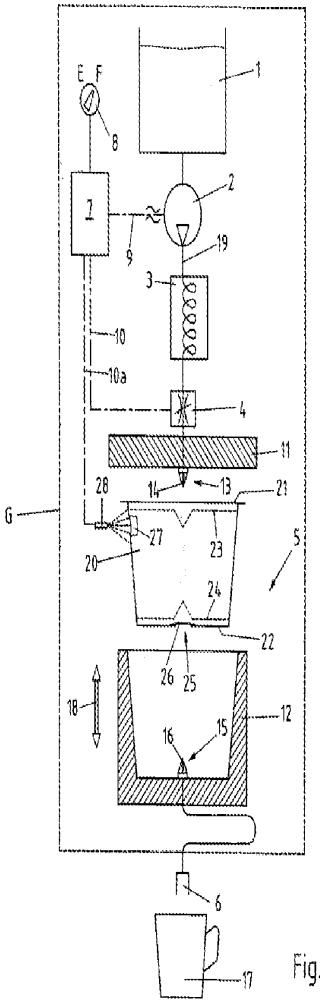
U.S. Patent No. 10,858,177	Disclosure
barcode agrees with a stored reference,	Schifferle at Abstract: The coffee maker for brewing powder coffee contained in a cartridge comprises a brewing chamber adapted to receive the cartridge, at least one punching member for punching the cartridge and a pump for feeding brewing water into the brewing chamber. In order to avoid that the prepared coffee shows froth at its surface, the coffee maker comprises means for restricting the amount of water fed by the pump into the brewing chamber per unit of time. This means ensures that the brewing water flows through the cartridge essentially unpressurized. Schifferle at Fig. 1:

U.S. Patent No. 10,858,177	Disclosure
	 Fig.1 Schifferle at [0001]: The present invention refers to a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive a coffee powder cartridge, at

U.S. Patent No. 10,858,177	Disclosure
	least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Schifferle at [0016]: Schematically shown in FIGS. 1 and 2 are the essential elements of the coffee maker according to the invention, namely a fresh water tank 1, a pump 2, a boiler 3, a throttle valve 4, a brewing chamber 5, a beverage outlet 6, a control unit 7 and a selector switch 8. All these elements are mounted inside a schematically indicated housing G. Located below the beverage outlet 6, there is shown a coffee mug 17 for receiving the prepared coffee beverage. The cartridge to be put into the brewing chamber 5 and containing ground coffee is designated by reference numeral 20. In the present example, the bottom 22 of the cartridge 20 is provided with an aperture 25 which is covered by a foil 26 provided at the inside of the bottom 22 of the cartridge 20. Since such a cartridge is primarily suitable for preparing filter coffee, it is designated, in the following, as a filter cartridge 20, while a conventional cartridge having a continuous bottom without any opening is designated as an espresso cartridge. Schifferle at [0019]: The selector switch 8 serves for selecting the coffee beverage to be prepared. The letter "E" denotes espresso coffee, while the letter "F" denotes filter coffee. The selector switch is electrically connected to the control unit 7. The control unit is operationally connected to the pump 2 via a conductor 9 and to a throttle valve 4 via a conductor 10. The throttle valve is inserted into a brewing water conduit 19 running from the pump 2 to the closing plate member 11. Moreover, there is provided a sensor 28, electrically connected to the control unit 7 by means of a conductor 10 a. The sensor 28 serves for detecting and reading a label or marking 27, provided on the cartridge 20 and containing information about the kind and/or content of the cartridge 20. Such a label or marking 27 can consist, for example, of a barcode printed onto the cartridge 20; however, other kinds of markings are possible, for example in electronic form. It is understood that the sensor 28 and the label or marking 27 are matched to each other to enable the sensor 28 to read the label or marking 28 and to forward the

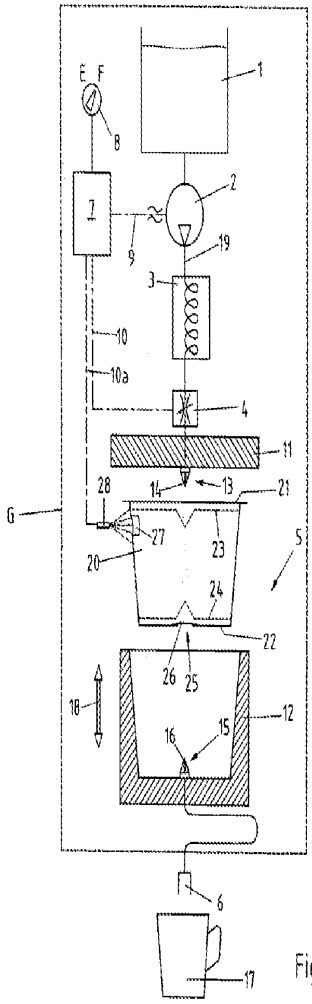
U.S. Patent No. 10,858,177	Disclosure
	information contained therein to the control unit 7. In the case where exclusively cartridges 20 are used that are provided with such a label or marking 28, the selector switch 8 can be omitted since the kind of cartridge 20 is automatically recognized by the sensor 27, and the control unit, consequently, influences certain operating parameters of the coffee maker, e.g. the delivery rate of the pump 2, the adjustment of the throttle valve 4 et cetera. Schifferle at [0021]: The selector switch 8 is manually rotated into the position "F" and the cartridge 20 is inserted into the cartridge retainer 12. Then, the retainer 12 is moved upwards towards the closing plate member 11. Upon completion of this upwards movement (see FIG. 2), both the cartridge cover 21 and the bottom 22 of the cartridge 20, i.e. the foil 26, are punched. Once the upper end position is reached, the closing plate member 11 not only closes the brewing chamber 5, but also presses the cartridge cover 21 against the top end face of the cartridge retainer 12 along an annular contact area, thereby hydraulically sealing the upper portion of the cartridge 20 against the bottom 22 of the cartridge 20. As soon as the brewing chamber 5 is closed, the pump 2 is operated. The amount of brewing water fed into the brewing chamber 5 per unit of time is restricted, as compared to the brewing operation of an espresso coffee, to such an extent that the brewing water flows through the cartridge 20 essentially unpessurized. The flow restriction rate is determined either by a pre-selected, stored value or on the basis of a code contained in the label or marking 27 of the cartridge 20. The flow restriction can be realized either by reducing the flow rate of the pump 2 or by adjusting the throttle valve 4. For reducing the flow rate of the pump 2, in the case of an AC operated pump, a phase controlled modulator or a wave packet controller can be used. As an alternative, the operating frequency of the pump 2 can be changed. It is understood that in practice only one of the measures for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time is provided, i.e. either means are provided for reducing the flow rate of the pump 2, or a throttle valve 4 is provided for reducing the effective flow cross sectional area. It is further understood that other means for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time could be provided.

U.S. Patent No. 10,858,177	Disclosure
	Schifferle at [0025]-[0027]: For preparing a conventional espresso coffee, the selector switch 8 is manually rotated into the position marked "E". In this mode of operation, the brewing water flows through a conventional espresso cartridge under high pressure. In the present case, the expression "espresso coffee" shall mean a coffee beverage that is provided with a froth layer at its top, independent of the amount of brewing water used for preparing the coffee beverage. Preferably, for preparing a filter coffee, different cartridges are used than for preparing espresso coffee. Besides the different design of the bottom of the cartridge, also the coffee powder blend, the amount of coffee powder and/or the degree of grinding can be different. Moreover, in the case of a filter coffee cartridge, the apertures in the filter elements 23, 24 are larger and/or their number is increased, such that these filter elements 23, 24 do not constitute a hydraulic resistance to the brewing water flowing there trough. As an alternative to the embodiment discussed herein before, the coffee maker can incorporate more extensive features: For example, means can be provided to punch the bottom of the cartridge later than the cover of the cartridge, depending on the kind of coffee beverage to be prepared. In case an espresso coffee is to be prepared, the bottom of the espresso cartridge is punched only after a certain hydraulic pressure has been built up in the interior of the cartridge, because this measure favors the formation of froth, as is well known. Alternatively, in the case of an espresso cartridge, its bottom can be punched by the lower punching member in a first phase only partially, i.e. to such an extent that the tip of the punching member just penetrates the bottom of the cartridge, but only so far that the slots 16 of the punching member 15 do not communicate with the interior of the espresso cartridge. In this way, a hydraulic overpressure can be built up in the interior of the espresso cartridge during a first phase of the brewing operation. Schifferle at Claims 1, 8-9, 12.

U.S. Patent No. 10,858,177	Disclosure
[1.g] wherein the base element has a wall region with an electrically conductive section	Schifferle discloses, either expressly or inherently, wherein the base element has a wall region with an electrically conductive section. *See, e.g.*: Schifferle at Fig. 1:  Fig. 1

U.S. Patent No. 10,858,177	Disclosure
	Schifferle at [0019]: The selector switch 8 serves for selecting the coffee beverage to be prepared. The letter "E" denotes espresso coffee, while the letter "F" denotes filter coffee. The selector switch is electrically connected to the control unit 7. The control unit is operationally connected to the pump 2 via a conductor 9 and to a throttle valve 4 via a conductor 10. The throttle valve is inserted into a brewing water conduit 19 running from the pump 2 to the closing plate member 11. Moreover, there is provided a sensor 28, electrically connected to the control unit 7 by means of a conductor 10 a. The sensor 28 serves for detecting and reading a label or marking 27, provided on the cartridge 20 and containing information about the kind and/or content of the cartridge 20. Such a label or marking 27 can consist, for example, of a barcode printed onto the cartridge 20; however, other kinds of markings are possible, for example in electronic form. It is understood that the sensor 28 and the label or marking 27 are matched to each other to enable the sensor 28 to read the label or marking 28 and to forward the information contained therein to the control unit 7. In the case where exclusively cartridges 20 are used that are provided with such a label or marking 28, the selector switch 8 can be omitted since the kind of cartridge 20 is automatically recognized by the sensor 27, and the control unit, consequently, influences certain operating parameters of the coffee maker, e.g. the delivery rate of the pump 2, the adjustment of the throttle valve 4 et cetera.
[1.h] and radially spaced and vertically oriented drawn grooves,	
[1.i] the cavity has radially spaced and vertically oriented drawn ribs.	
4. The beverage system according to claim 1, wherein the water is pushed into the portion capsule along a	Schifferle discloses, either expressly or inherently, the beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule. *See, e.g.*:

U.S. Patent No. 10,858,177	Disclosure
central axis that is perpendicular to the flange of the portion capsule.	Schifferle at Abstract: The coffee maker for brewing powder coffee contained in a cartridge comprises a brewing chamber adapted to receive the cartridge, at least one punching member for punching the cartridge and a pump for feeding brewing water into the brewing chamber. In order to avoid that the prepared coffee shows froth at its surface, the coffee maker comprises means for restricting the amount of water fed by the pump into the brewing chamber per unit of time. This means ensures that the brewing water flows through the cartridge essentially unpressurized. Schifferle at Fig. 1:

U.S. Patent No. 10,858,177	Disclosure
	 Fig.1 Schifferle at [0011]: To meet this and other objects, the invention provides a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive the coffee powder cartridge, at least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Further, means are provided for

U.S. Patent No. 10,858,177	Disclosure
	restricting the amount of brewing water fed into the brewing chamber per unit of time to such an extent that the brewing water flows through the powder coffee cartridge received in the brewing chamber essentially unpressurized. Schifferle at [0016]: Schematically shown in FIGS. 1 and 2 are the essential elements of the coffee maker according to the invention, namely a fresh water tank 1, a pump 2, a boiler 3, a throttle valve 4, a brewing chamber 5, a beverage outlet 6, a control unit 7 and a selector switch 8. All these elements are mounted inside a schematically indicated housing G. Located below the beverage outlet 6, there is shown a coffee mug 17 for receiving the prepared coffee beverage. The cartridge to be put into the brewing chamber 5 and containing ground coffee is designated by reference numeral 20. In the present example, the bottom 22 of the cartridge 20 is provided with an aperture 25 which is covered by a foil 26 provided at the inside of the bottom 22 of the cartridge 20. Since such a cartridge is primarily suitable for preparing filter coffee, it is designated, in the following, as a filter cartridge 20, while a conventional cartridge having a continuous bottom without any opening is designated as an espresso cartridge. Schifferle at [0018]: Both the lower surface of the closing plate member 11 and the bottom of the cartridge retainer 12 are provided with a punching member 13 and 15, respectively. Thereby, the upper punching member 13 serves for punching the cover 21 of the cartridge 20, while the lower punching member 15 serves for punching the bottom 22 of the cartridge 20. Both punching members 13 and 15, respectively, are located centrally on the closing plate member 11 and the bottom of the cartridge retainer 12, respectively. Moreover, both punching members 13 and 15, respectively, comprise a conically shaped front portion comprising a number of slots 14 and 16, respectively, through which the brewing water can flow into the cartridge 20 and the prepared coffee beverage can flow out of the cartridge 20, respectively.

U.S. Patent No. 10,858,177	Disclosure
	Schifferle at [0020]-[0021]: The brewing operation using a cartridge designated for preparing a froth-less coffee beverage, a so-called filter coffee, takes place as follows: The selector switch 8 is manually rotated into the position "F" and the cartridge 20 is inserted into the cartridge retainer 12. Then, the retainer 12 is moved upwards towards the closing plate member 11. Upon completion of this upwards movement (see FIG. 2), both the cartridge cover 21 and the bottom 22 of the cartridge 20, i.e. the foil 26, are punched. Once the upper end position is reached, the closing plate member 11 not only closes the brewing chamber 5, but also presses the cartridge cover 21 against the top end face of the cartridge retainer 12 along an annular contact area, thereby hydraulically sealing the upper portion of the cartridge 20 against the bottom 22 of the cartridge 20. As soon as the brewing chamber 5 is closed, the pump 2 is operated. The amount of brewing water fed into the brewing chamber 5 per unit of time is restricted, as compared to the brewing operation of an espresso coffee, to such an extent that the brewing water flows through the cartridge 20 essentially unpessurized. The flow restriction rate is determined either by a pre-selected, stored value or on the basis of a code contained in the label or marking 27 of the cartridge 20. The flow restriction can be realized either by reducing the flow rate of the pump 2 or by adjusting the throttle valve 4. For reducing the flow rate of the pump 2, in the case of an AC operated pump, a phase controlled modulator or a wave packet controller can be used. As an alternative, the operating frequency of the pump 2 can be changed. It is understood that in practice only one of the measures for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time is provided, i.e. either means are provided for reducing the flow rate of the pump 2, or a throttle valve 4 is provided for reducing the effective flow cross sectional area. It is further understood that other means for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time could be provided. Schifferle at Claims 5-6. *See also* [1].

U.S. Patent No. 10,858,177	Disclosure
5. The beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis.	Schifferle discloses, either expressly or inherently, the beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis. *See, e.g.*: Schifferle at Abstract: The coffee maker for brewing powder coffee contained in a cartridge comprises a brewing chamber adapted to receive the cartridge, at least one punching member for punching the cartridge and a pump for feeding brewing water into the brewing chamber. In order to avoid that the prepared coffee shows froth at its surface, the coffee maker comprises means for restricting the amount of water fed by the pump into the brewing chamber per unit of time. This means ensures that the brewing water flows through the cartridge essentially unpressurized. Schifferle at [0001]: The present invention refers to a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive a coffee powder cartridge, at least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Schifferle at [0011]-[0012]: To meet this and other objects, the invention provides a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive the coffee powder cartridge, at least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Further, means are provided for restricting the amount of brewing water fed into the brewing chamber per unit of time to such an extent that the brewing water flows through the powder coffee cartridge received in the brewing chamber essentially unpressurized.

U.S. Patent No. 10,858,177	Disclosure
	Due to the fact that means are provided for restricting the amount of brewing water fed into the brewing chamber per unit of time to such an extent that the brewing water flows through the powder coffee cartridge received in the brewing chamber essentially unpressurized, the formation of froth on the surface of the coffee beverage can be essentially avoided. Preferably, both the cover and the bottom of the cartridge are punched before the brewing operation is initiated. Schifferle at [0018]: Both the lower surface of the closing plate member 11 and the bottom of the cartridge retainer 12 are provided with a punching member 13 and 15, respectively. Thereby, the upper punching member 13 serves for punching the cover 21 of the cartridge 20, while the lower punching member 15 serves for punching the bottom 22 of the cartridge 20. Both punching members 13 and 15, respectively, are located centrally on the closing plate member 11 and the bottom of the cartridge retainer 12, respectively. Moreover, both punching members 13 and 15, respectively, comprise a conically shaped front portion comprising a number of slots 14 and 16, respectively, through which the brewing water can flow into the cartridge 20 and the prepared coffee beverage can flow out of the cartridge 20, respectively. Schifferle at [0023]-[0024]: Further important is that both the cover 21 of the cartridge 20 and the bottom 22 of the cartridge 20 are punched, i.e. provided with an aperture, before the brewing operation is initiated in order to ensure that no hydraulic pressure build-up can take place, which would lead to the formation of froth in the beverage. As can be further seen in the drawings, the filter cartridge 20 is provided with an upper filter element 23 and a lower filter element 24. Such filter elements 23, 24 favor a consistent flow of the brewing water through the filter cartridge 20 and prevent the coffee powder contained in the cartridge 20 from escaping through the punched out apertures. The filter elements 23, 24 are provided each with a recess directed towards the interior of the cartridge 20 and located in the area where the cover 21 and the bottom 22, respectively, of the cartridge 20 are

U.S. Patent No. 10,858,177	Disclosure
	punched and into which the punching members 13, 15 extend once the cartridge cover 21 and bottom 22 are punched. In order to ensure that the bottom 22 of the cartridge 20 is reliably punched upon closing the brewing chamber 5, a foil 26 is provided which has a low ductility and a low tensile strength as compared to the material of the cartridge itself, such that it easily tears apart under the influence of the lower punching member 15 located at the bottom of the cartridge retainer 12. Schifferle at Claims 1, 4-6. *See also* [4].

K-FEE SYSTEM GMBH, EX2012, page 1368
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

Exhibit B-9 – Invalidity of U.S. Patent No. 10,858,177 in view of Yoakim

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,177 in view of Yoakim

According to its cover page, U.S. Patent Pub. 2010/0239734 ("Yoakim") was published on September 23, 2010 from an application filed on May 7, 2010. Yoakim therefore constitutes prior art under pre-AIA 35 U.S.C. § 102(e). Yoakim anticipates and/or renders obvious the Asserted Claims of the '177 Patent (at least as Nespresso understands K-fee's application of the Asserted Claims in an effort to show infringement).

To the extent K-fee argues that any element below is not disclosed by Yoakim, a person of ordinary skill in the art would have found it obvious to combine the teachings of Yoakim with the background knowledge of a person of ordinary skill in the art and/or the additional references, and exemplary teachings, set forth in Exhibits B-1 to B-9 and in Appendix B.

The chart below provides representative examples of where each element of each claim is found within Yoakim. Citations are meant to be exemplary, not exhaustive, and Nespresso reserves the right to identify and discuss additional portions of the reference in support of its contentions and/or to rebut arguments made by K-fee. Citations to figures, drawings, tables, and the like include reference to any accompanying or related text. All internal cross references are meant to incorporate the cross-referenced material as if fully set forth therein.

It is Nespresso's position that K-fee's Infringement Contentions have not established that any accused product or service infringes any valid claim. Thus, Nespresso's statements below should not be treated as an admission, implication, or suggestion that Nespresso agrees with K-fee regarding either the scope, construction, or interpretation of any of the Asserted Claims, or the infringement theories advanced by K-fee in its Infringement Contentions, including whether any Asserted Claim satisfies 35 U.S.C. §§ 101 or 112. In certain cases, Nespresso specified non-limiting examples of where its application of the prior art is based on K-fee's apparent application of the claim element. These statements are not intended to suggest that Nespresso agrees with K-fee's application of any claim term, suggest a proposed construction at this stage of the case, or suggest that construction is needed, as the parties are not required to exchange terms for construction or proposed constructions until a later date.

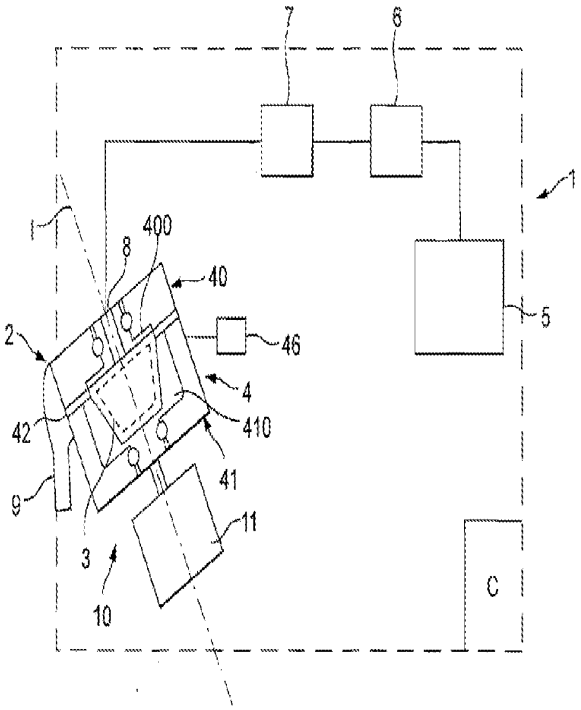
K-fee has yet to identify any limitation of the Asserted Claims that it contends is not anticipated and/or rendered obvious by Yoakim. Nespresso therefore expressly reserves the right to respond to any such contention, including by identifying additional obviousness combinations, if K-fee makes any such contention.

Where Nespresso states that Yoakim "discloses" a limitation, that disclosure may be express, implicit, and/or inherent.

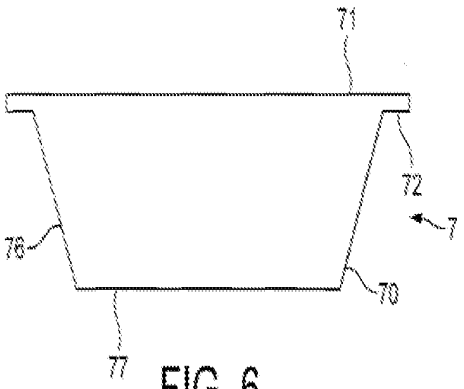
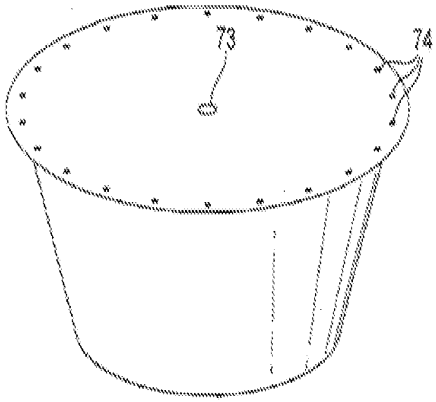
K-FEE SYSTEM GMBH, EX2012, page 1369
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

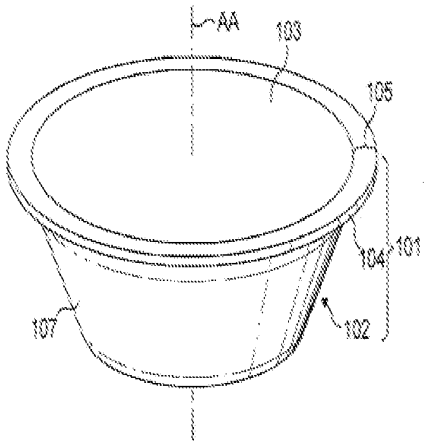
=

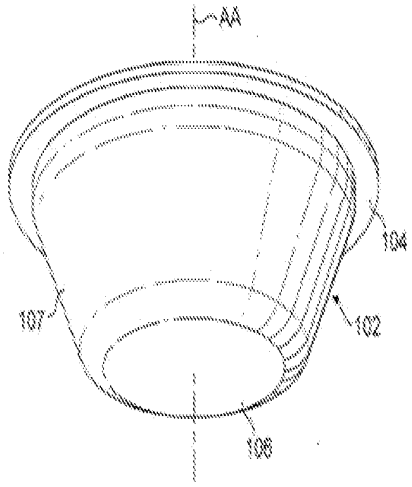
U.S. Patent No. 10,858,177	Disclosure
[1.pre] A beverage system for producing a beverage, comprising:	Yoakim discloses, either expressly or inherently, a beverage system for producing a beverage. *See, e.g.*: Yoakim at [0002]: The present invention relates to a capsule, device, system, and method for preparing a beverage or food liquid from a food substance which is brewed or extracted by using centrifugal forces exerted on a capsule which contains the substance. Yoakim at [0139]-[0144]: The invention also concerns a system for preparing a beverage or food liquid from a food substance contained in a filtering receptacle by passing water through the substance using centrifugal forces . . . wherein the system further comprises referencing means for positioning and referencing the capsule in a removable manner in the device and in operational relationship with the water feed means and along an axis of rotation along the driving means. Yoakim at [0180]:The system 1 of the invention is illustrated in FIG. 1 in the more general sense. The system comprises a device 2 and a capsule 3. The device has a brewing module 4 into which the capsule can be inserted for being brewed and is removed after use for being discarded (e.g., for waste or recycling). The module is in fluid communication with a water reservoir 5 containing fresh or, alternatively heated water. 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. A water heater 7 is further provided to heat water to the desired temperature. It can be noted that water could be heated in the reservoir itself and water could be transported from the reservoir by effect of vaporization. Water can be fed into the module 4 at low or substantially no pressure. For example, a pressure between 0 and 2 bars above atmospheric pressure can be envisaged at the inlet 8 of the module. Yoakim at FIG. 1:

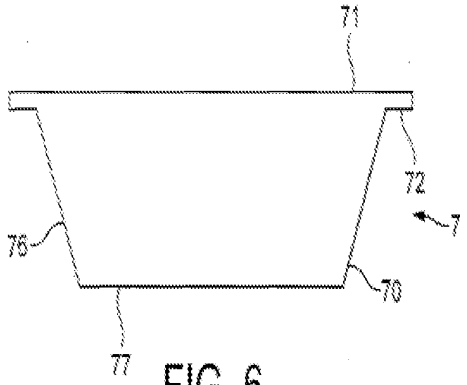
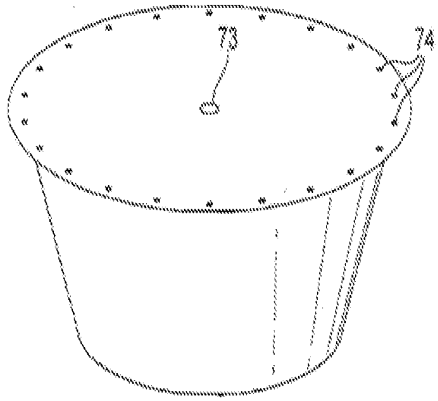
U.S. Patent No. 10,858,177	Disclosure
	 FIG. 1
[1.a] a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided,	Yoakim discloses, either expressly or inherently, a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided. Yoakim at [0125]: The food substance in the capsule can be ground coffee powder, soluble coffee, tea, chocolate, whitener, flavours, and combinations thereof. Yoakim at [0128]:

U.S. Patent No. 10,858,177	Disclosure
	The capsule can comprise a sealing lid. The sealing lid can comprise a flexible membrane. The membrane can comprise gas barrier and support layers made of polymers, aluminium, and/or aluminium alloys. Yoakim at [0129]: The capsule can also comprise a cup-shaped body onto which the sealing lid is sealed. The cup-shaped body may also comprise gas barrier materials, such as metal, e.g., thin aluminium and/or plastic. Yoakim at [0197]: FIGS. 6 and 7 illustrate a capsule that can suit the device according to the different embodiments of FIGS. 2 to 5. In FIG. 6, the capsule 7 comprises a cup-shaped body 70 with upwardly oriented sidewall 76 and a bottom wall 77. The sidewall forms a portion of cone which promotes the collection of the brewed liquid internally. The body terminates by an upper edge 72 raising outwards onto which is sealed a lid 71. The lid may be a flexible pierceable membrane of several microns in aluminium and/or plastic. The lid can be welded on the upper edges 72 of the body. It can be pointed out that the membrane and body preferably comprise gas barrier layers such as aluminium and/or EVOH. Yoakim at [0198]: The capsule contains a substance chosen among the list consisting of ground coffee, soluble coffee, tea, a whitener such as dairy or non-dairy ingredient(s), herbal tea, nutritional substance, culinary ingredients and a mixture thereof. Yoakim at FIGS. 6-7:

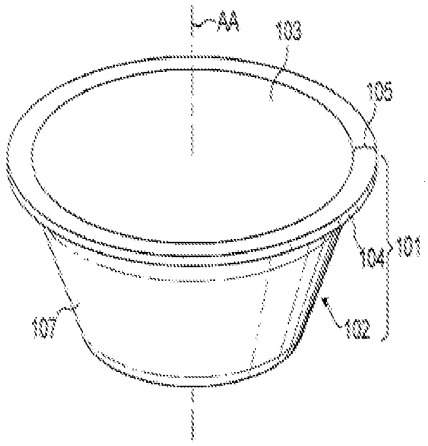
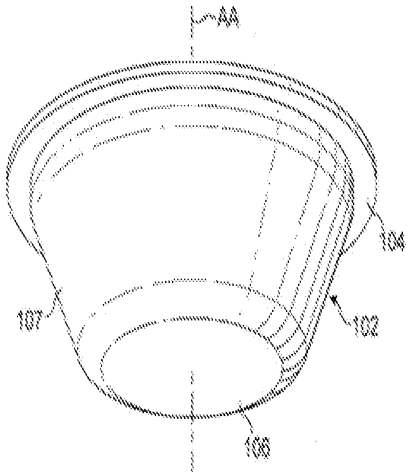
U.S. Patent No. 10,858,177	Disclosure
	 FIG. 6  FIG. 7 Yoakim at [0414]: As shown in FIGS. 26 and 27, a preferred capsule 101 of the invention generally comprises a dished body 102 onto which is sealed a sealing foil 103. The sealing foil 103 is sealed onto a peripheral rim 104 of the body at a sealing annular portion 105. The rim 104 can extend outwards forming a small annular portion, e.g., of about 2-5mm. The dished body comprises

U.S. Patent No. 10,858,177	Disclosure
	a bottom wall 106 and a side wall 107 which preferably widens in direction of the large open end of the body opposed to the bottom wall. The dished body is preferably rigid or semi-rigid. It can be formed of a food grade plastics, e.g., polypropylene, with a gas barrier layer such as EVOH and the like or aluminium alloy or a complex of plastic and aluminium alloy. The sealing foil 103 can be made of a thinner material such as a plastic laminate also including a barrier layer or aluminium alloy or a combination of plastic and aluminium alloy. The sealing foil is usually of a thickness between 30 and 250 microns, for example. The sealing foil membrane can be pierced for creating the water inlet and the beverage outlet(s) as will be described later in the description. Yoakim at FIGS. 26 and 27:  FIG. 26

U.S. Patent No. 10,858,177	Disclosure
	 FIG. 27
[1.b] the base element comprising a circumferential flange having a top side to which the lid is attached	Yoakim discloses, either expressly or inherently, the base element comprising a circumferential flange having a top side to which the lid is attached. Yoakim at [0129]: The capsule can also comprise a cup-shaped body onto which the sealing lid is sealed. The cup-shaped body may also comprise gas barrier materials, such as metal, e.g., thin aluminium and/or plastic. Yoakim at [0197]: FIGS. 6 and 7 illustrate a capsule that can suit the device according to the different embodiments of FIGS. 2 to 5. In FIG. 6, the capsule 7 comprises a cup-shaped body 70 with upwardly oriented sidewall 76 and a bottom wall 77. The sidewall forms a portion of cone which promotes the collection of the brewed liquid internally. The body terminates by an upper edge 72 raising outwards onto which is sealed a lid 71. The lid may be a flexible pierceable

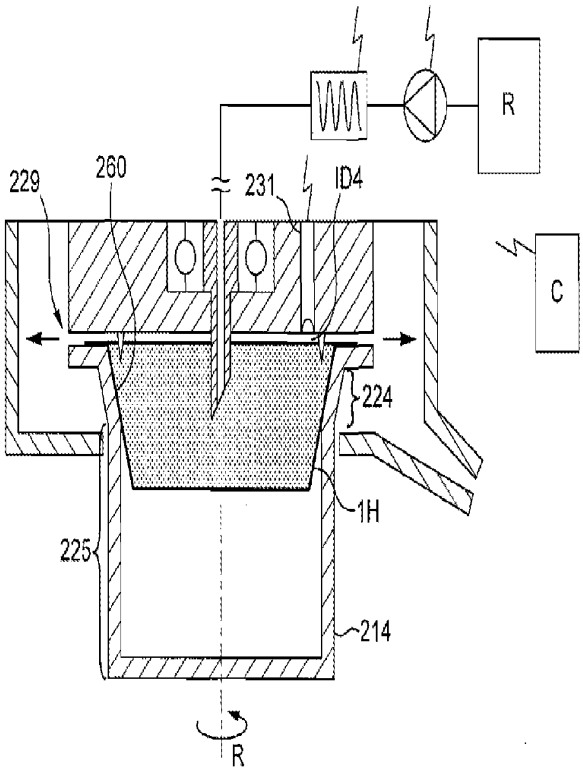
U.S. Patent No. 10,858,177	Disclosure
	membrane of several microns in aluminium and/or plastic. The lid can be welded on the upper edges 72 of the body. It can be pointed out that the membrane and body preferably comprise gas barrier layers such as aluminium and/or EVOH. Yoakim at FIGS. 6-7:  FIG. 6  FIG. 7

U.S. Patent No. 10,858,177	Disclosure
	Yoakim at [0414]: As shown in FIGS. 26 and 27, a preferred capsule 101 of the invention generally comprises a dished body 102 onto which is sealed a sealing foil 103. The sealing foil 103 is sealed onto a peripheral rim 104 of the body at a sealing annular portion 105. The rim 104 can extend outwards forming a small annular portion, e.g., of about 2-5mm. The dished body comprises a bottom wall 106 and a side wall 107 which preferably widens in direction of the large open end of the body opposed to the bottom wall. The dished body is preferably rigid or semi-rigid. It can be formed of a food grade plastics, e.g., polypropylene, with a gas barrier layer such as EVOH and the like or aluminium alloy or a complex of plastic and aluminium alloy. The sealing foil 103 can be made of a thinner material such as a plastic laminate also including a barrier layer or aluminium alloy or a combination of plastic and aluminium alloy. The sealing foil is usually of a thickness between 30 and 250 microns, for example. The sealing foil membrane can be pierced for creating the water inlet and the beverage outlet(s) as will be described later in the description. Yoakim at FIGS. 26 and 27:

U.S. Patent No. 10,858,177	Disclosure
	 FIG. 26  FIG. 27

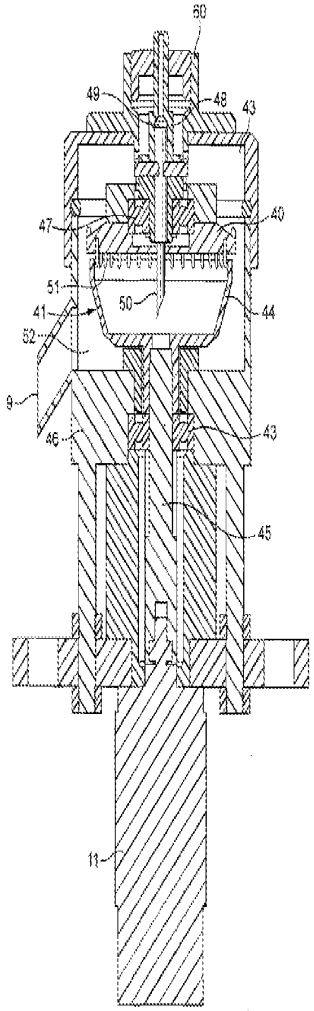
U.S. Patent No. 10,858,177	Disclosure
[1.c] and a bottom side with a barcode located on the bottom side, and	Yoakim discloses, either expressly or inherently, a bottom side with a barcode located on the bottom side. *See, e.g.*: Yoakim at [0477]: The capsule system further comprises an identification means associated to the different capsules in the set for identifying each capsule and adjusting brewing parameters accordingly. Yoakim at [0496]: The recognition means can be differentiable by a visual code such as a barcode, a colour, a sign, a logo, etc., or by a radio-frequency code (RFID), a magnetic element or by an identifiable shape.
[1.d] a beverage machine comprising: a detector to read the barcode,	Yoakim discloses, either expressly or inherently, a beverage machine comprising: a detector to read the barcode. *See, e.g.*: Yoakim at [0025]: The device is useful for preparing beverages from a plurality of different capsules, in which case it further comprises identification means for identifying the different capsules, and control means capable of operating the device in centrifugation for any of the different capsules according to predetermined liquid food preparation parameters including the flow rate and the volume of liquid to be injected into the capsule, with the identification means comprising capsule recognition means which are recognized by sensing means connected to the control means of the device to control the preparation parameters accordingly. Yoakim at [0192]: Therefore, as much as two, three, four or even more different flow rates and/or speed ranges can be provided in function of the types of coffee to be delivered. Therefore, depending on the types of beverage to be brewed, the control unit can be programmed to adjust the optical

U.S. Patent No. 10,858,177	Disclosure
	centrifugal conditions. For instance, the control unit may be associated to a capsule recognition system enabling to recognize the types of capsules, i.e., espresso, lungo, cappuccino, long coffee (e.g., 180-400 ml), latte, tea, etc., and to adjust the speed and/or other brewing parameters (e.g., water temperature) according the capsule which is inserted in the device. A recognition system uses a code on the capsule and recognized by the device, such as a color, a barcode, an RFID, a magnetic code, ferromagnetic micro-wires or labels, shapes and combinations thereof. Yoakim at [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 adjustable parameters can be the rotational speed, the back-pressure at the outlet of the capsule, and/or the volume of liquid fed in the capsule. The identification means participates to deliver a wider range of beverages having differentiated characteristics (volume, taste, strength, crema, colour, etc.). The identification means are associated to control means placed in the centrifugal brewing device which controls the adjustment of the said parameters, by controlling the rotational motor driving the capsule holder or/and the pump supplying liquid in the capsule. Yoakim at [0494]-[0496]: The identification means can be sensed by sensing means connected to the control means for an active control of the parameters or can be passive identification means, e.g., selective flow restriction means. In particular, the identification means comprises capsule recognition means which are recognized by the sensing means connected to the control means of the brewing device which controls the brewing parameters accordingly. The recognition means can be differentiable by a visual code such as a barcode, a colour, a sign, a logo, etc., or by a radio-frequency (RFID), a magnetic element or by an identifiable shape. Yoakim at [0525]:

U.S. Patent No. 10,858,177	Disclosure
	In an alternative illustrated in FIGS. 61 and 62, the identification means are directly associated to the different capsules. In this case, the identification means ID4 and ID5 are capsule recognition means attached to or embedded in the capsules. The 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, a colour code, a RFID tag, a magnetically sensitive element, or a mechanical key or shape. Yoakim at FIG. 61:  FIG. 61

U.S. Patent No. 10,858,177	Disclosure
	See also [1.c].
[1.e] a media chute configured to receive and support the portion capsule,	Yoakim discloses, either expressly or inherently, a media chute configured to receive and support the portion capsule. *See, e.g.*: Yoakim at [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.

K-FEE SYSTEM GMBH, EX2012, page 1382
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,858,177	Disclosure
	Yoakim at FIG. 4:  FIG. 4 Yoakim at [0433]:

U.S. Patent No. 10,858,177	Disclosure
	In relation to FIGS. 34 and 35, the rotary drum 134 is shaped as a hollow capsule holder with an internal cavity 136 complementary shaped to receive the capsule. ; FIG. 34. Yoakim at [0194]: The brewed liquid is collected in a collecting chamber 52 of the support 46 and drained through a collecting tube 9. Yoakim at [0195]: The capsule holder comprises a cavity 550 for receiving the capsule. Yoakim at [0204]: The capsule 8 of FIGS. 8 to 15 according to this embodiment can further include means 840 for gripping the bottom of the capsule and so enabling the capsule to be properly driven in rotational motion by the device. For this, the means 840 comprises a small tubular portion protruding in the bottom of the capsule and into which can be inserted a complementary tubular portion 450 of the rotational driving means of the device. Yoakim at [0205]: The driving means of the device further comprise a drive shaft 45 associated to a support 451 for holding the bottom of the capsule. Of course, the shape of the gripping means can take many other variations without departing from the scope of the present invention. FIGS. 12 and 13 show a gripping structure 840 having a central recess 841 and four arched recesses 842,843, 844,845 extending from the central recess 841. This gripping structure forms a lock into which is fitted a complementary engaging structure 450, i.e., a key, of the capsule holder 451. The complementary shapes of the capsule and capsule holder enable to fulfill both the gearing function for driving the capsule at high speeds in rotation and a safety function for ensuring that only capsules adapted to the system can be used and brewed successfully.

U.S. Patent No. 10,858,177	Disclosure
	Yoakim at [0478]: In another feature of the invention, the brewing device comprises a rotary capsule holder with a support surface arranged for supporting a portion of the body of the capsules in the set; said portion of sidewall comprising a referencing diameter matching the insertion diameter of the capsules. Yoakim at [0479]: As a result, the risk of producing vibrations during centrifugation is reduced because all the capsules of the set are snugly fitted in the device with limited possible relative movement between each capsule and the device during rotation, i.e., capsule holder.
[1.f] and a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference,	Yoakim discloses, either expressly or inherently, a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference. *See, e.g.*: Yoakim at [0025]: The device is useful for preparing beverages from a plurality of different capsules, in which case it further comprises identification means for identifying the different capsules, and control means capable of operating the device in centrifugation for any of the different capsules according to predetermined liquid food preparation parameters including the flow rate and the volume of liquid to be injected into the capsule, with the identification means comprising capsule recognition means which are recognized by sensing means connected to the control means of the device to control the preparation parameters accordingly. Yoakim at [0192]: Therefore, as much as two, three, four or even more different flow rates and/or speed ranges can be provided in function of the types of coffee to be delivered. Therefore, depending on the

U.S. Patent No. 10,858,177	Disclosure
	types of beverage to be brewed, the control unit can be programmed to adjust the optical centrifugal conditions. For instance, the control unit may be associated to a capsule recognition system enabling to recognize the types of capsules, i.e., espresso, lungo, cappuccino, long coffee (e.g., 180-400 ml), latte, tea, etc., and to adjust the speed and/or other brewing parameters (e.g., water temperature) according the capsule which is inserted in the device. A recognition system uses a code on the capsule and recognized by the device, such as a color, a barcode, an RFID, a magnetic code, ferromagnetic micro-wires or labels, shapes and combinations thereof. Yoakim at [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 adjustable parameters can be the rotational speed, the back-pressure at the outlet of the capsule, and/or the volume of liquid fed in the capsule. The identification means participates to deliver a wider range of beverages having differentiated characteristics (volume, taste, strength, crema, colour, etc.). The identification means are associated to control means placed in the centrifugal brewing device which controls the adjustment of the said parameters, by controlling the rotational motor driving the capsule holder or/and the pump supplying liquid in the capsule.
[1.g] wherein the base element has a wall region with an electrically conductive section	Yoakim discloses, either expressly or inherently, wherein the base element has a wall region with an electrically conductive section. *See, e.g.*: Yoakim at [0129]: The capsule can also comprise a cup-shaped body onto which the sealing lid is sealed. The cup-shaped body may also comprise gas barrier materials, such as metal, e.g., thin aluminium and/or plastic. Yoakim at [0215]:

U.S. Patent No. 10,858,177	Disclosure
	The body of the capsule can be made of plastic and/or aluminium or aluminium alloy. For example, it can be moulded by injection of plastic or deep drawn in aluminium. Yoakim at [0461]: FIGS. 45 to 50 are other variants of capsules according to the invention. For example, the capsule of FIG. 45 has a cylindrical side wall 700, an upper wall 701 and a lower wall 702 both sealed or connected to the sidewall 700. The capsule is gastight by choosing materials for the walls, e.g., aluminium and/or suitable plastics, which have gas barrier properties. *See also, e.g.* Yoakim at [0414].
[1.h] and radially spaced and vertically oriented drawn grooves,	Yoakim discloses, either expressly or inherently, radially spaced and vertically oriented drawn grooves. *See, e.g.*: Yoakim at [0161]: In yet another embodiment, the surface of the capsule comprises a toothed structure. Yoakim at [0215]: FIG. 23 illustrates another capsule of the invention. The capsule comprises means for connecting it to the external rotational driving means of the device. For this, capsule has a toothed structure 75 on at least one of its outer surface. The capsule has a body 70 comprising an upper edge 72 which can be closed by an upper membrane 71. The toothed structure comprises a series of teeth which is positioned below the edge or rim 72 of the body of the capsule. The teeth are placed along the whole periphery of the body of the capsule. The body of the capsule can be made of plastic and/or aluminium or aluminium alloy. For example, it can be moulded byinjection of plastic or deep drawn in aluminium. For example, the shape of the teeth could be slightly triangular, oval, rectangular or pyramidal. It should be noticed that

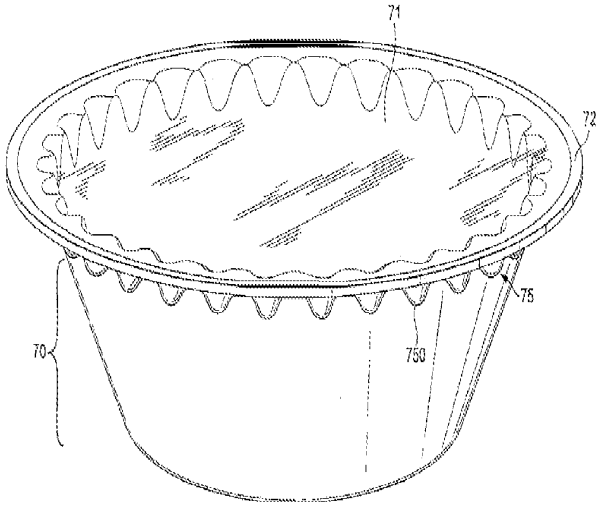
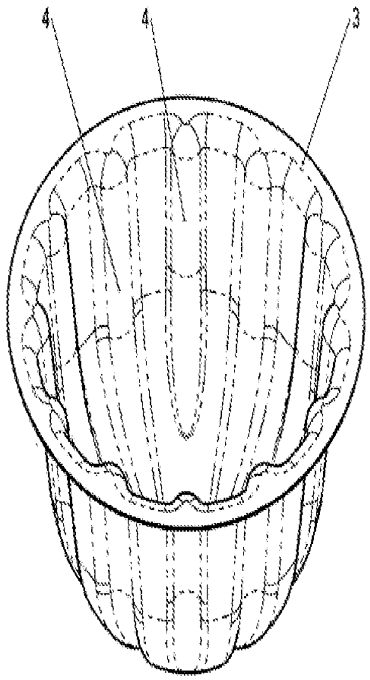
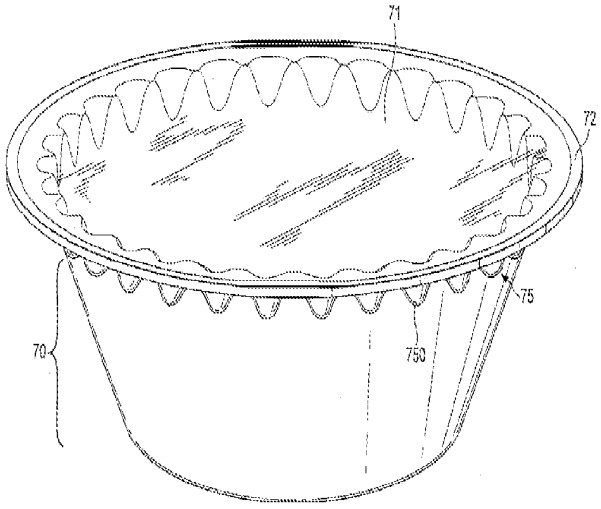
U.S. Patent No. 10,858,177	Disclosure
	the teeth could be replaced by other equivalent structures such as series of elements in relief and/or hollow. For example, slits, pins or small needles can be envisaged. Yoakim at [0216]: The device itself that receives the capsule of FIG.23 comprises a toothed surface of complementary shape. FIG. 24 shows a capsule holder 44 adapted to receive the capsule of FIG. 23. The capsule holder has a cavity into which are provided hollow teeth 440. The hollow teeth are arranged to fit the teeth 750 on the outer surface of the capsule. *See, e.g.*, [0216]. Yoakim at FIG. 23:  FIG. 23

Exhibit B-9 – Invalidity of U.S. Patent No. 10,858,177 in view of Yoakim

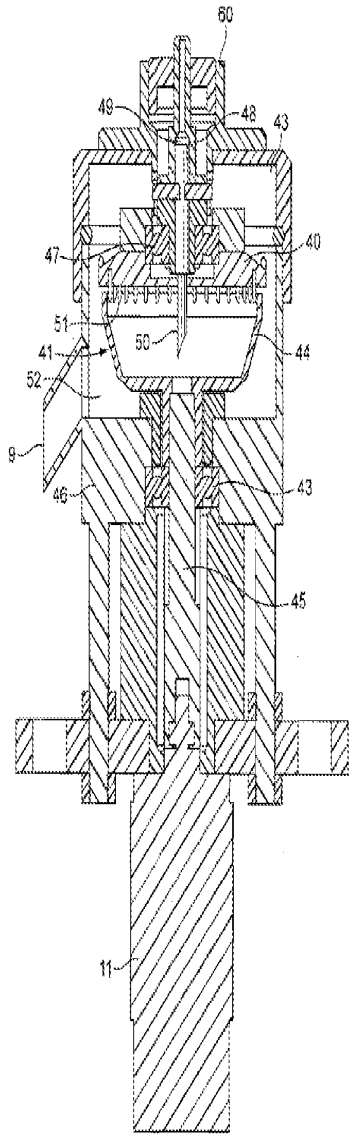
U.S. Patent No. 10,858,177	Disclosure
[1.i] the cavity has radially spaced and vertically oriented drawn ribs.	Yoakim discloses, either expressly or inherently, the cavity has radially spaced and vertically oriented drawn ribs. *See, e.g.*: Yoakim at [0161]: In yet another embodiment, the surface of the capsule comprises a toothed structure. Yoakim at [0215]: FIG. 23 illustrates another capsule of the invention. The capsule comprises means for connecting it to the external rotational driving means of the device. For this, capsule has a toothed structure 75 on at least one of its outer surface. The capsule has a body 70 comprising an upper edge 72 which can be closed by an upper membrane 71. The toothed structure comprises a series of teeth which is positioned below the edge or rim 72 of the body of the capsule. The teeth are placed along the whole periphery of the body of the capsule. The body of the capsule can be made of plastic and/or aluminium or aluminium alloy. For example, it can be moulded byinjection of plastic or deep drawn in aluminium. For example, the shape of the teeth could be slightly triangular, oval, rectangular or pyramidal. It should be noticed 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. Yoakim at [0216]: The device itself that receives the capsule of FIG.23 comprises a toothed surface of complementary shape. FIG. 24 shows a capsule holder 44 adapted to receive the capsule of FIG. 23. The capsule holder has a cavity into which are provided hollow teeth 440. The hollow teeth are arranged to fit the teeth 750 on the outer surface of the capsule.

U.S. Patent No. 10,858,177	Disclosure
	Yoakim at FIG. 6:  Yoakim at FIG. 23:

U.S. Patent No. 10,858,177	Disclosure
	 FIG. 23 *See also* [1.h].
4. The beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule.	Yoakim discloses, either expressly or inherently, the beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule. *See, e.g.*: Yoakim at [0019]: The enclosure is typically thermoformed of a food grade plastic and includes a top wall or lid that includes at least one inlet port defining a passage for receiving a liquid that is to be introduced into the capsule, with the inlet port aligned with the central axis of the capsule, wherein the liquid to be injected into the capsule is water and wherein the extractable or infusible ingredient(s) is ground coffee, soluble coffee, a dairy based powder, a dairy or non-

K-FEE SYSTEM GMBH, EX2012, page 1391
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

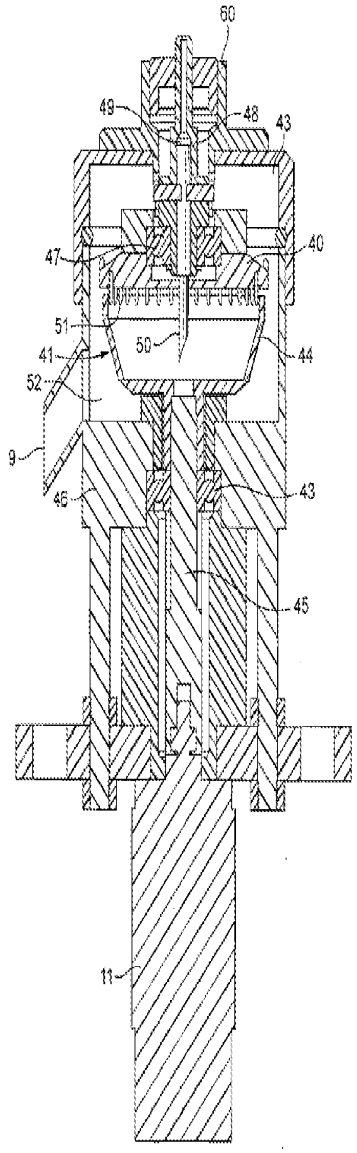
U.S. Patent No. 10,858,177	Disclosure
	dairy creamer, cocoa, a Sweetener, leaf tea, herbal tea, a culinary powder, a soluble or dispersible nutritional composition, a liquid food concentrate or combinations thereof. Yoakim at [00021]: The liquid introducing means preferably comprises at least one needle for injecting liquid into the capsule at or near its central axis. . . . Yoakim at [0186]: At the inside surface of the injection lid 40 is placed a piercing structure 450 which has the function of piercing the injection side 30 of the capsule. A water injector or lance 50 is provided which traverses the injection side 30 and which comprises an injection conduit for carrying water from the water circuit into the capsule. . . . Yoakim at [0219]-[0220]: The invention also relates to a food liquid preparation device for preparing a food liquid from a food substance contained in a single-use capsule, removably insertable in the device, bypassing water through the substance in the capsule, comprising a water injection head in the capsule and a capsule holder for holding the capsule in the device, characterized in that it comprises: a water injector, as part of the water injection head, arranged for introducing water along a central axis relative to the capsule holder

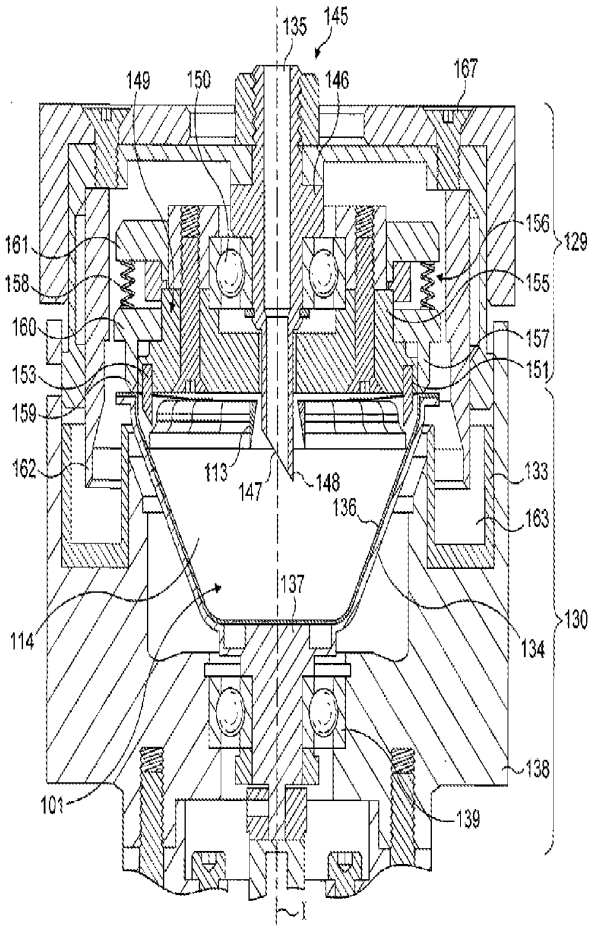
U.S. Patent No. 10,858,177	Disclosure
	Yoakim at FIG. 4:  FIG. 4

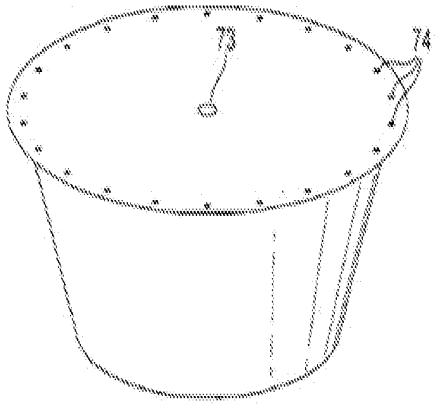
U.S. Patent No. 10,858,177	Disclosure
	See also e.g., Yoakim at FIGS. 35, 54, 55, 61, 62. *See also* [1].
[redacted]	
5. The beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis.	Yoakim discloses, either expressly or inherently, the beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis. *See, e.g.*: Yoakim at [0186]: At the inside surface of the injection lid 40 is placed a piercing structure 450 which has the function of piercing the injection side 30 of the capsule. A water injector or lance 50 is provided which traverses the injection side 30 and which comprises an injection conduit for carrying water from the water circuit into the capsule. The water injector 50 is preferably located in the center of the capsule. Yoakim at [0187]: A series of needles 51 . . . positioned on the side of the lid 40 to form small perforations at the periphery of the upper side of the capsule. Yoakim at [0435]: About the water injector is mounted a capsule rotary engaging part 149. The engaging part 149 has a central bore for receiving the water injector and rotational guiding means such as a ball or needle bearing 150 inserted between the part 149 and the injector 145. The engaging part further comprises outlet piercing members 151,152, 153, 154 protruding from a disc-shaped engaging wall 155 of the part 149. The piercing members can be small cylindrical portions with a slanted cutting surface able to cut or perforate small holes in the sealing foil 103 of the capsule. The piercing members are arranged at the periphery of the wall 155, preferably evenly

U.S. Patent No. 10,858,177	Disclosure
	distributed to provide several openings in the capsule for the centrifuged liquid to leave the capsule forming several streams of liquid. . . .

K-FEE SYSTEM GMBH, EX2012, page 1395
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,858,177	Disclosure
	Yoakim at FIG. 4 :  FIG. 4

U.S. Patent No. 10,858,177	Disclosure
	Yoakim at FIG. 35:  FIG. 35

U.S. Patent No. 10,858,177	Disclosure
	Yoakim at [0507]: . . . .The assembly 213 comprises a central injection needle 200 capable of being introduced precisely along the axis of rotation I of the capsule. At its periphery the interface assembly 213 can comprise a series of outlet perforators 221 for allowing centrifuged beverage to leave the capsule through the peripheral outlet 229 between the capsule holder 214 and the interface assembly 213. . . . Yoakim at FIG. 7:  FIG. 7 Yoakim at FIG. 55:

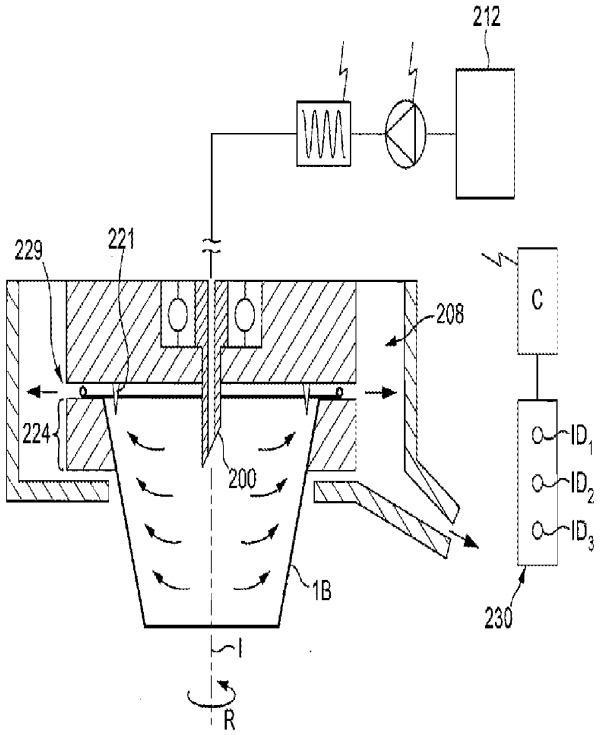
U.S. Patent No. 10,858,177	Disclosure
	 FIG. 55 *See also* [4].

Exhibit C-1 – Invalidity of U.S. Patent No. 10,870,531 in view of Bentley

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,531 in view of Bentley

According to its cover page, European Patent No. 0455337 B1 ("Bentley") was published on November 6, 1991. Bentley therefore constitutes prior art to the '531 Patent under pre-AIA 35 U.S.C. § 102(b). Bentley anticipates and/or renders obvious the Asserted Claims of the '531 Patent (at least as Nespresso understands K-fee's application of the Asserted Claims in an effort to show infringement).

To the extent K-fee argues that any element below is not disclosed by Bentley, a person of ordinary skill in the art would have found it obvious to combine the teachings of Bentley with the background knowledge of a person of ordinary skill in the art and/or the additional references, and exemplary teachings, set forth in Exhibits C-1 to C-9 and in Appendix C.

The chart below provides representative examples of where each element of each claim is found within Bentley. Citations are meant to be exemplary, not exhaustive, and Nespresso reserves the right to identify and discuss additional portions of the reference in support of its contentions and/or to rebut arguments made by K-fee. Citations to figures, drawings, tables, and the like include reference to any accompanying or related text. All internal cross references are meant to incorporate the cross-referenced material as if fully set forth therein.

It is Nespresso's position that K-fee's Infringement Contentions have not established that any accused product or service infringes any valid claim. Thus, Nespresso's statements below should not be treated as an admission, implication, or suggestion that Nespresso agrees with K-fee regarding either the scope, construction, or interpretation of any of the Asserted Claims, or the infringement theories advanced by K-fee in its Infringement Contentions, including whether any Asserted Claim satisfies 35 U.S.C. §§ 101 or 112. In certain cases, Nespresso specified non-limiting examples of where its application of the prior art is based on K-fee's apparent application of the claim element. These statements are not intended to suggest that Nespresso agrees with K-fee's application of any claim term, suggest a proposed construction at this stage of the case, or suggest that construction is needed, as the parties are not required to exchange terms for construction or proposed constructions until a later date.

K-fee has yet to identify any limitation of the Asserted Claims that it contends is not anticipated and/or rendered obvious by Bentley. Nespresso therefore expressly reserves the right to respond to any such contention, including by identifying additional obviousness combinations, if K-fee makes any such contention.

Where Nespresso states that Bentley "discloses" a limitation, that disclosure may be express, implicit, and/or inherent.

K-FEE SYSTEM GMBH, EX2012, page 1400
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

Exhibit C-1 – Invalidity of U.S. Patent No. 10,870,531 in view of Bentley

U.S. Patent No. 10,870,531	Disclosure
[1.pre] A method of using a portion capsule for producing a beverage, the method comprising:	Bentley discloses, either expressly or inherently, a method of using a portion capsule for producing a beverage, the method. *See, e.g.*: Bentley at 1:3-8: The present invention relates to packages containing ingredients for the preparation of beverages and, in particular, to sealed packages which are formed from a substantially air- and water-impermeable material and which contain one or more ingre-dients for the preparation of beverages. Bentley at 1:38-45: There is also described in European Patent Application No. 87311325.2, a method for preparing a beverage which comprises positioning a beverage containing package at a brewing station, introducing water through water introduction means into the package, allowing the water to commingle with the beverage ingredient, and collecting the beverage so-formed through an outlet formed in the package. Bentley at 1:46-55: The beverage packages as described in European Patent Application No. 87311325.2 are primarily intended to be used with a beverage preparation machine which handles the packages automatically or semi-automatically. A machine of this type is described in our European Patent Application No. 89302708.6. The packages may contain roast and ground coffee, leaf tea or one or more powdered bev-erage preparation ingredients such as powdered chocolate, powdered coffee or powdered soup. Bentley at 2:3-15: Accordingly, the present invention provides a method for the preparation of a beverage from a sealed package containing one or more beverage preparation ingredients located in a compartment in the package, which method comprises introducing a liquid medium suitable

K-FEE SYSTEM GMBH, EX2012, page 1401
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
	for the preparation of the bev-erage under pressure into the package through an inlet formed therein, causing the liquid medium to enter the compartment thereby forming the beverage, and collecting the beverage so formed from an outlet formed in the package, characterised in that the beverage is filtered in an upwardly direction through a filter. *See also* Bentley at Claims 1-3.
[1.a] providing an apparatus including a barcode reader,	Bentley discloses, either expressly or inherently, providing an apparatus including a barcode reader. *See, e.g.*: Bentley at 1:46-55: The beverage packages as described in European Patent Application No. 87311325.2 are primarily intended to be used with a beverage preparation ma-chine which handles the packages automatically or semi-automatically. A machine of this type is described in our European Patent Application No. 89302708.6. The packages may contain roast and ground coffee, leaf tea or one or more powdered bev-erage preparation ingredients such as powdered chocolate, powdered coffee or powdered soup. Bentley at 5:40-54: The packages used in the present invention may be treated by a machine which includes therein one or more sensors which are adapted to sense and identify a recognition means provided on a package inserted into the machine. The sensor may be, for example, a mechanical sensor, an optical sensor, a magnetic sensor, an electrical sensor or an inductive sensor. The machine is preferably adapted so that the package is handled automatically following its insertion into the machine. For example, a machine of the type as described in our European Patent Application No. 89302708.6 can be fitted with an appropriate sensor to sense and identify a recognition means provided on beverage packages intended for use therewith. Bentley at 7:47-8:24:

U.S. Patent No. 10,870,531	Disclosure
	As the package is driven into the beverage preparation machine the flange 28 is sensed as the side edge of the package passes beneath a sensing arm (not shown). The flange 28 has a plurality of upstanding pegs 31,32,33,34 located therein and as the package is driven into the machine by the engagement of the teeth 25 with the tooth of a cam, the sensor senses the presence or absence of upstanding pegs 31,32,33,34. If one or more of pegs 31,32,33,34 is not present the sensing arm will thereby identify a different type of beverage package. The sensing arm operates a switch (not shown) which thereby transmits information concerning the presence or absence of the pegs on the package to the control mechanism for the beverage dispensing machine. The arrangement of pegs 31,32,33,34 on the package thus identifies the type of package to the controller which then selects the appropriate beverage preparation conditions. The presence or absence of three pegs provides scope for the sensing arm to sense up to 8 different types of beverage packages. Thus, if the presence of a peg at a particular location is coded as 1 and the absence of a peg coded as 0, the following code combinations can be achieved. 000 001 010 100 101 110 011 111 The presence of the additional fourth peg formed in flange 28 provides an even larger number of code combinations.
[1.b] the apparatus including a pump adapted to supply heated water;	Bentley discloses, either expressly or inherently, the apparatus including a pump adapted to supply heated water. *See, e.g.*:

U.S. Patent No. 10,870,531	Disclosure
	Bentley at 1:38-45: There is also described in European Patent Application No. 87311325.2, a method for preparing a beverage which comprises positioning a beverage containing package at a brewing station, introducing water through water introduction means into the package, allowing the water to commingle with the beverage ingredient, and collecting the beverage so-formed through an outlet formed in the package. Bentley at 2:3-15: Accordingly, the present invention provides a method for the preparation of a beverage from a sealed package containing one or more beverage preparation ingredients located in a compartment in the package, which method comprises introducing a liquid medium suitable for the preparation of the beverage under pressure into the package through an in- let formed therein, causing the liquid medium to enter the compartment thereby forming the beverage, and collecting the beverage so formed from an outlet formed in the package, characterised in that the beverage is filtered in an upwardly direction through a filter. Bentley at 3:41-50: In carrying out the method of the present invention a liquid medium is passed via the inlet of the package into the compartment containing the beverage preparation ingredient(s). The filter is disposed at the top of the compartment containing the beverage preparation ingredient(s) and the liquid medium is thereby caused to flow upwardly through the beverage preparation ingredients. The beverage so formed flows upwardly through the filter into the passage or passages which communicate with the outlet. Bentley at 6:36-7:15: In use of the beverage package as shown in the drawings, the bottom of the package 1 is sealed by means of an aluminium foil or a laminated foil which is heat sealed to the lower edges of walls 4 and 10 and to the lower edge 14 of the package. Water enters the package at a pressure of about 10^5Pa via inlet 12 which is opened by piercing or cutting the material

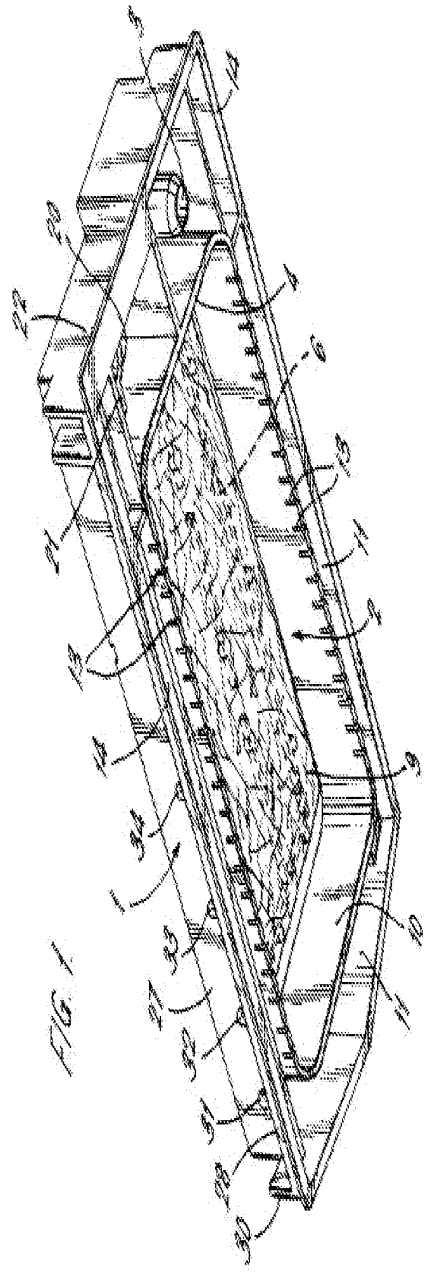
K-FEE SYSTEM GMBH, EX2012, page 1404
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
	covering the said opening. The water enters the channel 11 surrounding three sides of the compartment 2 containing the beverage ingredients. The water, which is under pressure, is forced through the elongate slots 13 formed in the wall 10 which separates channel 11 from compartment 2. The water mixes with the beverage preparation ingredients con- tamed in compartment 2 and is forced upwardly through the beverage preparation ingredients. The beverage formed by passage of the water through the beverage preparation ingredients passes through filter material 9 into passages 15 which are formed between the ribs 6. The sealing of the filter material 9 onto ribs 6 and 7 prevents any short circuit and all of the beverage has to pass through the filter. The passages 15 are closed at the end remote from the outlet by transverse rib 7. The beverage formed by the passage of water through the beverage preparation ingredients also passes directly through the filter material 9 into areas 16 which communicate with passages 15. The beverage passes along passages 15, commingles with the beverage collected in areas 16 and is then funnelled by means of angled extensions 17 of the middle two ribs 6 over a weir 18 to a beverage collection area 19 and thence into outlet nozzle 3. The beverage is then collected in a cup or other receptacle placed below the outlet nozzle 3. It may be desirable to support the filter material 9 by means of additional support ribs in the passages 15 in order to prevent the filter material from bowing and sealing the passages.
[1.c] inserting the portion capsule into the apparatus, the portion capsule including a foil lid sealed to a base element having a cavity in which a beverage raw material is provided,	Bentley discloses, either expressly or inherently, inserting the portion capsule into the apparatus, the portion capsule including a foil lid sealed to a base element having a cavity in which a beverage raw material is provided. *See, e.g.*: Bentley at 1:26-37: In our European Patent Application No. 87311325.2 there is described a package which con-tains at least one beverage preparation ingredient, e.g. roast and ground coffee. In a preferred embodiment the package is formed from a substantially air-and water-impermeable material and comprises a sealed body portion having a compartment contain-ing the beverage ingredient and an outlet channel, the compartment and the outlet channel co-operating in such a manner that, in use, the beverage is filtered, thereby avoiding the

U.S. Patent No. 10,870,531	Disclosure
	Bentley at 2:16-31: The beverage package used in the present invention preferably has a body portion which may be formed, for example, from a moulded plastics material. The inlet and/or outlet of the package may be closed by a plug of a plastics material moulded into the inlet and/or outlet nozzle during the moulding of the body portion. Alternatively, the inlet and/or outlet may be covered by a substantially air- and water-impermeable material, for example aluminium foil or a laminated material, such as a laminate of plastic material/metal foil/plastic material, prior to the opening of the inlet and/or outlet. Specific examples of materials which can be used are aluminium foil having a thickness in the range of from 30 to 60 micrometres coated with a layer of polypropylene or a laminate of polypropylene/aluminium foil/polyester. Bentley at 3:13-17: The beverage preparation ingredients contained in the packages used in the invention are preferably roast and ground coffee, or leaf tea, and according to individual taste, powdered milk or creamer, sugar or artificial sweetner. Bentley at 4:41-5:34: The packages used in the present invention are preferably provided with a recognition means whereby, in use, the package is identified by the machine into which it is placed for treatment and the identification of the package thereby causes it to be subjected to the correct treatment steps including the introduction of a liquid medium into the package. For the preparation of beverages from beverage preparation ingredients the liquid medium introduced into the package will generally be water or a water/air mixture. The recognition means may comprise one or more surface features formed in the body of the beverage package. For example, the package body may be provided with one or more indents, cut outs, protrusions or holes which can be identified by a mechanical sensor in the

U.S. Patent No. 10,870,531	Disclosure
	beverage preparation machine, the mechanical sensor registering the presence or absence of the indents, cut outs, protrusions or holes. The recognition means may, alternatively, comprise a system which can be sensed by a simple optical device, for example a bar code printed onto the body of the package, a pattern of through holes in the package, a pattern of contrasting tones or colours printed onto the package or packages containing different comestibles being of different colours. The recognition means may also comprise one or more strips of a magnetic material applied to the body of the package which can be read by an appropriate magnetic sensor; one or more shaped or divided areas of metal foil applied to the package body which cause an inductive effect on movement of the package in the machine, which inductive effect can be sensed; or one or more electrically conductive areas formed on the body of the package which can be sensed electrically. As mentioned above, the package used in the present invention contains one or more beverage preparation ingredients, for example, roast and ground coffee or leaf tea and sugar and/or creamer, as desired. One machine which can readily be adapted for the preparation of a beverage from the preferred beverage package of the invention which includes a recognition means is described in our European Patent Application No. 89302708.6. The only modification required to be made to such a beverage preparation machine is to incorporate an appropriate sensor or sensors into it, the sensor or sensors being designed to read the particular coding on the capsule and to send a signal to the controller, which then selects the appropriate beverage preparation cycle. Bentley at 5:40-54: The packages used in the present invention may be treated by a machine which includes therein one or more sensors which are adapted to sense and identify a recognition means provided on a package inserted into the machine.

U.S. Patent No. 10,870,531	Disclosure
	The sensor may be, for example, a mechanical sensor, an optical sensor, a magnetic sensor, an electrical sensor or an inductive sensor. The machine is preferably adapted so that the package is handled automatically following its insertion into the machine. For example, a machine of the type as described in our European Patent Application No. 89302708.6 can be fitted with an appropriate sensor to sense and identify a recognition means provided on beverage packages intended for use therewith. Bentley at 6:10-29: Referring to the drawings a beverage package body is shown at 1. The body may be formed, for example, from a moulded plastics material. The body 1 has a compartment 2 in which the beverage preparation ingredient or ingredients are contained. The package body has an outlet nozzle 3 and an inlet 12 formed therein. The compartment 2 is separated from the area of the body in which the nozzle 3 is formed by means of a wall 4. The top 5 of the package 1 has four longitudinal ribs 6 moulded to the under- side thereof which are shown as a plurality of dotted lines in Figure 2. The four ribs 6 are joined at either end by transverse ribs 7 which are also shown in dotted outline in Figure 2. The ribs 6 and 7 are strengthened at intervals by posts 8 which are also moulded to the underside of the top 5 of package 1. These posts 8 are also shown in dotted outline in Figure 2. A filter material 9 is heat sealed to ribs 6, ribs 7 and posts 8, the filter material 9 extends across a substantial part of the top of compartment 2. Bentley at Fig. 1:

U.S. Patent No. 10,870,531	Disclosure
	

U.S. Patent No. 10,870,531	Disclosure
[1.d] the base element comprising a flange, the flange having a top side to which the foil lid is sealed.	Bentley discloses, either expressly or inherently, the base element comprising a flange, the flange having a top side to which the foil lid is sealed. *See, e.g.*: Bentley at 7:36:46: The package is also provided, as best shown in Figure 2, with teeth 25 moulded along one side wall of compartment 2. The teeth 25 have recesses 26 formed there between. These teeth 25 are intended to enable the beverage package to be driven through a beverage preparation machine by the engagement of the teeth 25 with the tooth of a cam (not shown). The side wall 27 of the beverage package has a flange 28 extending at right angles thereto. The flange 28 has an upstanding rib 30 at the end thereof near to the leading end 29 of the package. Bentley at 7:47-51: As the package is driven into the beverage preparation machine the flange 28 is sensed as the side edge of the package passes beneath a sensing arm (not shown). The flange 28 has a plurality of upstanding pegs 31,32,33,34 located therein and as the package is driven into the machine by the engagement of the teeth 25 with the tooth of a cam, the sensor senses the presence or absence of upstanding pegs 31,32,33,34.
[1.e] and an opposing bottom side with a barcode located on the bottom side,	Bentley discloses, either expressly or inherently, an opposing bottom side with a barcode located on the bottom side. *See, e.g.*: Bentley at 4:41-5:34: The packages used in the present invention are preferably provided with a recognition means whereby, in use, the package is identified by the machine into which it is placed for treatment and the identification of the package thereby causes it to be subjected to the correct treatment steps including the introduction of a liquid medium into the package. For the preparation of beverages from beverage preparation ingredients the liquid medium introduced into the package will generally be water or a water/air mixture.

U.S. Patent No. 10,870,531	Disclosure
	The recognition means may comprise one or more surface features formed in the body of the beverage package. For example, the package body may be provided with one or more indents, cut outs, protrusions or holes which can be identified by a mechanical sensor in the beverage preparation machine, the mechanical sensor registering the presence or absence of the indents, cut outs, protrusions or holes. The recognition means may, alternatively, comprise a system which can be sensed by a simple optical device, for example a bar code printed onto the body of the package, a pattern of through holes in the package, a pattern of contrasting tones or colours printed onto the package or packages containing different comestibles being of different colours. The recognition means may also comprise one or more strips of a magnetic material applied to the body of the package which can be read by an appropriate magnetic sensor; one or more shaped or divided areas of metal foil applied to the package body which cause an inductive effect on movement of the package in the machine, which inductive effect can be sensed; or one or more electrically conductive areas formed on the body of the package which can be sensed electrically. As mentioned above, the package used in the present invention contains one or more beverage preparation ingredients, for example, roast and ground coffee or leaf tea and sugar and/or creamer, as desired. One machine which can readily be adapted for the preparation of a beverage from the preferred beverage package of the invention which includes a recognition means is described in our European Patent Application No. 89302708.6. The only modification required to be made to such a beverage preparation machine is to incorporate an appropriate sensor or sensors into it, the sensor or sensors being designed to read the particular coding on the capsule and to send a signal to the controller, which then selects the appropriate beverage preparation cycle. Bentley at 7:26-35:

U.S. Patent No. 10,870,531	Disclosure
	The beverage package as illustrated in Figures to 5 incorporates the recognition means which is a preferred feature of the invention. The package of the invention 1 containing one or more beverage preparation ingredients has a generally rectangular shape with flat top and bottom surfaces and is thereby suitable for insertion into a beverage preparation machine, for example of the type as described in our European Patent Application No. 89302708.6, longitudinally through a slot. Bentley at 7:47-8:24: As the package is driven into the beverage preparation machine the flange 28 is sensed as the side edge of the package passes beneath a sensing arm (not shown). The flange 28 has a plurality of upstanding pegs 31,32,33,34 located therein and as the package is driven into the machine by the engagement of the teeth 25 with the tooth of a cam, the sensor senses the presence or absence of upstanding pegs 31,32,33,34. If one or more of pegs 31,32,33,34 is not present the sensing arm will thereby identify a different type of beverage package. The sensing arm operates a switch (not shown) which thereby transmits information concerning the presence or absence of the pegs on the package to the control mechanism for the beverage dispensing machine. The arrangement of pegs 31,32,33,34 on the package thus identifies the type of package to the controller which then selects the appropriate beverage preparation conditions. The presence or absence of three pegs provides scope for the sensing arm to sense up to 8 different types of beverage packages. Thus, if the presence of a peg at a particular location is coded as 1 and the absence of a peg coded as 0, the following code combinations can be achieved. 000 001 010 100

U.S. Patent No. 10,870,531	Disclosure
	101 110 011 111 The presence of the additional fourth peg formed in flange 28 provides an even larger number of code combinations.
[1.f] the base element has a wall region with an electrically conductive section	Bentley discloses, either expressly or inherently, the base element has a wall region with an electrically conductive section. *See, e.g.*: Bentley at 2:16-31: The beverage package used in the present invention preferably has a body portion which may be formed, for example, from a moulded plastics material. The inlet and/or outlet of the package may be closed by a plug of a plastics material moulded into the inlet and/or outlet nozzle during the moulding of the body portion. Alternatively, the inlet and/or outlet may be covered by a substantially air- and water-impermeable material, for example aluminium foil or a laminated material, such as a laminate of plastic material/ metal foil/plastic material, prior to the opening of the inlet and/or outlet. Specific examples of materials which can be used are aluminium foil having a thickness in the range of from 30 to 60 micrometres coated with a layer of polypropylene or a laminate of polypropylene/ aluminium foil/polyester. Bentley at 5:9-18: The recognition means may also comprise one or more strips of a magnetic material applied to the body of the package which can be read by an appropriate magnetic sensor; one or more shaped or divided areas of metal foil applied to the package body which cause an inductive effect on movement of the package in the machine, which inductive effect can be sensed; or one or more electrically conductive areas formed on the body of the package which can be sensed electrically.

U.S. Patent No. 10,870,531	Disclosure
[1.g] and radially spaced and vertically oriented grooves,	Bentley discloses, either expressly or inherently, radially spaced and vertically oriented grooves. *See, e.g.*: Bentley at 3:7-12: The filter material may also be coated with a material which is activated by heat and/or pressure so that it can readily be sealed to ribs formed in the under surface of the top of the package, thereby forming one or more passages which communicate with the outlet. Bentley at 6:10-7:15: Referring to the drawings a beverage package body is shown at 1. The body may be formed, for example, from a moulded plastics material. The body 1 has a compartment 2 in which the beverage preparation ingredient or ingredients are contained. The package body has an outlet nozzle 3 and an inlet 12 formed therein. The compartment 2 is separated from the area of the body in which the nozzle 3 is formed by means of a wall 4. The top 5 of the package 1 has four longitudinal ribs 6 moulded to the under- side thereof which are shown as a plurality of dotted lines in Figure 2. The four ribs 6 are joined at either end by transverse ribs 7 which are also shown in dotted outline in Figure 2. The ribs 6 and 7 are strengthened at intervals by posts 8 which are also moulded to the underside of the top 5 of package 1. These posts 8 are also shown in dotted outline in Figure 2. A filter material 9 is heat sealed to ribs 6, ribs 7 and posts 8, the filter material 9 extends across a substantial part of the top of compartment 2. Compartment 2 is separated from the outlet nozzle by a wall 4 and surrounded on its other three sides by a U-shaped wall 10. The wall 10 has a U-shaped channel 11 surrounding it, the channel 11 communicating with inlet 12. The wall 10 has a plurality of small slots 13 formed in the two longitudinal arms thereof. In use of the beverage package as shown in the drawings, the bottom of the package 1 is sealed by means of an aluminium foil or a laminated foil which is heat sealed to the lower edges of walls 4 and 10 and to the lower edge 14 of the package. Water enters the package at a pressure of about 105Pa via inlet 12 which is opened by piercing or cutting the material

U.S. Patent No. 10,870,531	Disclosure
	covering the said opening. The water enters the channel 11 surrounding three sides of the compartment 2 containing the beverage ingredients. The water, which is under pressure, is forced through the elongate slots 13 formed in the wall 10 which separates channel 11 from compartment 2. The water mixes with the beverage preparation ingredients con- tamed in compartment 2 and is forced upwardly through the beverage preparation ingredients. The beverage formed by passage of the water through the beverage preparation ingredients passes through filter material 9 into passages 15 which are formed between the ribs 6. The sealing of the filter material 9 onto ribs 6 and 7 prevents any short circuit and all of the beverage has to pass through the filter. The passages 15 are closed at the end remote from the outlet by transverse rib 7. The beverage formed by the passage of water through the beverage preparation ingredients also passes directly through the filter material 9 into areas 16 which communicate with passages 15. The beverage passes along passages 15, commingles with the beverage collected in areas 16 and is then funnelled by means of angled extensions 17 of the middle two ribs 6 over a weir 18 to a beverage collection area 19 and thence into outlet nozzle 3. The beverage is then collected in a cup or other receptacle placed below the outlet nozzle 3. It may be desirable to support the filter material 9 by means of additional support ribs in the passages 15 in order to prevent the filter material from bowing and sealing the passages. Bentley at 7:36:46: The package is also provided, as best shown in Figure 2, with teeth 25 moulded along one side wall of compartment 2. The teeth 25 have recesses 26 formed therebetween. These teeth 25 are intended to enable the beverage package to be driven through a beverage preparation machine by the engagement of the teeth 25 with the tooth of a cam (not shown). The side wall 27 of the beverage package has a flange 28 extending at right angles thereto. The flange 28 has an upstanding rib 30 at the end thereof near to the leading end 29 of the package.
[1.h] the cavity has radially spaced and vertically oriented ribs,	Bentley discloses, either expressly or inherently, the cavity has radially spaced and vertically oriented ribs. *See, e.g.*: Bentley at 3:7-12:

U.S. Patent No. 10,870,531	Disclosure
	The filter material may also be coated with a material which is activated by heat and/or pressure so that it can readily be sealed to ribs formed in the under surface of the top of the package, thereby forming one or more passages which communicate with the outlet. Bentley at 6:10-7:15: Referring to the drawings a beverage package body is shown at 1. The body may be formed, for example, from a moulded plastics material. The body 1 has a compartment 2 in which the beverage preparation ingredient or ingredients are contained. The package body has an outlet nozzle 3 and an inlet 12 formed therein. The compartment 2 is separated from the area of the body in which the nozzle 3 is formed by means of a wall 4. The top 5 of the package 1 has four longitudinal ribs 6 moulded to the under- side thereof which are shown as a plurality of dotted lines in Figure 2. The four ribs 6 are joined at either end by transverse ribs 7 which are also shown in dotted outline in Figure 2. The ribs 6 and 7 are strengthened at intervals by posts 8 which are also moulded to the underside of the top 5 of package 1. These posts 8 are also shown in dotted outline in Figure 2. A filter material 9 is heat sealed to ribs 6, ribs 7 and posts 8, the filter material 9 extends across a substantial part of the top of compartment 2. Compartment 2 is separated from the outlet nozzle by a wall 4 and surrounded on its other three sides by a U-shaped wall 10. The wall 10 has a U-shaped channel 11 surrounding it, the channel 11 communicating with inlet 12. The wall 10 has a plurality of small slots 13 formed in the two longitudinal arms thereof. In use of the beverage package as shown in the drawings, the bottom of the package 1 is sealed by means of an aluminium foil or a laminated foil which is heat sealed to the lower edges of walls 4 and 10 and to the lower edge 14 of the package. Water enters the package at a pressure of about 105Pa via inlet 12 which is opened by piercing or cutting the material covering the said opening. The water enters the channel 11 surrounding three sides of the compartment 2 containing the beverage ingredients. The water, which is under pressure, is forced through the elongate slots 13 formed in the wall 10 which separates channel 11 from compartment 2. The water mixes with the beverage preparation ingredients con- tamed in

U.S. Patent No. 10,870,531	Disclosure
	compartment 2 and is forced upwardly through the beverage preparation ingredients. The beverage formed by passage of the water through the beverage preparation ingredients passes through filter material 9 into passages 15 which are formed between the ribs 6. The sealing of the filter material 9 onto ribs 6 and 7 prevents any short circuit and all of the beverage has to pass through the filter. The passages 15 are closed at the end remote from the outlet by transverse rib 7. The beverage formed by the passage of water through the beverage preparation ingredients also passes directly through the filter material 9 into areas 16 which communicate with passages 15. The beverage passes along passages 15, commingles with the beverage collected in areas 16 and is then funnelled by means of angled extensions 17 of the middle two ribs 6 over a weir 18 to a beverage collection area 19 and thence into outlet nozzle 3. The beverage is then collected in a cup or other receptacle placed below the outlet nozzle 3. It may be desirable to support the filter material 9 by means of additional support ribs in the passages 15 in order to prevent the filter material from bowing and sealing the passages. Bentley at 7:36:46: The package is also provided, as best shown in Figure 2, with teeth 25 moulded along one side wall of compartment 2. The teeth 25 have recesses 26 formed therebetween. These teeth 25 are intended to enable the beverage package to be driven through a beverage preparation machine by the engagement of the teeth 25 with the tooth of a cam (not shown). The side wall 27 of the beverage package has a flange 28 extending at right angles thereto. The flange 28 has an upstanding rib 30 at the end thereof near to the leading end 29 of the package.
[1.i] the portion capsule being free of a filter,	Bentley discloses, either expressly or inherently, the portion capsule being free of a filter. *See, e.g.*: Bentley at 1:26-37: In our European Patent Application No. 87311325.2 there is described a package which con-tains at least one beverage preparation ingredient, e.g. roast and ground coffee. In a preferred embodiment the package is formed from a substantially air-and water-impermeable

U.S. Patent No. 10,870,531	Disclosure
	beverage ingredient and an outlet channel, the compartment and the outlet channel co-operating in such a manner that, in use, the beverage is filtered, thereby avoiding the necessity for an external filter.
[1.j] the base element and/or the lid are made of metal;	Bentley discloses, either expressly or inherently, the base element and/or the lid are made of metal. *See, e.g.*: Bentley at 2:16-31: The beverage package used in the present invention preferably has a body portion which may be formed, for example, from a moulded plastics material. The inlet and/or outlet of the package may be closed by a plug of a plastics material moulded into the inlet and/or outlet nozzle during the moulding of the body portion. Alternatively, the inlet and/or outlet may be covered by a substantially air- and water-impermeable material, for example aluminium foil or a laminated material, such as a laminate of plastic material/ metal foil/plastic material, prior to the opening of the inlet and/or outlet. Specific examples of materials which can be used are aluminium foil having a thickness in the range of from 30 to 60 micrometres coated with a layer of polypropylene or a laminate of polypropylene/ aluminium foil/polyester. Bentley at 5:9-18: The recognition means may also comprise one or more strips of a magnetic material applied to the body of the package which can be read by an appropriate magnetic sensor; one or more shaped or divided areas of metal foil applied to the package body which cause an inductive effect on movement of the package in the machine, which inductive effect can be sensed; or one or more electrically conductive areas formed on the body of the package which can be sensed electrically.
[1.k] piercing the foil lid;	Bentley discloses, either expressly or inherently, piercing the foil lid. *See, e.g.*: Bentley at 2:16-31:

U.S. Patent No. 10,870,531	Disclosure
	The beverage package used in the present invention preferably has a body portion which may be formed, for example, from a moulded plastics material. The inlet and/or outlet of the package may be closed by a plug of a plastics material moulded into the inlet and/or outlet nozzle during the moulding of the body portion. Alternatively, the inlet and/or outlet may be covered by a substantially air- and water-impermeable material, for example aluminium foil or a laminated material, such as a laminate of plastic material/ metal foil/plastic material, prior to the opening of the inlet and/or outlet. Specific examples of materials which can be used are aluminium foil having a thickness in the range of from 30 to 60 micrometres coated with a layer of polypropylene or a laminate of polypropylene/ aluminium foil/polyester. Bentley at 8:25-32: When the beverage preparation machine has selected the appropriate beverage preparation conditions, the water inlet 12 of the package is pierced or cut, the outlet 3 is uncovered in the package and water caused to flow under pressure through the compartment containing the beverage ingredient(s). The chosen beverage then being collected in a cup or receptacle placed below the outlet 3 of the package.
[1.l] reading the barcode with the barcode reader;	Bentley discloses, either expressly or inherently, reading the barcode with the barcode reader. *See, e.g.*: Bentley at 1:46-55: The beverage packages as described in European Patent Application No. 87311325.2 are primarily intended to be used with a beverage preparation machine which handles the packages automatically or semi-automatically. A machine of this type is described in our European Patent Application No. 89302708.6. The packages may contain roast and ground coffee, leaf tea or one or more powdered bev-erage preparation ingredients such as powdered chocolate, powdered coffee or powdered soup. Bentley at 5:40-54:

K-FEE SYSTEM GMBH, EX2012, page 1419
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
	The packages used in the present invention may be treated by a machine which includes therein one or more sensors which are adapted to sense and identify a recognition means provided on a package inserted into the machine. The sensor may be, for example, a mechanical sensor, an optical sensor, a magnetic sensor, an electrical sensor or an inductive sensor. The machine is preferably adapted so that the package is handled automatically following its insertion into the machine. For example, a machine of the type as described in our European Patent Application No. 89302708.6 can be fitted with an appropriate sensor to sense and identify a recognition means provided on beverage packages intended for use therewith. Bentley at 7:47-8:24: As the package is driven into the beverage preparation machine the flange 28 is sensed as the side edge of the package passes beneath a sensing arm (not shown). The flange 28 has a plurality of upstanding pegs 31,32,33,34 located therein and as the package is driven into the machine by the engagement of the teeth 25 with the tooth of a cam, the sensor senses the presence or absence of upstanding pegs 31,32,33,34. If one or more of pegs 31,32,33,34 is not present the sensing arm will thereby identify a different type of beverage package. The sensing arm operates a switch (not shown) which thereby transmits information concerning the presence or absence of the pegs on the package to the control mechanism for the beverage dispensing machine. The arrangement of pegs 31,32,33,34 on the package thus identifies the type of package to the controller which then selects the appropriate beverage preparation conditions. The presence or absence of three pegs provides scope for the sensing arm to sense up to 8 different types of beverage packages. Thus, if the presence of a peg at a particular location is coded as 1 and the absence of a peg coded as 0, the following code combinations can be achieved.

U.S. Patent No. 10,870,531	Disclosure
	000 001 010 100 101 110 011 111 The presence of the additional fourth peg formed in flange 28 provides an even larger number of code combinations.
[1.m] determining whether the read barcode agrees with a stored reference; and activating the pump to push heated water into the portion capsule only upon a determination that the read barcode agrees with the stored reference.	Bentley discloses, either expressly or inherently, determining whether the read barcode agrees with a stored reference; and activating the pump to push heated water into the portion capsule only upon a determination that the read barcode agrees with the stored reference. *See, e.g.*: Bentley at 1:38-45: There is also described in European Patent Application No. 87311325.2, a method for preparing a beverage which comprises positioning a beverage containing package at a brewing station, introducing water through water introduction means into the package, allowing the water to commingle with the beverage ingredient, and collecting the beverage so-formed through an outlet formed in the package. Bentley at 1:46-55: The beverage packages as described in European Patent Application No. 87311325.2 are primarily intended to be used with a beverage preparation machine which handles the packages automatically or semi-automatically. A machine of this type is described in our European Patent Application No. 89302708.6. The packages may contain roast and ground

K-FEE SYSTEM GMBH, EX2012, page 1421
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
	coffee, leaf tea or one or more powdered bev-erage preparation ingredients such as powdered chocolate, powdered coffee or powdered soup. Bentley at 2:3-15: Accordingly, the present invention provides a method for the preparation of a beverage from a sealed package containing one or more beverage preparation ingredients located in a compartment in the package, which method comprises introducing a liquid medium suitable for the preparation of the beverage under pressure into the package through an in- let formed therein, causing the liquid medium to enter the compartment thereby forming the beverage, and collecting the beverage so formed from an outlet formed in the package, characterised in that the beverage is filtered in an upwardly direction through a filter. Bentley at 3:41-50: In carrying out the method of the present invention a liquid medium is passed via the inlet of the package into the compartment containing the beverage preparation ingredient(s). The filter is disposed at the top of the compartment containing the beverage preparation ingredient(s) and the liquid medium is thereby caused to flow upwardly through the beverage preparation ingredients. The beverage so formed flows upwardly through the filter into the passage or passages which communicate with the outlet. Bentley at 5:40-54: The packages used in the present invention may be treated by a machine which includes therein one or more sensors which are adapted to sense and identify a recognition means provided on a package inserted into the machine. The sensor may be, for example, a mechanical sensor, an optical sensor, a magnetic sensor, an electrical sensor or an inductive sensor. The machine is preferably adapted so that the package is handled automatically following its insertion into the machine. For example, a machine of the type as described in our European Patent Application No. 89302708.6 can be

U.S. Patent No. 10,870,531	Disclosure
	fitted with an appropriate sensor to sense and identify a recognition means provided on beverage packages intended for use therewith. Bentley at 6:36-7:15: In use of the beverage package as shown in the drawings, the bottom of the package 1 is sealed by means of an aluminium foil or a laminated foil which is heat sealed to the lower edges of walls 4 and 10 and to the lower edge 14 of the package. Water enters the package at a pressure of about 10^5Pa via inlet 12 which is opened by piercing or cutting the material covering the said opening. The water enters the channel 11 surrounding three sides of the compartment 2 containing the beverage ingredients. The water, which is under pressure, is forced through the elongate slots 13 formed in the wall 10 which separates channel 11 from compartment 2. The water mixes with the beverage preparation ingredients con- tamed in compartment 2 and is forced upwardly through the beverage preparation ingredients. The beverage formed by passage of the water through the beverage preparation ingredients passes through filter material 9 into passages 15 which are formed between the ribs 6. The sealing of the filter material 9 onto ribs 6 and 7 prevents any short circuit and all of the beverage has to pass through the filter. The passages 15 are closed at the end remote from the outlet by transverse rib 7. The beverage formed by the passage of water through the beverage preparation ingredients also passes directly through the filter material 9 into areas 16 which communicate with passages 15. The beverage passes along passages 15, commingles with the beverage collected in areas 16 and is then funnelled by means of angled extensions 17 of the middle two ribs 6 over a weir 18 to a beverage collection area 19 and thence into outlet nozzle 3. The beverage is then collected in a cup or other receptacle placed below the outlet nozzle 3. It may be desirable to support the filter material 9 by means of additional support ribs in the passages 15 in order to prevent the filter material from bowing and sealing the passages. Bentley at 7:47-8:24: As the package is driven into the beverage preparation machine the flange 28 is sensed as the side edge of the package passes beneath a sensing arm (not shown). The flange 28 has a

K-FEE SYSTEM GMBH, EX2012, page 1423
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
	plurality of upstanding pegs 31,32,33,34 located therein and as the package is driven into the machine by the engagement of the teeth 25 with the tooth of a cam, the sensor senses the presence or absence of upstanding pegs 31,32,33,34. If one or more of pegs 31,32,33,34 is not present the sensing arm will thereby identify a different type of beverage package. The sensing arm operates a switch (not shown) which thereby transmits information concerning the presence or absence of the pegs on the package to the control mechanism for the beverage dispensing machine. The arrangement of pegs 31,32,33,34 on the package thus identifies the type of package to the controller which then selects the appropriate beverage preparation conditions. The presence or absence of three pegs provides scope for the sensing arm to sense up to 8 different types of beverage packages. Thus, if the presence of a peg at a particular location is coded as 1 and the absence of a peg coded as 0, the following code combinations can be achieved. 000 001 010 100 101 110 011 111 The presence of the additional fourth peg formed in flange 28 provides an even larger number of code combinations.
[redacted]	
2. The method according to claim 1, wherein the method comprises not activating the pump to push the	Bentley discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises not activating the pump to push the heated water into the portion

U.S. Patent No. 10,870,531	Disclosure
heated water into the portion capsule upon a determination that the read barcode does not agree with the stored reference.	capsule upon a determination that the read barcode does not agree with the stored reference. *See, e.g.*: Bentley at 1:38-45: There is also described in European Patent Application No. 87311325.2, a method for preparing a beverage which comprises positioning a beverage containing package at a brewing station, introducing water through water introduction means into the package, allowing the water to commingle with the beverage ingredient, and collecting the beverage so-formed through an outlet formed in the package. Bentley at 1:46-55: The beverage packages as described in European Patent Application No. 87311325.2 are primarily intended to be used with a beverage preparation machine which handles the packages automatically or semi-automatically. A machine of this type is described in our European Patent Application No. 89302708.6. The packages may contain roast and ground coffee, leaf tea or one or more powdered bev-erage preparation ingredients such as powdered chocolate, powdered coffee or powdered soup. Bentley at 2:3-15: Accordingly, the present invention provides a method for the preparation of a beverage from a sealed package containing one or more beverage preparation ingredients located in a compartment in the package, which method comprises introducing a liquid medium suitable for the preparation of the beverage under pressure into the package through an in- let formed therein, causing the liquid medium to enter the compartment thereby forming the beverage, and collecting the beverage so formed from an outlet formed in the package, characterised in that the beverage is filtered in an upwardly direction through a filter.

	Bentley at 3:41-50: In carrying out the method of the present invention a liquid medium is passed via the inlet of the package into the compartment containing the beverage preparation ingredient(s). The filter is disposed at the top of the compartment containing the beverage preparation ingredient(s) and the liquid medium is thereby caused to flow upwardly through the beverage preparation ingredients. The beverage so formed flows upwardly through the filter into the passage or passages which communicate with the outlet. Bentley at 5:40-54: The packages used in the present invention may be treated by a machine which includes therein one or more sensors which are adapted to sense and identify a recognition means provided on a package inserted into the machine. The sensor may be, for example, a mechanical sensor, an optical sensor, a magnetic sensor, an electrical sensor or an inductive sensor. The machine is preferably adapted so that the package is handled automatically following its insertion into the machine. For example, a machine of the type as described in our European Patent Application No. 89302708.6 can be fitted with an appropriate sensor to sense and identify a recognition means provided on beverage packages intended for use therewith. Bentley at 6:36-7:15: In use of the beverage package as shown in the drawings, the bottom of the package 1 is sealed by means of an aluminium foil or a laminated foil which is heat sealed to the lower edges of walls 4 and 10 and to the lower edge 14 of the package. Water enters the package at a pressure of about 10^5Pa via inlet 12 which is opened by piercing or cutting the material covering the said opening. The water enters the channel 11 surrounding three sides of the compartment 2 containing the beverage ingredients. The water, which is under pressure, is forced through the elongate slots 13 formed in the wall 10 which separates channel 11 from compartment 2. The water mixes with the beverage preparation ingredients con- tamed in compartment 2 and is forced upwardly through the beverage preparation ingredients. The beverage formed by passage of the water through the beverage preparation ingredients

U.S. Patent No. 10,870,531	Disclosure
	passes through filter material 9 into passages 15 which are formed between the ribs 6. The sealing of the filter material 9 onto ribs 6 and 7 prevents any short circuit and all of the beverage has to pass through the filter. The passages 15 are closed at the end remote from the outlet by transverse rib 7. The beverage formed by the passage of water through the beverage preparation ingredients also passes directly through the filter material 9 into areas 16 which communicate with passages 15. The beverage passes along passages 15, commingles with the beverage collected in areas 16 and is then funnelled by means of angled extensions 17 of the middle two ribs 6 over a weir 18 to a beverage collection area 19 and thence into outlet nozzle 3. The beverage is then collected in a cup or other receptacle placed below the outlet nozzle 3. It may be desirable to support the filter material 9 by means of additional support ribs in the passages 15 in order to prevent the filter material from bowing and sealing the passages. Bentley at 7:47-8:24: As the package is driven into the beverage preparation machine the flange 28 is sensed as the side edge of the package passes beneath a sensing arm (not shown). The flange 28 has a plurality of upstanding pegs 31,32,33,34 located therein and as the package is driven into the machine by the engagement of the teeth 25 with the tooth of a cam, the sensor senses the presence or absence of upstanding pegs 31,32,33,34. If one or more of pegs 31,32,33,34 is not present the sensing arm will thereby identify a different type of beverage package. The sensing arm operates a switch (not shown) which thereby transmits information concerning the presence or absence of the pegs on the package to the control mechanism for the beverage dispensing machine. The arrangement of pegs 31,32,33,34 on the package thus identifies the type of package to the controller which then selects the appropriate beverage preparation conditions. The presence or absence of three pegs provides scope for the sensing arm to sense up to 8 different types of beverage packages. Thus, if the presence of a peg at a particular location is coded as 1 and the absence of a peg coded as 0, the following code combinations can be achieved.

U.S. Patent No. 10,870,531	Disclosure
	000 001 010 100 101 110 011 111 The presence of the additional fourth peg formed in flange 28 provides an even larger number of code combinations.
[redacted]	
3. The method according to claim 1, wherein the method comprises engaging the portion capsule with a pair of holding arms, and wherein the base element and/or the foil lid are made of aluminum.	Bentley discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises engaging the portion capsule with a pair of holding arms, and wherein the base element and/or the foil lid are made of aluminum. *See, e.g.*: Bentley at 2:16-31: The beverage package used in the present invention preferably has a body portion which may be formed, for example, from a moulded plastics material. The inlet and/or outlet of the package may be closed by a plug of a plastics material moulded into the inlet and/or outlet nozzle during the moulding of the body portion. Alternatively, the inlet and/or outlet may be covered by a substantially air- and water-impermeable material, for example aluminium foil or a laminated material, such as a laminate of plastic material/metal foil/plastic material, prior to the opening of the inlet and/or outlet. Specific examples of materials which can be used are aluminium foil having a thickness in the range of from 30 to 60 micrometres coated with a layer of polypropylene or a laminate of polypropylene/aluminium foil/polyester. *See also* [1].
[redacted]	

K-FEE SYSTEM GMBH, EX2012, page 1428
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
5. The method according to claim 1, wherein the method comprises sealing a seal of the apparatus against the foil lid, and wherein the grooves are free from extending all the way into a region of the base element that is immediately adjacent to the flange.	Bentley discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises sealing a seal of the apparatus against the foil lid, and wherein the grooves are free from extending all the way into a region of the base element that is immediately adjacent to the flange. *See, e.g.*: Bentley at 2:16-31: The beverage package used in the present invention preferably has a body portion which may be formed, for example, from a moulded plastics material. The inlet and/or outlet of the package may be closed by a plug of a plastics material moulded into the inlet and/or outlet nozzle during the moulding of the body portion. Alternatively, the inlet and/or outlet may be covered by a substantially air- and water-impermeable material, for example aluminium foil or a laminated material, such as a laminate of plastic material/metal foil/plastic material, prior to the opening of the inlet and/or outlet. Specific examples of materials which can be used are aluminium foil having a thickness in the range of from 30 to 60 micrometres coated with a layer of polypropylene or a laminate of polypropylene/aluminium foil/polyester. *See also* [1].
6. The method according to claim 1, wherein the method comprises introducing the heated water into the portion capsule along a central axis of the portion capsule.	Bentley discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises introducing the heated water into the portion capsule along a central axis of the portion capsule. *See, e.g.*: Bentley at 1:38-45: There is also described in European Patent Application No. 87311325.2, a method for preparing a beverage which comprises positioning a beverage containing package at a brewing station, introducing water through water introduction means into the package,

U.S. Patent No. 10,870,531	Disclosure
	allowing the water to commingle with the beverage ingredient, and collecting the beverage so-formed through an outlet formed in the package. Bentley at 2:3-15: Accordingly, the present invention provides a method for the preparation of a beverage from a sealed package containing one or more beverage preparation ingredients located in a compartment in the package, which method comprises introducing a liquid medium suitable for the preparation of the beverage under pressure into the package through an in- let formed therein, causing the liquid medium to enter the compartment thereby forming the beverage, and collecting the beverage so formed from an outlet formed in the package, characterised in that the beverage is filtered in an upwardly direction through a filter. Bentley at 3:41-50: In carrying out the method of the present invention a liquid medium is passed via the inlet of the package into the compartment containing the beverage preparation ingredient(s). The filter is disposed at the top of the compartment containing the beverage preparation ingredient(s) and the liquid medium is thereby caused to flow upwardly through the beverage preparation ingredients. The beverage so formed flows upwardly through the filter into the passage or passages which communicate with the outlet. Bentley at 6:36-7:15: In use of the beverage package as shown in the drawings, the bottom of the package 1 is sealed by means of an aluminium foil or a laminated foil which is heat sealed to the lower edges of walls 4 and 10 and to the lower edge 14 of the package. Water enters the package at a pressure of about 10^5Pa via inlet 12 which is opened by piercing or cutting the material covering the said opening. The water enters the channel 11 surrounding three sides of the compartment 2 containing the beverage ingredients. The water, which is under pressure, is forced through the elongate slots 13 formed in the wall 10 which separates channel 11 from compartment 2. The water mixes with the beverage preparation ingredients con- tamed in compartment 2 and is forced upwardly through the beverage preparation ingredients. The beverage formed by passage of the water through the beverage preparation ingredients

K-FEE SYSTEM GMBH, EX2012, page 1430
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
	passes through filter material 9 into passages 15 which are formed between the ribs 6. The sealing of the filter material 9 onto ribs 6 and 7 prevents any short circuit and all of the beverage has to pass through the filter. The passages 15 are closed at the end remote from the outlet by transverse rib 7. The beverage formed by the passage of water through the beverage preparation ingredients also passes directly through the filter material 9 into areas 16 which communicate with passages 15. The beverage passes along passages 15, commingles with the beverage collected in areas 16 and is then funnelled by means of angled extensions 17 of the middle two ribs 6 over a weir 18 to a beverage collection area 19 and thence into outlet nozzle 3. The beverage is then collected in a cup or other receptacle placed below the outlet nozzle 3. It may be desirable to support the filter material 9 by means of additional support ribs in the passages 15 in order to prevent the filter material from bowing and sealing the passages. *See also* [1].
[redacted]	
7. The method according to claim 1, wherein the method comprises piercing the foil lid in a region that is offset from a central axis of the portion capsule, and wherein the lid is crowned in a region of the central axis of the portion capsule relative to a region of the lid adjacent to the flange.	Bentley discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises piercing the foil lid in a region that is offset from a central axis of the portion capsule, and wherein the lid is crowned in a region of the central axis of the portion capsule relative to a region of the lid adjacent to the flange. *See, e.g.*: Bentley at 2:16-31: The beverage package used in the present invention preferably has a body portion which may be formed, for example, from a moulded plastics material. The inlet and/or outlet of the package may be closed by a plug of a plastics material moulded into the inlet and/or outlet nozzle during the moulding of the body portion. Alternatively, the inlet and/or outlet may be covered by a substantially air- and water-impermeable material, for example aluminium foil or a laminated material, such as a laminate of plastic material/ metal foil/plastic material, prior to the opening of the inlet and/or outlet. Specific examples of materials which can be

K-FEE SYSTEM GMBH, EX2012, page 1431
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
	used are aluminium foil having a thickness in the range of from 30 to 60 micrometres coated with a layer of polypropylene or a laminate of polypropylene/ aluminium foil/polyester. Bentley at 8:25-32: When the beverage preparation machine has selected the appropriate beverage preparation conditions, the water inlet 12 of the package is pierced or cut, the outlet 3 is uncovered in the package and water caused to flow under pressure through the compartment containing the beverage ingredient(s). The chosen beverage then being collected in a cup or receptacle placed below the outlet 3 of the package. *See also* [1].
[8.pre] The method according to claim 1,	Bentley discloses, either expressly or inherently, the method according to claim 1. *See, e.g.*: *See* [1].
[8.a] wherein the method comprises controlling a production process of the beverage according to the read barcode,	Bentley discloses, either expressly or inherently, wherein the method comprises controlling a production process of the beverage according to the read barcode. *See, e.g.*: *See* [1.m].
[8.b] and wherein the wall comprises an upper section and a lower section, the upper section is located adjacent to the flange, and the lower section is located in between the upper section and a bottom of the base element,	Bentley discloses, either expressly or inherently, that the wall comprises an upper section and a lower section, the upper section is located adjacent to the flange, and the lower section is located in between the upper section and a bottom of the base element. *See, e.g.*:

U.S. Patent No. 10,870,531	Disclosure
[8.c] wherein the upper section comprises a circumferential border and the wall of the lower section is angled, with respect to the upper section, and is tapered towards a bottom of the base element.	Bentley discloses, either expressly or inherently, that the upper section comprises a circumferential border and the wall of the lower section is angled, with respect to the upper section, and is tapered towards a bottom of the base element. *See, e.g.*: *See also* [8.b].
[10.pre] A method of using a portion capsule for making a coffee beverage, the method comprising:	Bentley discloses, either expressly or inherently, a method of using a portion capsule for making a coffee beverage. *See, e.g.*: *See* [1].
[10.a] providing an apparatus including a barcode reader, the apparatus having a pump and being adapted to supply heated water;	Bentley discloses, either expressly or inherently, providing an apparatus including a barcode reader. *See, e.g.*: *See* [1.a].
[10.b] the apparatus having a pump and being adapted to supply heated water;	Bentley discloses, either expressly or inherently, the apparatus having a pump and being adapted to supply heated water. *See, e.g.*: *See* [1.b].
[10.c] inserting the portion capsule into the apparatus, the portion capsule including a foil lid sealed to a base element having a cavity within which a powdered coffee material is located,	Bentley discloses, either expressly or inherently, inserting the portion capsule into the apparatus, the portion capsule including a foil lid sealed to a base element having a cavity within which a powdered coffee material is located. *See, e.g.*: *See* [1.c].

U.S. Patent No. 10,870,531	Disclosure
[10.d] the base element including a circumferential flange having a top side	Bentley discloses, either expressly or inherently, the base element including a circumferential flange having a top side. *See, e.g.*: *See* [1.d].
[10.e] and a bottom side with a barcode located on the bottom side,	Bentley discloses, either expressly or inherently, a bottom side with a barcode located on the bottom side. *See, e.g.*: *See* [1.e].
[10.f] the portion capsule being free of a filter	Bentley discloses, either expressly or inherently, the portion capsule being free of a filter. *See, e.g.*: *See* [1.i].
[10.g] and comprising a plurality of ribs that are radially spaced, vertically oriented and extend toward a central portion of the cavity, wherein an outer surface of the base element comprises radially spaced and vertically oriented grooves;	Bentley discloses, either expressly or inherently, a plurality of ribs that are radially spaced, vertically oriented and extend toward a central portion of the cavity, wherein an outer surface of the base element comprises radially spaced and vertically oriented grooves. *See, e.g.*: *See* [1.g] and [1.h].
[10.h] piercing the foil lid;	Bentley discloses, either expressly or inherently, piercing the foil lid. *See, e.g.*: *See* [1.k].
[10.i] reading the barcode with the barcode reader; and	Bentley discloses, either expressly or inherently, .reading the barcode with the barcode reader. *See, e.g.*: *See* [1.l].

K-FEE SYSTEM GMBH, EX2012, page 1434
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
[10.j] activating the pump to introduce the heated water into the portion capsule only upon a determination that the read barcode agrees with a stored reference, or not activating the pump upon a determination that the read barcode does not agree with the stored reference.	Bentley discloses, either expressly or inherently, activating the pump to introduce the heated water into the portion capsule only upon a determination that the read barcode agrees with a stored reference, or not activating the pump upon a determination that the read barcode does not agree with the stored reference. *See, e.g.*: *See* [1.m] and [2].
[redacted]	
11. The method according to claim 10, wherein the method comprises engaging the portion capsule with a pair of holding arms, and wherein the base element comprises an electrically conductive section.	Bentley discloses, either expressly or inherently, the method according to claim 10, wherein the method comprises engaging the portion capsule with a pair of holding arms, and wherein the base element comprises an electrically conductive section. *See, e.g.*: *See* [1.f], [3].
[redacted]	
14. The method according to claim 10, wherein the method comprises dropping the portion capsule into a dropping box, wherein the base element and/or the lid are made of metal.	Bentley discloses, either expressly or inherently, the method according to claim 10, wherein the method comprises dropping the portion capsule into a dropping box, wherein the base element and/or the lid are made of metal. Bentley at 2:16-31: The beverage package used in the present invention preferably has a body portion which may be formed, for example, from a moulded plastics material. The inlet and/or outlet of the package may be closed by a plug of a plastics material moulded into the inlet and/or outlet nozzle during the moulding of the body portion. Alternatively, the inlet and/or outlet may be covered by a substantially air- and water-impermeable material, for example aluminium foil

U.S. Patent No. 10,870,531	Disclosure
	or a laminated material, such as a laminate of plastic material/ metal foil/plastic material, prior to the opening of the inlet and/or outlet. Specific examples of materials which can be used are aluminium foil having a thickness in the range of from 30 to 60 micrometres coated with a layer of polypropylene or a laminate of polypropylene/ aluminium foil/polyester. Bentley at 5:9-18: The recognition means may also comprise one or more strips of a magnetic material applied to the body of the package which can be read by an appropriate magnetic sensor; one or more shaped or divided areas of metal foil applied to the package body which cause an inductive effect on movement of the package in the machine, which inductive effect can be sensed; or one or more electrically conductive areas formed on the body of the package which can be sensed electrically.
[16.pre] The method according to claim 10,	Bentley discloses, either expressly or inherently, the method according to claim 10. *See, e.g.*: *See* [10].
[16.a] wherein the method comprises sealing a seal of the apparatus against the foil lid	Bentley discloses, either expressly or inherently, wherein the method comprises sealing a seal of the apparatus against the foil lid. *See, e.g.*: *See* [5].
[16.b] wherein the wall comprises an upper section and a lower section, the upper section is located adjacent to the flange, and the lower section is located between the upper	Bentley discloses, either expressly or inherently, wherein the wall comprises an upper section and a lower section, the upper section is located adjacent to the flange, and the lower section is located between the upper section and a bottom of the base element. *See, e.g.*: *See* [8.b].

K-FEE SYSTEM GMBH, EX2012, page 1436
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
section and a bottom of the base element	
[16.c] wherein the upper section comprises a circumferential border and the wall of the lower section is angled, with respect to the upper section, and is tapered towards a bottom of the base element.	Bentley discloses, either expressly or inherently, wherein the upper section comprises a circumferential border and the wall of the lower section is angled, with respect to the upper section, and is tapered towards a bottom of the base element. *See, e.g.*: *See* [8.c].

K-FEE SYSTEM GMBH, EX2012, page 1437
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

Exhibit C-2 – Invalidity of U.S. Patent No. 10,870,531 in view of Boyd

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,531 in view of Boyd

According to its cover page, U.S. Patent Pub. US2002/0048621A1 ("Boyd") was published on April 25, 2002. Boyd therefore constitutes prior art to the '531 Patent under pre-AIA 35 U.S.C. § 102(b). Boyd anticipates and/or renders obvious the Asserted Claims of the '531 Patent (at least as Nespresso understands K-fee's application of the Asserted Claims in an effort to show infringement).

To the extent K-fee argues that any element below is not disclosed by Boyd, a person of ordinary skill in the art would have found it obvious to combine the teachings of Boyd with the background knowledge of a person of ordinary skill in the art and/or the additional references, and exemplary teachings, set forth in Exhibits C-1 to C-9 and in Appendix C.

The chart below provides representative examples of where each element of each claim is found within Boyd. Citations are meant to be exemplary, not exhaustive, and Nespresso reserves the right to identify and discuss additional portions of the reference in support of its contentions and/or to rebut arguments made by K-fee. Citations to figures, drawings, tables, and the like include reference to any accompanying or related text. All internal cross references are meant to incorporate the cross-referenced material as if fully set forth therein.

It is Nespresso's position that K-fee's Infringement Contentions have not established that any accused product or service infringes any valid claim. Thus, Nespresso's statements below should not be treated as an admission, implication, or suggestion that Nespresso agrees with K-fee regarding either the scope, construction, or interpretation of any of the Asserted Claims, or the infringement theories advanced by K-fee in its Infringement Contentions, including whether any Asserted Claim satisfies 35 U.S.C. §§ 101 or 112. In certain cases, Nespresso specified non-limiting examples of where its application of the prior art is based on K-fee's apparent application of the claim element. These statements are not intended to suggest that Nespresso agrees with K-fee's application of any claim term, suggest a proposed construction at this stage of the case, or suggest that construction is needed, as the parties are not required to exchange terms for construction or proposed constructions until a later date.

K-fee has yet to identify any limitation of the Asserted Claims that it contends is not anticipated and/or rendered obvious by Boyd. Nespresso therefore expressly reserves the right to respond to any such contention, including by identifying additional obviousness combinations, if K-fee makes any such contention.

Where Nespresso states that Boyd "discloses" a limitation, that disclosure may be express, implicit, and/or inherent.

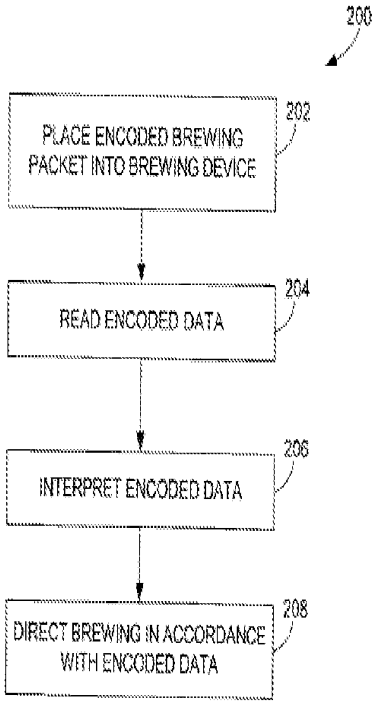
K-FEE SYSTEM GMBH, EX2012, page 1438
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

Exhibit C-2 – Invalidity of U.S. Patent No. 10,870,531 in view of Boyd

U.S. Patent No. 10,870,531	Disclosure
[1.pre] A method of using a portion capsule for producing a beverage, the method comprising:	Boyd discloses, either expressly or inherently, a method of using a portion capsule for producing a beverage. Boyd at Abstract: A brewing packet is provided for use in the preparation of hot or cold beverages. The brewing packet envelops a brewing ingredient chosen according to the tastes of a beverage drinker. The packet includes a machine interpret-able feature that contains encoded data capable of being read by a beverage producing device. Furthermore, the data on the packet is capable of directing the beverage producing device to employ a specific brewing operation suited for the particular brewing packet. This allows for producing the optimal beverage from the brewing ingredient. The packet may be utilized with a variety of brewing ingredients to produce a variety of beverages. Similarly, the packet may be configured to produce single or multiple servings of a beverage. Boyd at [0006]: A brewing packet is provided for use in the preparation of hot or cold beverages. The brewing packet envelops a brewing ingredient chosen according to the tastes of a beverage drinker. The packet includes a machine interpret-able feature that contains encoded data capable of being read by a beverage producing device. Furthermore, the data on the packet may be capable of directing the beverage producing device to employ a specific brewing operation suited for the particular brewing packet. This allows for producing the optimal beverage from the brewing ingredient. The packet may be utilized with a variety of brewing ingredients to produce a variety of beverages. Similarly, the packet may be configured to produce single or multiple servings of a beverage. Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for

U.S. Patent No. 10,870,531	Disclosure
	brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is passed through the filter capsule to produce an espresso beverage. The subject matter of each of these patents is incorporated herein by this reference. The invention also may be practiced in connection with espresso machines such as those disclosed in U.S. Pat. Nos. 4,253,385, 4,254,694, 4,353,293, 4,429,623, 4,484, 515, 4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference. While the aforementioned machines generally are described for use in connection with espresso packets which contain a single serving of espresso, it will be appreciated hat the present invention considers application of the relevant principles to machines which employ coffee packets for use in brewing multiple cups, which employ coffee packets of various size and shape, which employ various filter media and which contain coffee of various varieties, roasts, and grinds. Furthermore, the packet and methodology described herein may also produce other types of beverages such as tea, cider, and/or any beverage which is produced by mixing various ingredients. The packet and methodology is not limited to hot beverages and may be used to produce cold beverages. Boyd at [0034]-[0037]: Referring now to FIG. 4, a method of operation for the present invention is illustrated at 200. At 202, a brewing packet encoded with packet-characteristic data is placed into a brewing device. At 204, the packet-characteristic data is read by a sensor. At 206, the packet-characteristic data is interpreted by a processor. Finally, at 208, brewing is directed in accordance with the packet-characteristic data read by the sensor and interpreted by the processor.

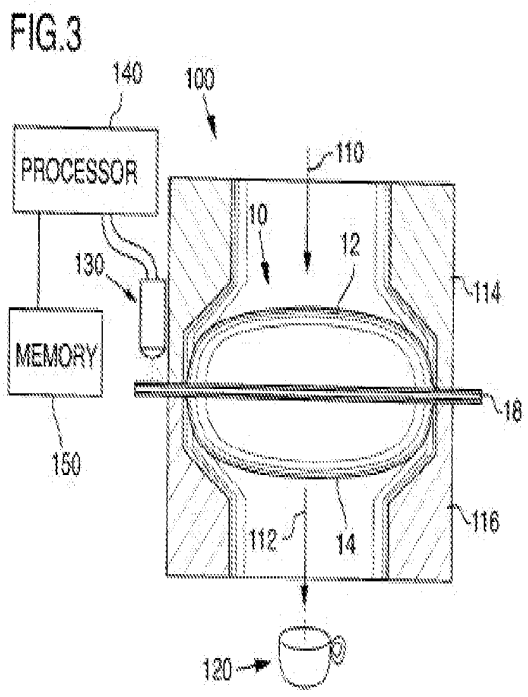
U.S. Patent No. 10,870,531	Disclosure
	Because the processor may be employed to effect the aforementioned predefined brewing directives based on the machine interpretable feature associated with each packet. The brewing operation may be made consistent based on consistent machine interpretable features from packet to packet. Similarly, the brewing operation may be altered in accordance with desired brewing characteristics each time the packet is replaced. Particular brew characteristics thus may be controlled simply by selection of a packet with the desired encoded brewing directives (whether or not such directives are known to the coffee machine operator). Control of the brewing process thus may be handed off to the brewing professionals who produce the packets, rather than relying on untrained machine operators. This may be done without sacrificing variety in brew operation based on differing characteristics of the packet contents or consumer tastes. For example, a person desiring weaker coffee may purchase packets designated such in order to direct the machine to add water to the brewed coffee beverage in accordance with proper brewing procedure. This avoids problems associated with ill-advised attempts to dilute coffee by decreasing the quantity of coffee used, a change which may result in a corresponding change in bed depth, and thus in an undesirable change in coffee taste. The encoded packets also may be used to track brewing information which may be useful in ensuring satisfaction with the brewed coffee beverage. For example, the packet may include an encoded date for use in tracking freshness of the coffee grounds contained within the packet. Upon determining that the packet is stale, the processor may direct the machine to note such staleness, thus avoiding an unsatisfactory beverage. Similarly, the packet may contain encoded data related to the coffee blend contained within the packet, such data being stored in memory to provide a history of coffee blends. The encoded packet also may contain encoded data defining the source of the packet so as to prohibit use of counterfeit packets, or packets from unauthorized suppliers.

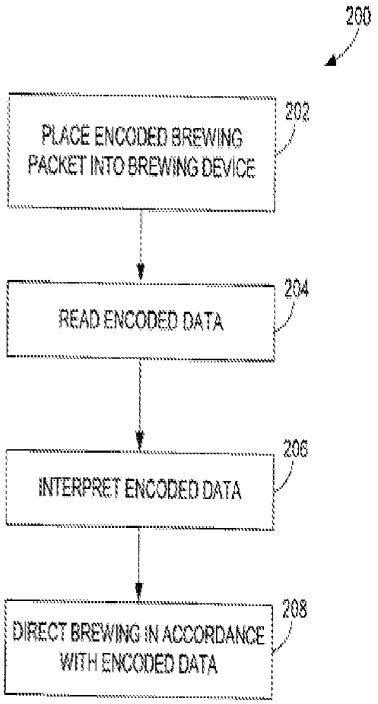
U.S. Patent No. 10,870,531	Disclosure
	Boyd at Fig. 4:  FIG. 4 *See also* Boyd at Claims 1-25.
[1.a] providing an apparatus including a barcode reader,	Boyd discloses, either expressly or inherently, providing an apparatus including a barcode reader. *See, e.g.*: Boyd at [0006]:

U.S. Patent No. 10,870,531	Disclosure
	A brewing packet is provided for use in the preparation of hot or cold beverages. The brewing packet envel-ops a brewing ingredient chosen according to the tastes of a beverage drinker. The packet includes a machine interpretable feature that contains encoded data capable of being read by a beverage producing device. Furthermore, the data on the packet may be capable of directing the beverage producing device to employ a specific brewing operation suited for the particular brewing packet. This allows for producing the optimal beverage from the brewing ingredient. The packet may be utilized with a variety of brewing ingredients to produce a variety of beverages. Similarly, the packet may be configured to produce single or multiple servings of a beverage. Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is passed through the filter capsule to produce an espresso beverage. The subject matter of each of these patents is incorporated herein by this reference. The invention also may be practiced in connection with espresso machines such as those disclosed in U.S. Pat. Nos. 4,253,385, 4,254,694, 4,353,293, 4,429,623, 4,484, 515, 4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference. While the aforementioned machines generally are described for use in connection with espresso packets which contain a single serving of espresso, it will be appreciated that the present invention considers application of the relevant principles to machines which employ coffee packets for use in brewing multiple cups, which employ coffee packets of various size

U.S. Patent No. 10,870,531	Disclosure
	and shape, which employ various filter media and which contain coffee of various varieties, roasts, and grinds. Furthermore, the packet and methodology described herein may also produce other types of beverages such as tea, cider, and/or any beverage which is produced by mixing various ingredients. The packet and methodology is not limited to hot beverages and may be used to produce cold beverages. Boyd at [0023]: With the foregoing in mind, it will be appreciated that it would be desirable to automatically customize the brew operation based on particular characteristics of the packet, the characteristics of the coffee, and/or the tastes of the user, whether or not the user is aware of what changes in the brew operation will lead to the desired taste. The present invention provides a vehicle for such customization in the form of an encoded packet configured to provide the brewing machine with data useful in directing the brewing operation in accordance with packet or packet content characteristics and/or the user's tastes. Body at [0028]: As shown in FIG. 2, packet 10 includes a machine interpretable feature 30 which directs operation of the coffee machine in accordance with predefined brewing directives. In the first depicted embodiment, the machine interpretable feature is a barcode 31 as depicted in FIG. 2 and 2a. It will be understood that the machine interpretable feature may be any machine readable feature associated with packet 10. Boyd at [0030]: Machine interpretable feature 30, it will be appreciated, is capable of storing a significant amount of data, including specific brewing directives and/or packaging or ingredient characteristics. Examples of the types of brewing directives stored in machine interpretable feature 30 may include, for example, contact time, contact pattern, fluid volume, fluid temperature, fluid pressure, and/or fluid pass-through rate. The above brewing directives are all well known in the coffee brewing industry to affect the taste and quality of the coffee

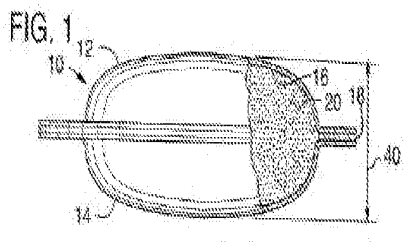
U.S. Patent No. 10,870,531	Disclosure
	beverage. Examples of ingredient characteristics which may be stored in machine interpretable feature 30 include grind, blend, roast, quantity, bed depth, freshness, and expiration date. These examples are meant to be exemplary, not limiting in scope. Boyd at [0032]-[0034]: Coffee machine 100 includes a sensor 130 designed to read machine interpretable feature 30 of packet 10. Sensor 130 is in turn operatively connected to a processor 140 which controls coffee machine 100. Machine interpretable feature 30 may store data which is read by sensor 130 and passed to processor 140. Processor 140 may then direct the brewing operation in accordance with its interpretation of the data derived from machine interpretable feature 30. For example, processor 140 may direct coffee machine 100 to brew using a pre-selected contact time, contact pattern, fluid quantity, fluid temperature, fluid pressure, and/or fluid pass-through rate expressed in machine interpretable feature 30. Alternatively, the processor may itself make determinations of contact time, contact pattern, fluid quantity, fluid temperature, fluid pressure, and/or fluid pass-through rate based on information contained in machine interpretable feature 30. The processor may also, based on information contained in machine interpretable feature 30, direct the coffee machine to add water, milk, cream, sugar, or any suitable condiment to the coffee beverage. As alluded to above, machine interpretable feature 30 need not store data specifically including brewing directives and ingredient characteristics. Instead machine interpretable feature 30 may act as an identifier so that brewing directives and ingredient characteristics may be looked up from data storage 150 within (or external to) coffee machine 100. Sensor 130 thus may read machine interpretable feature 30 and processor 140 may match the machine interpretable feature with predefined brewing operation instructions stored in such memory. Processor 140 may then direct the brewing operation based on brewing operation instructions. In one embodiment, the brewing operation instructions are matched to a machine interpretable feature using a look-up table in which brewing operation instructions correspond in a one-to-one ratio with each known ingredient variety, packet size, packet construction,

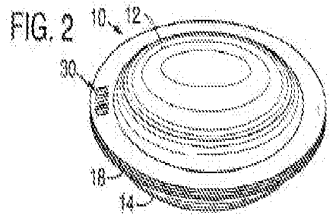
U.S. Patent No. 10,870,531	Disclosure
	user preference, etc. It will be appreciated, however, that other arrangements for matching machine interpretable feature 30 with brewing directives similarly may be used. Referring now to FIG. 4, a method of operation for the present invention is illustrated at 200. At 202, a brewing packet encoded with packet-characteristic data is placed into a brewing device. At 204, the packet-characteristic data is read by a sensor. At 206, the packet-characteristic data is interpreted by a processor. Finally, at 208, brewing is directed in accordance with the packet-characteristic data read by the sensor and interpreted by the processor. Boyd at Fig. 3: 

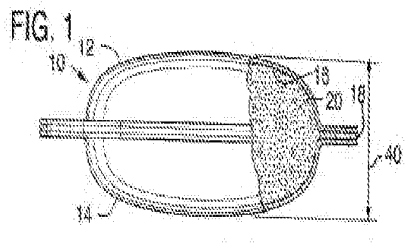
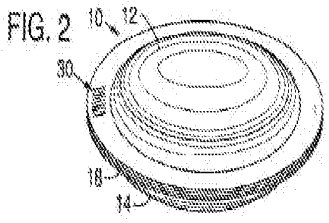
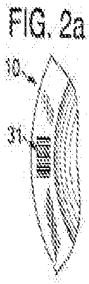
U.S. Patent No. 10,870,531	Disclosure
	Boyd at Fig. 4:  FIG. 4
[1.b] the apparatus including a pump adapted to supply heated water;	Boyd discloses, either expressly or inherently, the apparatus including a pump adapted to supply heated water. *See, e.g.*: Boyd at [0003]: Automated coffee machines have long been used for brewing coffee, both in large-scale commercial settings and in smaller business and home settings. These machines typically

U.S. Patent No. 10,870,531	Disclosure
	operate on the principle of placing a quantity of ground coffee into a filter, and passing hot water through the ground coffee to produce a coffee beverage. Boyd at [0006]: A brewing packet is provided for use in the preparation of hot or cold beverages. The brewing packet envelops a brewing ingredient chosen according to the tastes of a beverage drinker. The packet includes a machine interpretable feature that contains encoded data capable of being read by a beverage producing device. Furthermore, the data on the packet may be capable of directing the beverage producing device to employ a specific brewing operation suited for the particular brewing packet. This allows for producing the optimal beverage from the brewing ingredient. The packet may be utilized with a variety of brewing ingredients to produce a variety of beverages. Similarly, the packet may be configured to produce single or multiple servings of a beverage. Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is passed through the filter capsule to produce an espresso beverage. The subject matter of each of these patents is incorporated herein by this reference. The invention also may be practiced in connection with espresso machines such as those disclosed in U.S. Pat. Nos. 4,253,385, 4,254,694, 4,353,293, 4,429,623, 4,484, 515, 4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference.

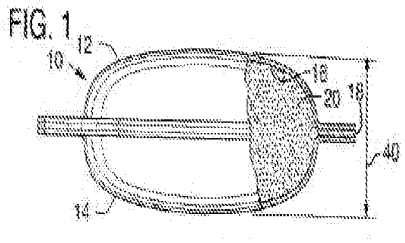
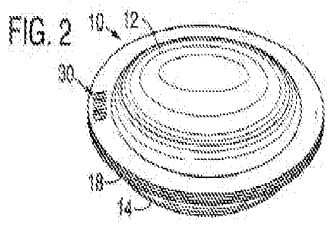
U.S. Patent No. 10,870,531	Disclosure
	While the aforementioned machines generally are described for use in connection with espresso packets which contain a single serving of espresso, it will be appreciated that the present invention considers application of the relevant principles to machines which employ coffee packets for use in brewing multiple cups, which employ coffee packets of various size and shape, which employ various filter media and which contain coffee of various varieties, roasts, and grinds. Furthermore, the packet and methodology described herein may also produce other types of beverages such as tea, cider, and/or any beverage which is produced by mixing various ingredients. The packet and methodology is not limited to hot beverages and may be used to produce cold beverages. Boyd at [0024]: Focusing now particularly on the invented encoded coffee packet, it will be appreciated that such packet typically takes the form of a coffee-filled packet configured for placement in a fluid path of a coffee machine whereby hot water (or steam) flows through the packet to produce a coffee beverage. An exemplary packet is depicted in FIGS. 1-3, such packet being indicated generally at 10.
[1.c] inserting the portion capsule into the apparatus, the portion capsule including a foil lid sealed to a base element having a cavity in which a beverage raw material is provided,	Boyd discloses, either expressly or inherently, inserting the portion capsule into the apparatus, the portion capsule including a foil lid sealed to a base element having a cavity in which a beverage raw material is provided. *See, e.g.*: Boyd at [0006]: A brewing packet is provided for use in the preparation of hot or cold beverages. The brewing packet envelops a brewing ingredient chosen according to the tastes of a beverage drinker. The packet includes a machine interpretable feature that contains encoded data capable of being read by a beverage producing device. Furthermore, the data on the packet may be capable of directing the beverage producing device to employ a specific brewing operation suited for the particular brewing packet. This allows for producing the optimal beverage from the brewing ingredient. The packet may be utilized with a variety of brewing ingredients to

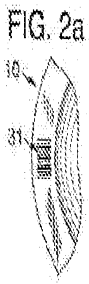
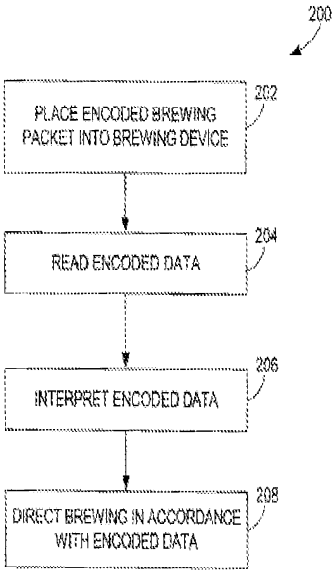
U.S. Patent No. 10,870,531	Disclosure
	produce a variety of beverages. Similarly, the packet may be configured to produce single or multiple servings of a beverage. Boyd at [0028]: As shown in FIG. 2, packet 10 includes a machine interpretable feature 30 which directs operation of the coffee machine in accordance with predefined brewing directives. In the first depicted embodiment, the machine interpretable feature is a barcode 31 as depicted in FIG. 2 and 2a. It will be understood that the machine interpretable feature may be any machine readable feature associated with packet 10. Boyd at [0034]: Referring now to FIG. 4, a method of operation for the present invention is illustrated at 200. At 202, a brewing packet encoded with packet-characteristic data is placed into a brewing device. At 204, the packet-characteristic data is read by a sensor. At 206, the packet-characteristic data is interpreted by a processor. Finally, at 208, brewing is directed in accordance with the packet-characteristic data read by the sensor and interpreted by the processor. Boyd at Fig. 1:  Boyd at Fig. 2:

U.S. Patent No. 10,870,531	Disclosure
	FIG. 2  Boyd at Fig. 2a: FIG. 2a  Boyd at Claims 1-25.
[1.d] the base element comprising a flange, the flange having a top side to which the foil lid is sealed.	Boyd discloses, either expressly or inherently, the base element comprising a flange, the flange having a top side to which the foil lid is sealed. *See, e.g.*: Boyd at [0027]: As indicated above, opposing filter portions 12 and 14 are secured together about their respective perimeters to form cavity 16. In the depicted embodiment, the filter portions are secured to an orbicular gasket 18. The gasket is deformable to allow for an optimum seal. In an alternative embodiment, the packet may be integrally formed from a continuous filter in which no gasket is required. Although the depicted packet is circular, it will be appreciated that the cavity may take virtually any shape capable of containing coffee grounds. The size

U.S. Patent No. 10,870,531	Disclosure
	and bed depth 40 of the packet is determined by the quantity of coffee grounds, the density of coffee grounds, and the desired coffee beverage taste. Boyd at Fig. 1:  Boyd at Fig. 2:  Boyd at Fig. 2a: 

U.S. Patent No. 10,870,531	Disclosure
	Boyd at Claim 3.
[1.e] and an opposing bottom side with a barcode located on the bottom side,	Boyd discloses, either expressly or inherently, an opposing bottom side with a barcode located on the bottom side. *See, e.g.*: Boyd at [0023]: With the foregoing in mind, it will be appreciated that it would be desirable to automatically customize the brew operation based on particular characteristics of the packet, the characteristics of the coffee, and/or the tastes of the user, whether or not the user is aware of what changes in the brew operation will lead to the desired taste. The present invention provides a vehicle for such customization in the form of an encoded packet configured to provide the brewing machine with data useful in directing the brewing operation in accordance with packet or packet content characteristics and/or the user's tastes. Boyd at [0028]: As shown in FIG. 2, packet 10 includes a machine interpretable feature 30 which directs operation of the coffee machine in accordance with predefined brewing directives. In the first depicted embodiment, the machine interpretable feature is a barcode 31 as depicted in FIG. 2 and 2a. It will be understood that the machine interpretable feature may be any machine readable feature associated with packet 10. Boyd at [0034]: Referring now to FIG. 4, a method of operation for the present invention is illustrated at 200. At 202, a brewing packet encoded with packet-characteristic data is placed into a brewing device. At 204, the packet-characteristic data is read by a sensor. At 206, the packet-characteristic data is interpreted by a processor. Finally, at 208, brewing is directed in accordance with the packet-characteristic data read by the sensor and interpreted by the processor.

U.S. Patent No. 10,870,531	Disclosure
	Boyd at [0037]: The encoded packets also may be used to track brewing information which may be useful in ensuring satisfaction with the brewed coffee beverage. For example, the packet may include an encoded date for use in tracking freshness of the coffee grounds contained within the packet. Upon determining that the packet is stale, the processor may direct the machine to note such staleness, thus avoiding an unsatisfactory beverage. Similarly, the packet may contain encoded data related to the coffee blend contained within the packet, such data being stored in memory to provide a history of coffee blends. The encoded packet also may contain encoded data defining the source of the packet so as to prohibit use of counterfeit packets, or packets from unauthorized suppliers. Boyd at Fig. 1:  Boyd at Fig. 2: 

U.S. Patent No. 10,870,531	Disclosure
	Boyd at Fig. 2a:  Boyd at Fig. 4:  FIG. 4 Boyd at Claims 1-25.

K-FEE SYSTEM GMBH, EX2012, page 1455
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
[1.f] the base element has a wall region with an electrically conductive section	Boyd discloses, either expressly or inherently, the base element has a wall region with an electrically conductive section. *See, e.g.*: Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is passed through the filter capsule to produce an espresso beverage. The subject matter of each of these patents is incorporated herein by this reference. The invention also may be practiced in connection with espresso machines such as those disclosed in U.S. Pat. Nos. 4,253,385, 4,254,694, 4,353,293, 4,429,623, 4,484, 515, 4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference. While the aforementioned machines generally are described for use in connection with espresso packets which contain a single serving of espresso, it will be appreciated that the present invention considers application of the relevant principles to machines which employ coffee packets for use in brewing multiple cups, which employ coffee packets of various size and shape, which employ various filter media and which contain coffee of various varieties, roasts, and grinds. Furthermore, the packet and methodology described herein may also produce other types of beverages such as tea, cider, and/or any beverage which is produced by mixing various ingredients. The packet and methodology is not limited to hot beverages and may be used to produce cold beverages. Boyd at [0026]:

U.S. Patent No. 10,870,531	Disclosure
	Typically, the filter takes the form of opposing, water-permeable paper sheets, as indicated, but the filter may be formed of stainless steel, or some other filter material configured to define a cavity for containment of coffee grounds while water and brewed coffee beverage pass therethrough. It is desirable, however, that the filter impart no undesirable taste characteristics to the resulting coffee beverage.
[1.g] and radially spaced and vertically oriented grooves,	Boyd discloses, either expressly or inherently, radially spaced and vertically oriented grooves. *See, e.g.*: Boyd at [0015]: FIG. 2 g is a fragmentary view of an alternative embodiment packet, illustrating encoded data in the form of grooves. Boyd at [0029]: Examples of alternative embodiments are depicted in FIGS. 2 b through 2 h. In FIG. 2b the feature is geometric shape 32. The shape may be raised or lowered and may, or may not incorporate color, or some other machine-interpretably characteristic. FIG. 2c shows text string 33. The text string may consist of alpha-numeric characters and may be of various lengths including a single character. FIG. 2d shows glyph 34. The glyph may be any symbolic figure including a symbol used as a trademark. A digital watermark 35 is depicted in FIG. 2e. FIG. 2f shows notches 36. The notches may be localized to a particular area of the packet or may span its entire perimeter in singular or repetitive fashion. Grooves 37 are depicted in FIG. 2g. One or more grooves may be incorporated to create a texture. FIG. 2h shows holes. One or more holes may be used, which holes may be, of various shapes and sizes. The above-noted machine interpretable features; or other machine interpretable features, may similarly may be employed in combination or alone, such features being selected for their ability to store brewing directives and packet and/or ingredient-characteristic data, and for their cost of

U.S. Patent No. 10,870,531	Disclosure
	manufacture, aesthetic appearance, and ability to carry machine interpretal features which are capable of being successfully detected, read, and interpreted. Boyd at Fig. 2g: 
[1.h] the cavity has radially spaced and vertically oriented ribs,	
[1.i] the portion capsule being free of a filter,	
[1.j] the base element and/or the lid are made of metal;	Boyd discloses, either expressly or inherently, the base element and/or the lid are made of metal. Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is passed through the filter

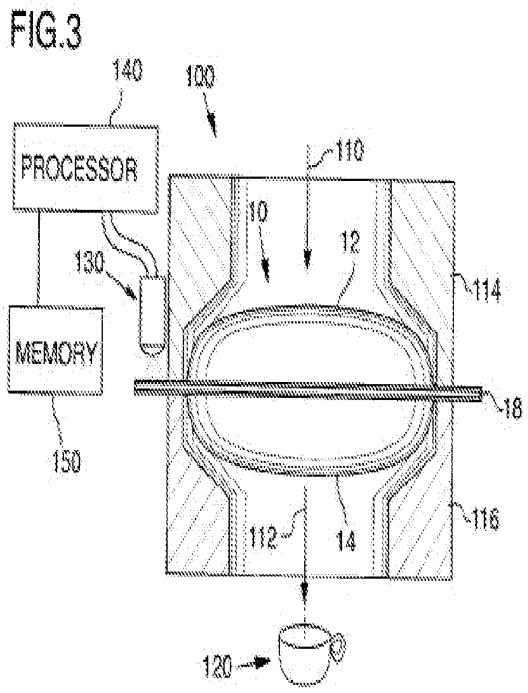
U.S. Patent No. 10,870,531	Disclosure
	capsule to produce an espresso beverage. The subject matter of each of these patents is incorporated herein by this reference. The invention also may be practiced in connection with espresso machines such as those disclosed in U.S. Pat. Nos. 4,253,385, 4,254,694, 4,353,293, 4,429,623, 4,484, 515, 4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference. While the aforementioned machines generally are described for use in connection with espresso packets which contain a single serving of espresso, it will be appreciated that the present invention considers application of the relevant principles to machines which employ coffee packets for use in brewing multiple cups, which employ coffee packets of various size and shape, which employ various filter media and which contain coffee of various varieties, roasts, and grinds. Furthermore, the packet and methodology described herein may also produce other types of beverages such as tea, cider, and/or any beverage which is produced by mixing various ingredients. The packet and methodology is not limited to hot beverages and may be used to produce cold beverages. *See also* [1].
[1.k] piercing the foil lid;	Boyd discloses, either expressly or inherently, piercing the foil lid. *See, e.g.*: Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is passed through the filter

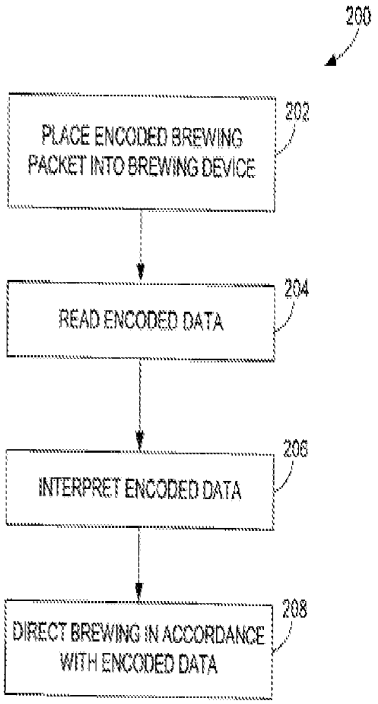
U.S. Patent No. 10,870,531	Disclosure
	capsule to produce an espresso beverage. The subject matter of each of these patents is incorporated herein by this reference. The invention also may be practiced in connection with espresso machines such as those disclosed in U.S. Pat. Nos. 4,253,385, 4,254,694, 4,353,293, 4,429,623, 4,484, 515, 4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference. While the aforementioned machines generally are described for use in connection with espresso packets which contain a single serving of espresso, it will be appreciated that the present invention considers application of the relevant principles to machines which employ coffee packets for use in brewing multiple cups, which employ coffee packets of various size and shape, which employ various filter media and which contain coffee of various varieties, roasts, and grinds. Furthermore, the packet and methodology described herein may also produce other types of beverages such as tea, cider, and/or any beverage which is produced by mixing various ingredients. The packet and methodology is not limited to hot beverages and may be used to produce cold beverages.
[1.l] reading the barcode with the barcode reader;	Boyd discloses, either expressly or inherently, reading the barcode with the barcode reader. *See, e.g.*: Boyd at [0006]: A brewing packet is provided for use in the preparation of hot or cold beverages. The brewing packet envel-ops a brewing ingredient chosen according to the tastes of a beverage drinker. The packet includes a machine interpretable feature that contains encoded data capable of being read by a beverage producing device. Furthermore, the data on the packet may be capable of directing the beverage producing device to employ a specific brewing operation suited for the particular brewing packet. This allows for producing the optimal beverage from

U.S. Patent No. 10,870,531	Disclosure
	the brewing ingredient. The packet may be utilized with a variety of brewing ingredients to produce a variety of beverages. Similarly, the packet may be configured to produce single or multiple servings of a beverage. Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is passed through the filter capsule to produce an espresso beverage. The subject matter of each of these patents is incorporated herein by this reference. The invention also may be practiced in connection with espresso machines such as those disclosed in U.S. Pat. Nos. 4,253,385, 4,254,694, 4,353,293, 4,429,623, 4,484, 515, 4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference. While the aforementioned machines generally are described for use in connection with espresso packets which contain a single serving of espresso, it will be appreciated that the present invention considers application of the relevant principles to machines which employ coffee packets for use in brewing multiple cups, which employ coffee packets of various size and shape, which employ various filter media and which contain coffee of various varieties, roasts, and grinds. Furthermore, the packet and methodology described herein may also produce other types of beverages such as tea, cider, and/or any beverage which is produced by mixing various ingredients. The packet and methodology is not limited to hot beverages and may be used to produce cold beverages.

U.S. Patent No. 10,870,531	Disclosure
	Boyd at [0023]: With the foregoing in mind, it will be appreciated that it would be desirable to automatically customize the brew operation based on particular characteristics of the packet, the characteristics of the coffee, and/or the tastes of the user, whether or not the user is aware of what changes in the brew operation will lead to the desired taste. The present invention provides a vehicle for such customization in the form of an encoded packet configured to provide the brewing machine with data useful in directing the brewing operation in accordance with packet or packet content characteristics and/or the user's tastes. Body at [0028]: As shown in FIG. 2, packet 10 includes a machine interpretable feature 30 which directs operation of the coffee machine in accordance with predefined brewing directives. In the first depicted embodiment, the machine interpretable feature is a barcode 31 as depicted in FIG. 2 and 2a. It will be understood that the machine interpretable feature may be any machine readable feature associated with packet 10. Boyd at [0030]: Machine interpretable feature 30, it will be appreciated, is capable of storing a significant amount of data, including specific brewing directives and/or packaging or ingredient characteristics. Examples of the types of brewing directives stored in machine interpretable feature 30 may include, for example, contact time, contact pattern, fluid volume, fluid temperature, fluid pressure, and/or fluid pass-through rate. The above brewing directives are all well known in the coffee brewing industry to affect the taste and quality of the coffee beverage. Examples of ingredient characteristics which may be stored in machine interpretable feature 30 include grind, blend, roast, quantity, bed depth, freshness, and expiration date. These examples are meant to be exemplary, not limiting in scope. Boyd at [0032]-[0034]:

U.S. Patent No. 10,870,531	Disclosure
	Coffee machine 100 includes a sensor 130 designed to read machine interpretable feature 30 of packet 10. Sensor 130 is in turn operatively connected to a processor 140 which controls coffee machine 100. Machine interpretable feature 30 may store data which is read by sensor 130 and passed to processor 140. Processor 140 may then direct the brewing operation in accordance with its interpretation of the data derived from machine interpretable feature 30. For example, processor 140 may direct coffee machine 100 to brew using a pre-selected contact time, contact pattern, fluid quantity, fluid temperature, fluid pressure, and/or fluid pass-through rate expressed in machine interpretable feature 30. Alternatively, the processor may itself make determinations of contact time, contact pattern, fluid quantity, fluid temperature, fluid pressure, and/or fluid pass-through rate based on information contained in machine interpretable feature 30. The processor may also, based on information contained in machine interpretable feature 30, direct the coffee machine to add water, milk, cream, sugar, or any suitable condiment to the coffee beverage. As alluded to above, machine interpretable feature 30 need not store data specifically including brewing directives and ingredient characteristics. Instead machine interpretable feature 30 may act as an identifier so that brewing directives and ingredient characteristics may be looked up from data storage 150 within (or external to) coffee machine 100. Sensor 130 thus may read machine interpretable feature 30 and processor 140 may match the machine interpretable feature with predefined brewing operation instructions stored in such memory. Processor 140 may then direct the brewing operation based on brewing operation instructions. In one embodiment, the brewing operation instructions are matched to a machine interpretable feature using a look-up table in which brewing operation instructions correspond in a one-to-one ratio with each known ingredient variety, packet size, packet construction, user preference, etc. It will be appreciated, however, that other arrangements for matching machine interpretable feature 30 with brewing directives similarly may be used. Referring now to FIG. 4, a method of operation for the present invention is illustrated at 200. At 202, a brewing packet encoded with packet-characteristic data is placed into a brewing device. At 204, the packet-characteristic data is read by a sensor. At 206, the packet-characteristic data is interpreted by a processor. Finally, at 208, brewing is directed in

U.S. Patent No. 10,870,531	Disclosure
	accordance with the packet-characteristic data read by the sensor and interpreted by the processor. Boyd at Fig. 3: 

U.S. Patent No. 10,870,531	Disclosure
	Boyd at Fig. 4:  FIG. 4
[1.m] determining whether the read barcode agrees with a stored reference; and activating the pump to push heated water into the portion capsule only upon a determination that the read barcode agrees with the stored reference.	Boyd discloses, either expressly or inherently, determining whether the read barcode agrees with a stored reference; and activating the pump to push heated water into the portion capsule only upon a determination that the read barcode agrees with the stored reference. *See, e.g.*: Boyd at [0006]: A brewing packet is provided for use in the preparation of hot or cold beverages. The brewing packet envelops a brewing ingredient chosen according to the tastes of a beverage drinker.

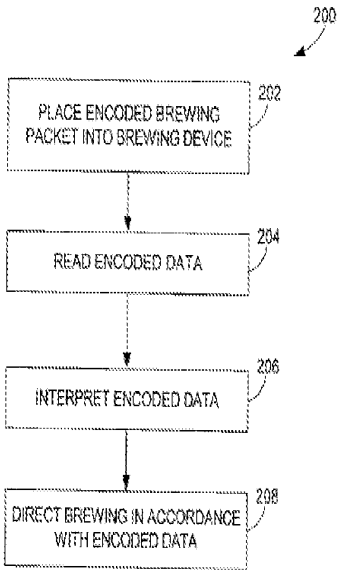
K-FEE SYSTEM GMBH, EX2012, page 1465
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
	The packet includes a machine interpretable feature that contains encoded data capable of being read by a beverage producing device. Furthermore, the data on the packet may be capable of directing the beverage producing device to employ a specific brewing operation suited for the particular brewing packet. This allows for producing the optimal beverage from the brewing ingredient. The packet may be utilized with a variety of brewing ingredients to produce a variety of beverages. Similarly, the packet may be configured to produce single or multiple servings of a beverage. Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is passed through the filter capsule to produce an espresso beverage. The subject matter of each of these patents is incorporated herein by this reference. The invention also may be practiced in connection with espresso machines such as those disclosed in U.S. Pat. Nos. 4,253,385, 4,254,694, 4,353,293, 4,429,623, 4,484, 515, 4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference. While the aforementioned machines generally are described for use in connection with espresso packets which contain a single serving of espresso, it will be appreciated that the present invention considers application of the relevant principles to machines which employ coffee packets for use in brewing multiple cups, which employ coffee packets of various size and shape, which employ various filter media and which contain coffee of various varieties, roasts, and grinds. Furthermore, the packet and methodology described herein may also

U.S. Patent No. 10,870,531	Disclosure
	produce other types of beverages such as tea, cider, and/or any beverage which is produced by mixing various ingredients. The packet and methodology is not limited to hot beverages and may be used to produce cold beverages. Boyd at [0023]: With the foregoing in mind, it will be appreciated that it would be desirable to automatically customize the brew operation based on particular characteristics of the packet, the characteristics of the coffee, and/or the tastes of the user, whether or not the user is aware of what changes in the brew operation will lead to the desired taste. The present invention provides a vehicle for such customization in the form of an encoded packet configured to provide the brewing machine with data useful in directing the brewing operation in accordance with packet or packet content characteristics and/or the user's tastes. Body at [0028]: As shown in FIG. 2, packet 10 includes a machine interpretable feature 30 which directs operation of the coffee machine in accordance with predefined brewing directives. In the first depicted embodiment, the machine interpretable feature is a barcode 31 as depicted in FIG. 2 and 2a. It will be understood that the machine interpretable feature may be any machine readable feature associated with packet 10. Boyd at [0030]: Machine interpretable feature 30, it will be appreciated, is capable of storing a significant amount of data, including specific brewing directives and/or packaging or ingredient characteristics. Examples of the types of brewing directives stored in machine interpretable feature 30 may include, for example, contact time, contact pattern, fluid volume, fluid temperature, fluid pressure, and/or fluid pass-through rate. The above brewing directives are all well known in the coffee brewing industry to affect the taste and quality of the coffee beverage. Examples of ingredient characteristics which may be stored in machine

U.S. Patent No. 10,870,531	Disclosure
	interpretable feature 30 include grind, blend, roast, quantity, bed depth, freshness, and expiration date. These examples are meant to be exemplary, not limiting in scope. Boyd at [0032]-[0037]: Coffee machine 100 includes a sensor 130 designed to read machine interpretable feature 30 of packet 10. Sensor 130 is in turn operatively connected to a processor 140 which controls coffee machine 100. Machine interpretable feature 30 may store data which is read by sensor 130 and passed to processor 140. Processor 140 may then direct the brewing operation in accordance with its interpretation of the data derived from machine interpretable feature 30. For example, processor 140 may direct coffee machine 100 to brew using a pre-selected contact time, contact pattern, fluid quantity, fluid temperature, fluid pressure, and/or fluid pass-through rate expressed in machine interpretable feature 30. Alternatively, the processor may itself make determinations of contact time, contact pattern, fluid quantity, fluid temperature, fluid pressure, and/or fluid pass-through rate based on information contained in machine interpretable feature 30. The processor may also, based on information contained in machine interpretable feature 30, direct the coffee machine to add water, milk, cream, sugar, or any suitable condiment to the coffee beverage. As alluded to above, machine interpretable feature 30 need not store data specifically including brewing directives and ingredient characteristics. Instead machine interpretable feature 30 may act as an identifier so that brewing directives and ingredient characteristics may be looked up from data storage 150 within (or external to) coffee machine 100. Sensor 130 thus may read machine interpretable feature 30 and processor 140 may match the machine interpretable feature with predefined brewing operation instructions stored in such memory. Processor 140 may then direct the brewing operation based on brewing operation instructions. In one embodiment, the brewing operation instructions are matched to a machine interpretable feature using a look-up table in which brewing operation instructions correspond in a one-to-one ratio with each known ingredient variety, packet size, packet construction,

U.S. Patent No. 10,870,531	Disclosure
	user preference, etc. It will be appreciated, however, that other arrangements for matching machine interpretable feature 30 with brewing directives similarly may be used. Referring now to FIG. 4, a method of operation for the present invention is illustrated at 200. At 202, a brewing packet encoded with packet-characteristic data is placed into a brewing device. At 204, the packet-characteristic data is read by a sensor. At 206, the packet-characteristic data is interpreted by a processor. Finally, at 208, brewing is directed in accordance with the packet-characteristic data read by the sensor and interpreted by the processor. Because the processor may be employed to effect the aforementioned predefined brewing directives based on the machine interpretable feature associated with each packet. The brewing operation may be made consistent based on consistent machine interpretable features from packet to packet. Similarly, the brewing operation may be altered in accordance with desired brewing characteristics each time the packet is replaced. Particular brew characteristics thus may be controlled simply by selection of a packet with the desired encoded brewing directives (whether or not such directives are known to the coffee machine operator). Control of the brewing process thus may be handed off to the brewing professionals who produce the packets, rather than relying on untrained machine operators. This may be done without sacrificing variety in brew operation based on differing characteristics of the packet contents or consumer tastes. For example, a person desiring weaker coffee may purchase packets designated such in order to direct the machine to add water to the brewed coffee beverage in accordance with proper brewing procedure. This avoids problems associated with ill-advised attempts to dilute coffee by decreasing the quantity of coffee used, a change which may result in a corresponding change in bed depth, and thus in an undesirable change in coffee taste. The encoded packets also may be used to track brewing information which may be useful in ensuring satisfaction with the brewed coffee beverage. For example, the packet may include an encoded date for use in tracking freshness of the coffee grounds contained within the

U.S. Patent No. 10,870,531	Disclosure
	packet. Upon determining that the packet is stale, the processor may direct the machine to note such staleness, thus avoiding an unsatisfactory beverage. Similarly, the packet may contain encoded data related to the coffee blend contained within the packet, such data being stored in memory to provide a history of coffee blends. The encoded packet also may contain encoded data defining the source of the packet so as to prohibit use of counterfeit packets, or packets from unauthorized suppliers. Boyd at Fig. 4:  FIG. 4

U.S. Patent No. 10,870,531	Disclosure
2. The method according to claim 1, wherein the method comprises not activating the pump to push the heated water into the portion capsule upon a determination that the read barcode does not agree with the stored reference.	Boyd discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises not activating the pump to push the heated water into the portion capsule upon a determination that the read barcode does not agree with the stored reference. *See, e.g.*: *See* [1.m]. *See also* [1].
3. The method according to claim 1, wherein the method comprises engaging the portion capsule with a pair of holding arms, and wherein the base element and/or the foil lid are made of aluminum.	Boyd discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises engaging the portion capsule with a pair of holding arms, and wherein the base element and/or the foil lid are made of aluminum. *See, e.g.*: Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is passed through the filter capsule to produce an espresso beverage. The subject matter of each of these patents is incorporated herein by this reference. The invention also may be practiced in connection with espresso machines such as those disclosed in U.S. Pat. Nos. 4,253,385, 4,254,694, 4,353,293, 4,429,623, 4,484, 515, 4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference.

U.S. Patent No. 10,870,531	Disclosure
	While the aforementioned machines generally are described for use in connection with espresso packets which contain a single serving of espresso, it will be appreciated that the present invention considers application of the relevant principles to machines which employ coffee packets for use in brewing multiple cups, which employ coffee packets of various size and shape, which employ various filter media and which contain coffee of various varieties, roasts, and grinds. Furthermore, the packet and methodology described herein may also produce other types of beverages such as tea, cider, and/or any beverage which is produced by mixing various ingredients. The packet and methodology is not limited to hot beverages and may be used to produce cold beverages. *See also* [1].
5. The method according to claim 1, wherein the method comprises sealing a seal of the apparatus against the foil lid, and wherein the grooves are free from extending all the way into a region of the base element that is immediately adjacent to the flange.	Boyd discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises sealing a seal of the apparatus against the foil lid, and wherein the grooves are free from extending all the way into a region of the base element that is immediately adjacent to the flange. *See, e.g.*: Boyd at [0015]: FIG. 2 g is a fragmentary view of an alternative embodiment packet, illustrating encoded data in the form of grooves. Boyd at [0029]: Examples of alternative embodiments are depicted in FIGS. 2 b through 2 h. In FIG. 2b the feature is geometric shape 32. The shape may be raised or lowered and may, or may not incorporate color, or some other machine-interpretably characteristic. FIG. 2c shows text string 33. The text string may consist of alpha-numeric characters and may be of various lengths including a single character. FIG. 2d shows glyph 34. The glyph may be any symbolic figure including a symbol used as a trademark. A digital watermark 35 is depicted in FIG. 2e.

U.S. Patent No. 10,870,531	Disclosure
	FIG. 2f shows notches 36. The notches may be localized to a particular area of the packet or may span its entire perimeter in singular or repetitive fashion. Grooves 37 are depicted in FIG. 2g. One or more grooves may be incorporated to create a texture. FIG. 2h shows holes. One or more holes may be used, which holes may be, of various shapes and sizes. The above-noted machine interpretable features; or other machine interpretable features, may similarly may be employed in combination or alone, such features being selected for their ability to store brewing directives and packet and/or ingredient-characteristic data, and for their cost of manufacture, aesthetic appearance, and ability to carry machine interpretal features which are capable of being successfully detected, read, and interpreted. Boyd at Fig. 2g:  *See also* [1].
6. The method according to claim 1, wherein the method comprises introducing the heated water into the portion capsule along a central axis of the portion capsule.	Boyd discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises introducing the heated water into the portion capsule along a central axis of the portion capsule. *See, e.g.*: Boyd at [0003]:

U.S. Patent No. 10,870,531	Disclosure
	Automated coffee machines have long been used for brewing coffee, both in large-scale commercial settings and in smaller business and home settings. These machines typically operate on the principle of placing a quantity of ground coffee into a filter, and passing hot water through the ground coffee to produce a coffee beverage. Boyd at [0006]: A brewing packet is provided for use in the preparation of hot or cold beverages. The brewing packet envelops a brewing ingredient chosen according to the tastes of a beverage drinker. The packet includes a machine interpretable feature that contains encoded data capable of being read by a beverage producing device. Furthermore, the data on the packet may be capable of directing the beverage producing device to employ a specific brewing operation suited for the particular brewing packet. This allows for producing the optimal beverage from the brewing ingredient. The packet may be utilized with a variety of brewing ingredients to produce a variety of beverages. Similarly, the packet may be configured to produce single or multiple servings of a beverage. Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is passed through the filter capsule to produce an espresso beverage. The subject matter of each of these patents is incorporated herein by this reference. The invention also may be practiced in connection with espresso machines such as those disclosed in U.S. Pat. Nos. 4,253,385, 4,254,694, 4,353,293, 4,429,623, 4,484, 515, 4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through

U.S. Patent No. 10,870,531	Disclosure
	which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference. While the aforementioned machines generally are described for use in connection with espresso packets which contain a single serving of espresso, it will be appreciated that the present invention considers application of the relevant principles to machines which employ coffee packets for use in brewing multiple cups, which employ coffee packets of various size and shape, which employ various filter media and which contain coffee of various varieties, roasts, and grinds. Furthermore, the packet and methodology described herein may also produce other types of beverages such as tea, cider, and/or any beverage which is produced by mixing various ingredients. The packet and methodology is not limited to hot beverages and may be used to produce cold beverages. Boyd at [0024]: Focusing now particularly on the invented encoded coffee packet, it will be appreciated that such packet typically takes the form of a coffee-filled packet configured for placement in a fluid path of a coffee machine whereby hot water (or steam) flows through the packet to produce a coffee beverage. An exemplary packet is depicted in FIGS. 1-3, such packet being indicated generally at 10.
7. The method according to claim 1, wherein the method comprises piercing the foil lid in a region that is offset from a central axis of the portion capsule, and wherein the lid is crowned in a region of the central axis of the portion capsule relative to	Boyd discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises piercing the foil lid in a region that is offset from a central axis of the portion capsule, and wherein the lid is crowned in a region of the central axis of the portion capsule relative to a region of the lid adjacent to the flange. *See, e.g.*: Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to

U.S. Patent No. 10,870,531	Disclosure
a region of the lid adjacent to the flange.	Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is passed through the filter capsule to produce an espresso beverage. The subject matter of each of these patents is incorporated herein by this reference. The invention also may be practiced in connection with espresso machines such as those disclosed in U.S. Pat. Nos. 4,253,385, 4,254,694, 4,353,293, 4,429,623, 4,484, 515, 4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference. While the aforementioned machines generally are described for use in connection with espresso packets which contain a single serving of espresso, it will be appreciated that the present invention considers application of the relevant principles to machines which employ coffee packets for use in brewing multiple cups, which employ coffee packets of various size and shape, which employ various filter media and which contain coffee of various varieties, roasts, and grinds. Furthermore, the packet and methodology described herein may also produce other types of beverages such as tea, cider, and/or any beverage which is produced by mixing various ingredients. The packet and methodology is not limited to hot beverages and may be used to produce cold beverages. *See also* [1].
[8.pre] The method according to claim 1,	Boyd discloses, either expressly or inherently, the method according to claim 1. *See, e.g.*: *See* [1].

K-FEE SYSTEM GMBH, EX2012, page 1476
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
[8.a] wherein the method comprises controlling a production process of the beverage according to the read barcode,	Boyd discloses, either expressly or inherently, wherein the method comprises controlling a production process of the beverage according to the read barcode. *See, e.g.*: *See* [1.m].
[8.b] and wherein the wall comprises an upper section and a lower section, the upper section is located adjacent to the flange, and the lower section is located in between the upper section and a bottom of the base element,	
[8.c] wherein the upper section comprises a circumferential border and the wall of the lower section is angled, with respect to the upper section, and is tapered towards a bottom of the base element.	
[10.pre] A method of using a portion capsule for making a coffee beverage, the method comprising:	Boyd discloses, either expressly or inherently, a method of using a portion capsule for making a coffee beverage. *See, e.g.*: *See* [1].
[10.a] providing an apparatus including a barcode reader, the apparatus having a pump and being adapted to supply heated water;	Boyd discloses, either expressly or inherently, providing an apparatus including a barcode reader. *See, e.g.*: *See* [1.a].

K-FEE SYSTEM GMBH, EX2012, page 1477
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
[10.b] the apparatus having a pump and being adapted to supply heated water;	Boyd discloses, either expressly or inherently, the apparatus having a pump and being adapted to supply heated water. *See, e.g.*: *See* [1.b].
[10.c] inserting the portion capsule into the apparatus, the portion capsule including a foil lid sealed to a base element having a cavity within which a powdered coffee material is located,	Boyd discloses, either expressly or inherently, inserting the portion capsule into the apparatus, the portion capsule including a foil lid sealed to a base element having a cavity within which a powdered coffee material is located. *See, e.g.*: *See* [1.c].
[10.d] the base element including a circumferential flange having a top side	Boyd discloses, either expressly or inherently, the base element including a circumferential flange having a top side. *See, e.g.*: *See* [1.d].
[10.e] and a bottom side with a barcode located on the bottom side,	Boyd discloses, either expressly or inherently, a bottom side with a barcode located on the bottom side. *See, e.g.*: *See* [1.e].
[10.f] the portion capsule being free of a filter	Boyd discloses, either expressly or inherently, the portion capsule being free of a filter. *See, e.g.*: *See* [1.i].
[10.g] and comprising a plurality of ribs that are radially spaced, vertically oriented and extend toward a central portion of the cavity, wherein an outer surface of the base	Boyd discloses, either expressly or inherently, a plurality of ribs that are radially spaced, vertically oriented and extend toward a central portion of the cavity, wherein an outer surface of the base element comprises radially spaced and vertically oriented grooves. *See, e.g.*:

U.S. Patent No. 10,870,531	Disclosure
element comprises radially spaced and vertically oriented grooves;	*See* [1.g] and [1.h].
[10.h] piercing the foil lid;	Boyd discloses, either expressly or inherently, piercing the foil lid. *See, e.g.*: *See* [1.k].
[10.i] reading the barcode with the barcode reader; and	Boyd discloses, either expressly or inherently, .reading the barcode with the barcode reader. *See, e.g.*: *See* [1.l].
[10.j] activating the pump to introduce the heated water into the portion capsule only upon a determination that the read barcode agrees with a stored reference, or not activating the pump upon a determination that the read barcode does not agree with the stored reference.	Boyd discloses, either expressly or inherently, activating the pump to introduce the heated water into the portion capsule only upon a determination that the read barcode agrees with a stored reference, or not activating the pump upon a determination that the read barcode does not agree with the stored reference. *See, e.g.*: *See* [1.m] and [2].
11. The method according to claim 10, wherein the method comprises engaging the portion capsule with a pair of holding arms, and wherein the base element comprises an electrically conductive section.	Boyd discloses, either expressly or inherently, the method according to claim 10, wherein the method comprises engaging the portion capsule with a pair of holding arms, and wherein the base element comprises an electrically conductive section. *See, e.g.*: *See* [1.f], [3].

K-FEE SYSTEM GMBH, EX2012, page 1479
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
[redacted]	
14. The method according to claim 10, wherein the method comprises dropping the portion capsule into a dropping box, wherein the base element and/or the lid are made of metal.	Boyd discloses, either expressly or inherently, the method according to claim 10, wherein the method comprises dropping the portion capsule into a dropping box, wherein the base element and/or the lid are made of metal. *See* [1.j].
[redacted]	
[16.pre] The method according to claim 10,	Boyd discloses, either expressly or inherently, the method according to claim 10. *See, e.g.*: *See* [10].
[16.a] wherein the method comprises sealing a seal of the apparatus against the foil lid	Boyd discloses, either expressly or inherently, wherein the method comprises sealing a seal of the apparatus against the foil lid. *See, e.g.*: *See* [5].
[16.b] wherein the wall comprises an upper section and a lower section, the upper section is located adjacent to the flange, and the lower section is located between the upper section and a bottom of the base element	
[16.c] wherein the upper section comprises a circumferential border and the wall of the lower section is angled, with respect to the upper	

K-FEE SYSTEM GMBH, EX2012, page 1480
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
section, and is tapered towards a bottom of the base element.	

K-FEE SYSTEM GMBH, EX2012, page 1481
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

Exhibit C-3 – Invalidity of U.S. Patent No. 10,870,531 in view of Denisart

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,531 in view of Denisart

According to its cover page, U.S. Pub. WO2010/026053A1 ("Denisart") was published on March 11, 2010. Denisart therefore constitutes prior art to the '531 Patent under pre-AIA 35 U.S.C. § 102(a). Denisart anticipates and/or renders obvious the Asserted Claims of the '531 Patent (at least as Nespresso understands K-fee's application of the Asserted Claims in an effort to show infringement).

To the extent K-fee argues that any element below is not disclosed by Denisart, a person of ordinary skill in the art would have found it obvious to combine the teachings of Denisart with the background knowledge of a person of ordinary skill in the art and/or the additional references, and exemplary teachings, set forth in Exhibits C-1 to C-9 and in Appendix C.

The chart below provides representative examples of where each element of each claim is found within Denisart. Citations are meant to be exemplary, not exhaustive, and Nespresso reserves the right to identify and discuss additional portions of the reference in support of its contentions and/or to rebut arguments made by K-fee. Citations to figures, drawings, tables, and the like include reference to any accompanying or related text. All internal cross references are meant to incorporate the cross-referenced material as if fully set forth therein.

It is Nespresso's position that K-fee's Infringement Contentions have not established that any accused product or service infringes any valid claim. Thus, Nespresso's statements below should not be treated as an admission, implication, or suggestion that Nespresso agrees with K-fee regarding either the scope, construction, or interpretation of any of the Asserted Claims, or the infringement theories advanced by K-fee in its Infringement Contentions, including whether any Asserted Claim satisfies 35 U.S.C. §§ 101 or 112. In certain cases, Nespresso specified non-limiting examples of where its application of the prior art is based on K-fee's apparent application of the claim element. These statements are not intended to suggest that Nespresso agrees with K-fee's application of any claim term, suggest a proposed construction at this stage of the case, or suggest that construction is needed, as the parties are not required to exchange terms for construction or proposed constructions until a later date.

K-fee has yet to identify any limitation of the Asserted Claims that it contends is not anticipated and/or rendered obvious by Denisart. Nespresso therefore expressly reserves the right to respond to any such contention, including by identifying additional obviousness combinations, if K-fee makes any such contention.

Where Nespresso states that Denisart "discloses" a limitation, that disclosure may be express, implicit, and/or inherent.

K-FEE SYSTEM GMBH, EX2012, page 1482
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

Exhibit C-3 – Invalidity of U.S. Patent No. 10,870,531 in view of Denisart

U.S. Patent No. 10,870,531	Disclosure
[1.pre] A method of using a portion capsule for producing a beverage, the method comprising:	Denisart discloses, either expressly or inherently, method of using a portion capsule for producing a beverage, the method comprising. *See, e.g.*: Denisart at Abstract: The present invention relates to a beverage production device for preparing a liquid comestible from a portioned food substance contained in a sealed capsule (3), comprising a centrifugal unit (2) for receiving the sealed capsule (3), driving means (5) connected to the centrifugal unit (2) for enabling a rotational motion of the centrifugal unit (2), liquid supply means (4,6,7) being connected to the centrifugal unit (2), means (8) for measuring the flow rate or the pressure of the supplied liquid and control means (9) for con trolling the rotational speed of the driving means dependent on the measured flow rate or the measured pressure of the liquid. Denisart at 1:9-15: The present invention relates to a device and a capsule system for preparing a liquid comestible from a food substance contained in a receptacle by passing liquid through the food substance using centrifugal forces. In particular, the invention relates to a device and a method for controlling the flow rate of a liquid during the beverage preparation. Denisart at 3:19-24: Based on the prior art, the present invention aims at providing a device and a method for allowing an efficient control of the strength of a liquid comestible such as a coffee or tea beverage in a centrifugal beverage production device which takes into account the flow attributes through the ingredients. Denisart at 20:29-21:10: In a third aspect, the present invention relates to a method for preparing a liquid comestible from a portioned food substance contained in a capsule or cell by passing liquid through the

K-FEE SYSTEM GMBH, EX2012, page 1483
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
	substance using centrifugal forces, comprising the steps of connecting the capsule or cell to a liquid supply, rotating the capsule or cell about its rotational axis to enable an interaction between the liquid and the portioned ingredients provided within the capsule, controlling the flow rate, or respectively the pressure, of liquid to match a flow rate reference, or respectively a pressure reference, by automatically adjusting the rotational speed of the driving means during the extraction phase of the beverage production depending on the measured flow rate, or respectively the measured pressure, of liquid. *See also* Denisart at Claims 17-19.
[1.a] providing an apparatus including a barcode reader,	Denisart discloses, either expressly or inherently, providing an apparatus including a barcode reader. *See, e.g.*: Denisart at Abstract: The present invention relates to a beverage production device for preparing a liquid comestible from a portioned food substance contained in a sealed capsule (3), comprising a centrifugal unit (2) for receiving the sealed capsule (3), driving means (5) connected to the centrifugal unit (2) for enabling a rotational motion of the centrifugal unit (2), liquid supply means (4,6,7) being connected to the centrifugal unit (2), means (8) for measuring the flow rate or the pressure of the supplied liquid and control means (9) for con trolling the rotational speed of the driving means dependent on the measured flow rate or the measured pressure of the liquid. Denisart at 1:9-15: The present invention relates to a device and a capsule system for preparing a liquid comestible from a food substance contained in a receptacle by passing liquid through the food substance using centrifugal forces. In particular, the invention relates to a device and a method for controlling the flow rate of a liquid during the beverage preparation.

U.S. Patent No. 10,870,531	Disclosure
	Denisart at 3:19-24: Based on the prior art, the present invention aims at providing a device and a method for allowing an efficient control of the strength of a liquid comestible such as a coffee or tea beverage in a centrifugal beverage production device which takes into account the flow attributes through the ingredients. Denisart at 4:11-29: In a first aspect, the present invention relates to a beverage production device for preparing a liquid comestible from a portioned food substance contained in a capsule or cell, comprising a centrifugal unit for receiving the capsule or cell, driving means connected to the centrifugal unit for enabling a rotational motion of the capsule or cell in the unit, liquid supply means being connected to the centrifugal unit to supply liquid in the capsule or cell, means for measuring the flow rate, or respectively the pressure, of the liquid, and a control unit for controlling the flow rate of liquid, or respectively the pressure of liquid, to match a flow rate reference, or respectively a pressure reference, in a control loop by automatically adjusting the rotational speed of the driving means during the extraction phase of the beverage production depending on the measured flow rate, or respectively the measured pressure, of the liquid. Denisart at 8:10-19: However, it may as well be possible that the strength and/or volume are set by identification means arranged within the device which interact with the capsule provided to the device. Such identifications means may be a barcode scanner for example which reads a barcode provided on an outside face of the capsule and which enables a detection of the type of capsule and/or the nature of ingredients provided within the capsule in order to apply a predefined extraction profile for the beverage to be prepared. Denisart at 9:21-33:

U.S. Patent No. 10,870,531	Disclosure
	The single-use capsule to be used with the present invention can be closed before use in a gas impervious manner to maintain freshness of the food ingredients housed therein. The capsule preferably contains a protective atmosphere for the ingredients such as inert gas. The capsule can be closed by a membrane which is pierced or peeled off during the beverage preparation process The capsule may comprise coding means such as a barcode for example which is read by the machine. Accordingly, corresponding parameters, such as for example the beverage strength, the beverage volume and/or the beverage crema or foam, can be adjusted by the control means. Denisart at 18:30-19:18: In a second aspect, the present invention relates to a system for producing a beverage from portioned ingredients provided within a capsule, the system comprising a beverage producing device having a centrifugal unit comprising at least two enclosing members for enclosing the capsule by a relative movement of the enclosing members, driving means connected to the centrifugal unit for enabling a rotational motion of the centrifugal unit, a liquid injection assembly designed to interact with the capsule provided to the device and connected to liquid supply means, means for measuring the flow rate, or respectively the pressure, of the liquid, control means for controlling the flow rate, or respectively the pressure, of liquid to match a flow rate reference, or respectively a pressure reference, in a control loop by automatically adjusting the rotational speed of the driving means during the extraction phase of the beverage production depending on the measured flow rate, or respectively the measured pressure, wherein the capsule is designed to be removably inserted into the centrifugal unit of the device. Denisart at Fig. 1:

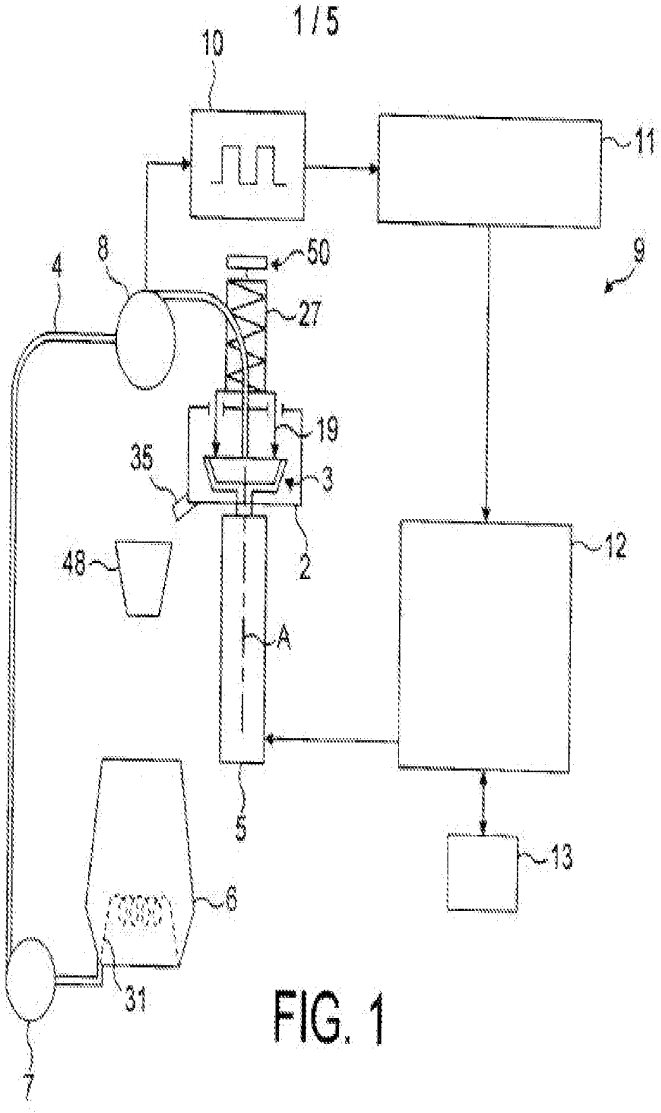
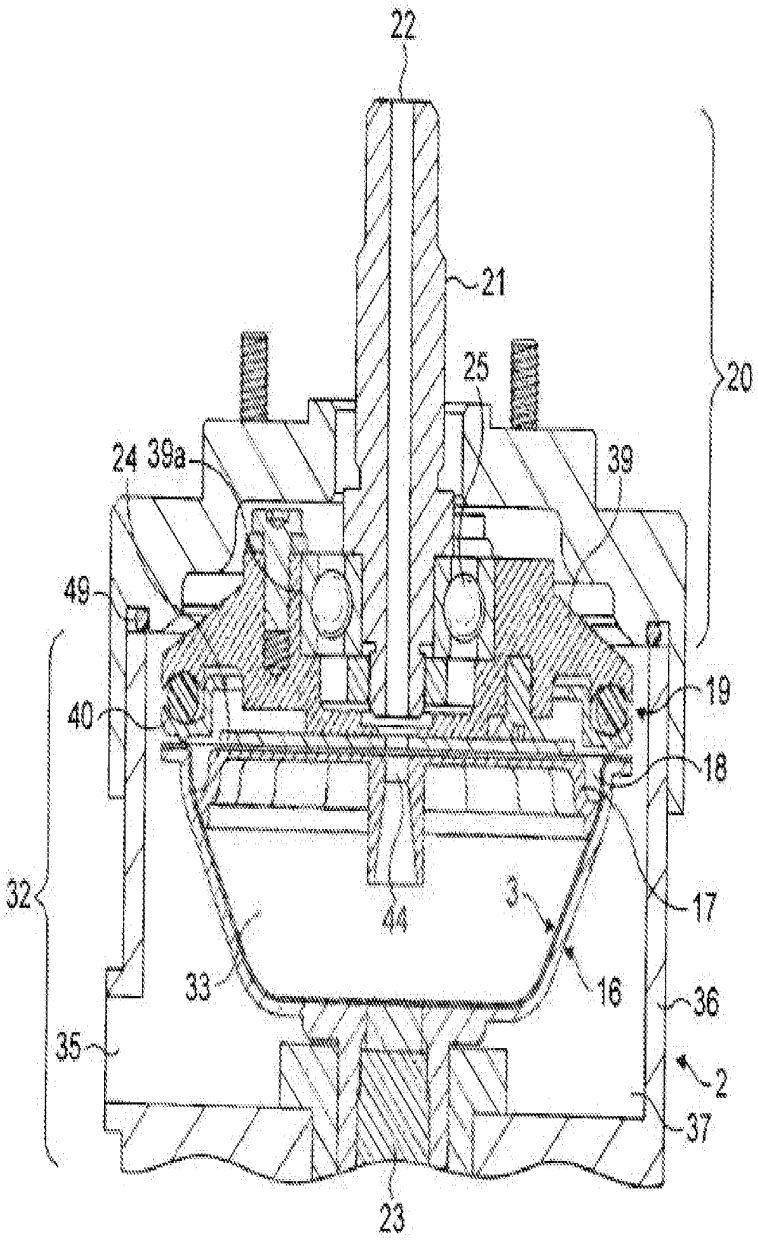
U.S. Patent No. 10,870,531	Disclosure
	 FIG. 1 Denisart at Fig. 3:

Exhibit C-3 – Invalidity of U.S. Patent No. 10,870,531 in view of Denisart

U.S. Patent No. 10,870,531	Disclosure
	

U.S. Patent No. 10,870,531	Disclosure
	See also Denisart at Claims 5-19.
[1.b] the apparatus including a pump adapted to supply heated water;	Denisart discloses, either expressly or inherently, the apparatus including a pump adapted to supply heated water. *See, e.g.*: Denisart at 5:14-25: One enclosing member is preferably equipped with a liquid injection assembly which enables the provision of liquid to the capsule enclosed within the centrifugal unit of the device. Preferably, the injection assembly is arranged centrically with respect to a rotational axis of the centrifugal unit. The injection assembly preferably comprises a tubular member for providing liquid to a central inlet port of the capsule. In a possible embodiment, the injection assembly comprises a piercing member designed to pierce the inlet port in a face of the capsule. The injection assembly is connected to the liquid supply means of the device. Denisart at 6:7-20: The liquid supply means of the device comprise a reservoir for storing liquid. Preferably, the reservoir is a boiler which comprises heating means in order to heat the liquid therein. However, the liquid supply means may as well comprise a liquid reservoir and an in-line heating element such as a thermoblock or an instant heater placed downstream of the reservoir in the fluid circuit. Moreover, the liquid supply means preferably comprise a pump for providing liquid from the reservoir to the injection assembly and thus, to the centrifugal unit of the device. The pump is preferably connected to the control means of the device. Denisart at 9:1-4:

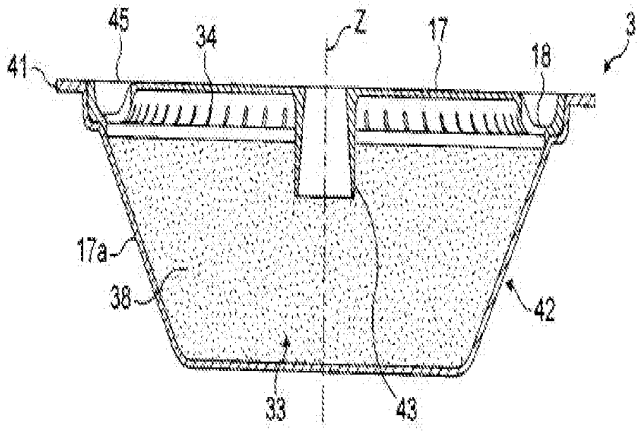
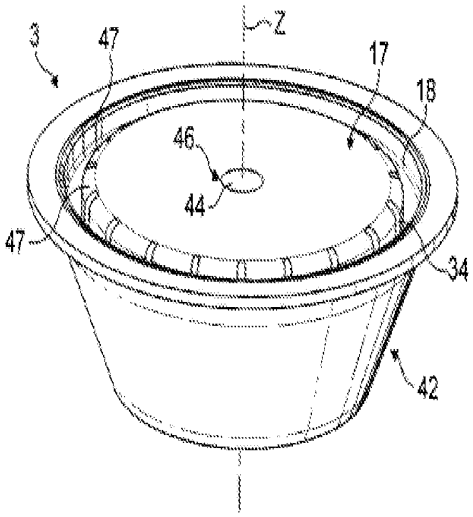
U.S. Patent No. 10,870,531	Disclosure
	During the extraction phase, a centrifugal cell which is placed within the centrifugal unit acts as a centrifugal pump by drawing liquid such as water from the liquid supply. Accordingly, the rotational speed of the motor Denisart at 10:9-26: The pump of the liquid supply means is set to supply a sufficient quantity of water during the beverage preparation cycle to the centrifugal cell whereas the rotational speed of the centrifugal cell actually regulates the flow rate of the dispensed liquid. The pump is preferably a low pressure pump such as a centrifugal pump or any other suitable low pressure pump. The contact time between the food ingredients and hot water contained in the capsule varies in inverse proportion to the water flow rate which circulates in the liquid supply circuit and thus, through the centrifugal cell. In general, for obtaining a higher concentration or strength of the beverage to be prepared, the water flow rate can be set at a relatively low value, whereas for obtaining a lighter concentration or strength of the beverage, the water flow rate is set at a relatively higher value. Denisart at 13:7-17: The pre-wetting phase of the extraction profile takes place at the beginning of the beverage preparation cycle. Thereby, liquid such as water is supplied to the centrifugal cell, i.e. the capsule, which is maintained static or is rotated at relatively low speed, preferably lower than 200 rpm, most preferably lower than 100 rpm. Accordingly, the pre-wetting phase enables a homogeneous wetting of the dry food ingredients, i.e., ground coffee, housed within the capsule. Hence, the compacting of dry ingredients and a resulting blockage during the beverage preparation cycle can be effectively prevented.

U.S. Patent No. 10,870,531	Disclosure
	Denisart at 23:25-32: The system further comprises liquid supply means which comprise a water reservoir 6 and a fluid circuit 4. The reservoir 6 preferably comprises water heating means 31 for heating the water contained within the reservoir 6. The heating means 31 may be a heating coil. The heating of the water may as well be obtained by a thermoblock in the fluid circuit 4 and placed downstream relatively to the water reservoir 6. Denisart at 27:23-27: At the beginning of the beverage preparation cycle, and after the user's selection, the centrifugal pump 7 is switched on by the controller 12 and thus, hot water is pumped from the reservoir 6 to the centrifugal cell 3 through the flow-metering turbine 8.
[1.c] inserting the portion capsule into the apparatus, the portion capsule including a foil lid sealed to a base element having a cavity in which a beverage raw material is provided,	Denisart discloses, either expressly or inherently, inserting the portion capsule into the apparatus, the portion capsule including a foil lid sealed to a base element having a cavity in which a beverage raw material is provided. *See, e.g.*: Denisart at Abstract: The present invention relates to a beverage production device for preparing a liquid comestible from a portioned food substance contained in a sealed capsule (3), comprising a centrifugal unit (2) for receiving the sealed capsule (3), driving means (5) connected to the centrifugal unit (2) for enabling a rotational motion of the centrifugal unit (2), liquid supply means (4,6,7) being connected to the centrifugal unit (2), means (8) for measuring the flow rate or the pressure of the supplied liquid and control means (9) for con trolling the rotational speed of the driving means dependent on the measured flow rate or the measured pressure of the liquid. Denisart at 4:11-29:

U.S. Patent No. 10,870,531	Disclosure
	In a first aspect, the present invention relates to a beverage production device for preparing a liquid comestible from a portioned food substance contained in a capsule or cell, comprising a centrifugal unit for receiving the capsule or cell, driving means connected to the centrifugal unit for enabling a rotational motion of the capsule or cell in the unit, liquid supply means being connected to the centrifugal unit to supply liquid in the capsule or cell, means for measuring the flow rate, or respectively the pressure, of the liquid, and a control unit for controlling the flow rate of liquid, or respectively the pressure of liquid, to match a flow rate reference, or respectively a pressure reference, in a control loop by automatically adjusting the rotational speed of the driving means during the extraction phase of the beverage production depending on the measured flow rate, or respectively the measured pressure, of the liquid. Denisart at 5:7-12: In a preferred embodiment, the capsule is removably insertable into the centrifugal unit of the device. The centrifugal unit of the device preferably comprises two enclosing members which are movably arranged relatively to each other and which are designed to enclose the capsule within the device. Denisart at 5:27-31: A second enclosing member of the centrifugal unit is preferably a rotary drum which is of complementary shape to the capsule. Hence, a user may insert the capsule into said rotary drum which is held in the drum a stable manner. Denisart at 9:21-33: The single-use capsule to be used with the present invention can be closed before use in a gas impervious manner to maintain freshness of the food ingredients housed therein. The capsule preferably contains a protective atmosphere for the ingredients such as inert gas. The capsule can be closed by a membrane which is pierced or peeled off during the beverage preparation process. The capsule may comprise coding means such as a barcode for example which is

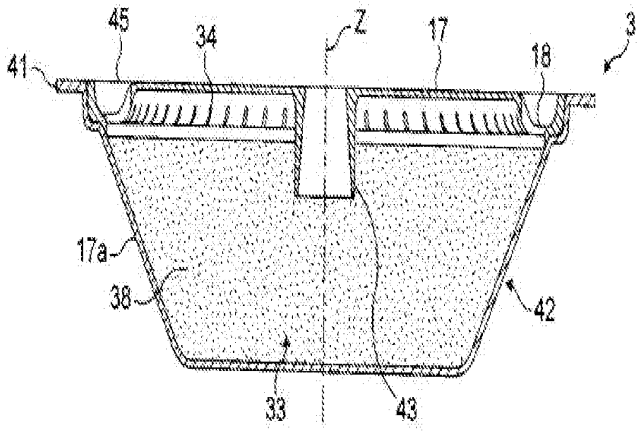
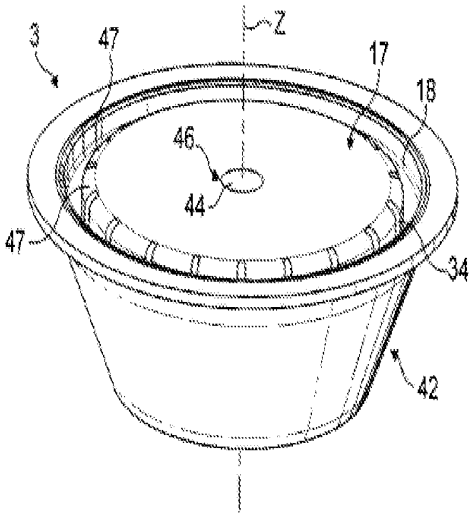
U.S. Patent No. 10,870,531	Disclosure
	read by the machine. Accordingly, corresponding parameters, such as for example the beverage strength, the beverage volume and/or the beverage crema or foam, can be adjusted by the control means. Denisart at 19:20-30: The capsule to be used with the device according to the present invention is preferably a single-use capsule sealed in a protective atmosphere before use. The capsule can have a rigid dished body and a lid, wherein the lid of the capsule comprises outlet openings arranged at a peripheral portion of the lid. In a possible alternative, the capsule can be capsule permeable to liquid and gas when inserted in the device such as a filter capsule. The capsule preferably contains ground coffee, soluble coffee, tea, cocoa, milk and combinations thereof. Denisart at 34:8-10: The capsule 3 to be used with the device or the system according to the present invention may be any of the capsules described in PCT/EP08/056310 (WO 2008/148646). Denisart at 34:11-27: The capsule 3 as shown in figure 3 is pre-opened before it is inserted in the device, i.e., a sealing foil arranged at an upper face of the capsule is removed by peeling, or a central hole is perforated in the foil of the capsule when the capsule is inserted in the device. The capsule 3 optionally comprises an inner member forming a lid 17 which is inserted in the dished body of the capsule. The lid 17 and body 42 delimit together an internal enclosure 33 for receiving a portioned food substance. The lid 17 comprises outlet openings 34 (see figure 4) at a peripheral section 47 of the lid 17 for filtering the beverage and maintaining the food

U.S. Patent No. 10,870,531	Disclosure
	(coffee) particles within the capsule 3 during the beverage preparation. Accordingly, only the liquid comestible to be prepared is discharged through the outlet openings 34. Denisart at 39:25-40:14: Figures 5 and 6 relate to a capsule which is preferably used with the device and system according to the present invention. However, it should be understood that the shown embodiment is just an exemplary embodiment and that the capsule according to the invention can take various different embodiments. The capsule 3 comprises a rigid dished body 42 which comprises an annular rim portion 41. The capsule is preferably design as being rotationally symmetric about central axis. Thereby, it should be noted that the capsule may not necessarily have a circular section around axis Z but may take another form such as a square, rectangle or a polygonal form. Thereby, axis Z is preferably aligned to the axis of rotation A when the capsule is inserted in the device. Moreover, the capsule 3 comprises a lid 17 which preferably has the form of a disc of plastic comprising a central portion 46 and a peripheral portion 47. The central portion 46 can be substantially flat and may comprise an inlet port 44 for enabling the fitting or introduction of a water injection member 21 of the beverage production device. Denisart at 40:31-41:7: The upper surface of the capsule 3 may be equipped with a foil 45 which enables sealing of the capsule 3. The foil preferably covers the lid 17 and is welded or adhesively connected onto the peripheral edge 41 of the body of the capsule. The foil can be permanently connected to the edge if the foil is intended to be pierced for forming the inlet and outlets or, alternatively, the connection is peelable. Before the capsule is inserted into the rotary drum 16 of the device, said foil 45 needs to be pierced or removed in order to enable a preparation of the beverage.

U.S. Patent No. 10,870,531	Disclosure
	Denisart at Fig. 5:  Denisart at Fig. 6: 

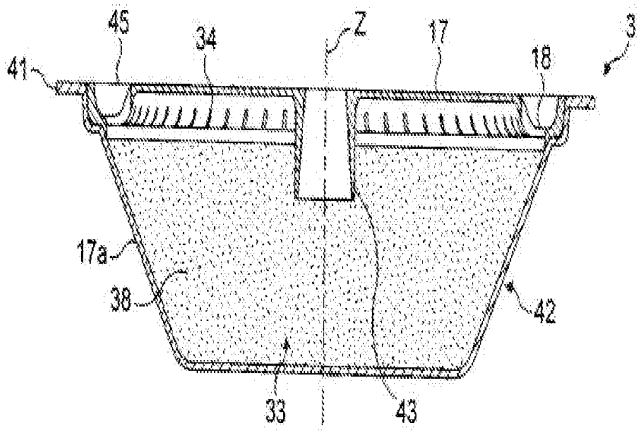
U.S. Patent No. 10,870,531	Disclosure
	See also Denisart at Claims 5-19.
[1.d] the base element comprising a flange, the flange having a top side to which the foil lid is sealed.	Denisart discloses, either expressly or inherently, the base element comprising a flange, the flange having a top side to which the foil lid is sealed. *See, e.g.*: Denisart at 9:21-33: The single-use capsule to be used with the present invention can be closed before use in a gas impervious manner to maintain freshness of the food ingredients housed therein. The capsule preferably contains a protective atmosphere for the ingredients such as inert gas. The capsule can be closed by a membrane which is pierced or peeled off during the beverage preparation process. The capsule may comprise coding means such as a barcode for example which is read by the machine. Accordingly, corresponding parameters, such as for example the beverage strength, the beverage volume and/or the beverage crema or foam, can be adjusted by the control means. Denisart at 34:8-10: The capsule 3 to be used with the device or the system according to the present invention may be any of the capsules described in PCT/EP08/056310 (WO 2008/148646). Denisart at 34:11-27: The capsule 3 as shown in figure 3 is pre-opened before it is inserted in the device, i.e., a sealing foil arranged at an upper face of the capsule is removed by peeling, or a central hole is perforated in the foil of the capsule when the capsule is inserted in the device. The capsule 3 optionally comprises an inner member forming a lid 17 which is inserted in the dished body of the capsule. The lid 17 and body 42 delimit together an internal enclosure 33 for receiving a portioned food substance. The lid 17 comprises outlet openings 34 (see figure

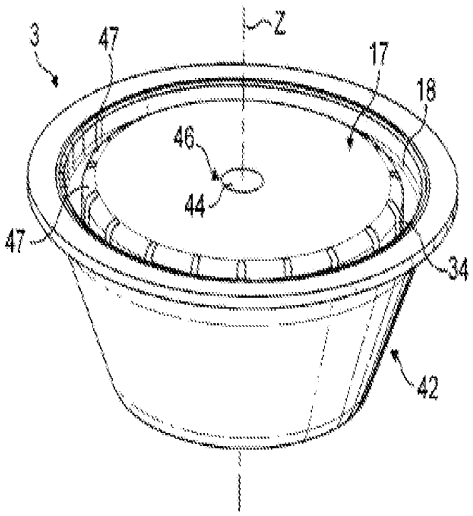
U.S. Patent No. 10,870,531	Disclosure
	4) at a peripheral section 47 of the lid 17 for filtering the beverage and maintaining the food (coffee) particles within the capsule 3 during the beverage preparation. Accordingly, only the liquid comestible to be prepared is discharged through the outlet openings 34. Denisart at 39:25-40:14: Figures 5 and 6 relate to a capsule which is preferably used with the device and system according to the present invention. However, it should be understood that the shown embodiment is just an exemplary embodiment and that the capsule according to the invention can take various different embodiments. The capsule 3 comprises a rigid dished body 42 which comprises an annular rim portion 41. The capsule is preferably design as being rotationally symmetric about central axis. Thereby, it should be noted that the capsule may not necessarily have a circular section around axis Z but may take another form such as a square, rectangle or a polygonal form. Thereby, axis Z is preferably aligned to the axis of rotation A when the capsule is inserted in the device. Moreover, the capsule 3 comprises a lid 17 which preferably has the form of a disc of plastic comprising a central portion 46 and a peripheral portion 47. The central portion 46 can be substantially flat and may comprise an inlet port 44 for enabling the fitting or introduction of a water injection member 21 of the beverage production device. Denisart at 40:31-41:7: The upper surface of the capsule 3 may be equipped with a foil 45 which enables sealing of the capsule 3. The foil preferably covers the lid 17 and is welded or adhesively connected onto the peripheral edge 41 of the body of the capsule. The foil can be permanently connected to the edge if the foil is intended to be pierced for forming the inlet and outlets or, alternatively, the connection is peelable. Before the capsule is inserted into the rotary drum 16 of the device, said foil 45 needs to be pierced or removed in order to enable a preparation of the beverage.

U.S. Patent No. 10,870,531	Disclosure
	Denisart at Fig. 5:  Denisart at Fig. 6: 

U.S. Patent No. 10,870,531	Disclosure
	See also Denisart at Claims 5-19.
[1.e] and an opposing bottom side with a barcode located on the bottom side,	Denisart discloses, either expressly or inherently, an opposing bottom side with a barcode located on the bottom side. *See, e.g.*: Denisart at 8:10-19: However, it may as well be possible that the strength and/or volume are set by identification means arranged within the device which interact with the capsule provided to the device. Such identifications means may be a barcode scanner for example which reads a barcode provided on an outside face of the capsule and which enables a detection of the type of capsule and/or the nature of ingredients provided within the capsule in order to apply a predefined extraction profile for the beverage to be prepared. Denisart at 9:21-33: The single-use capsule to be used with the present invention can be closed before use in a gas impervious manner to maintain freshness of the food ingredients housed therein. The capsule preferably contains a protective atmosphere for the ingredients such as inert gas. The capsule can be closed by a membrane which is pierced or peeled off during the beverage preparation process. The capsule may comprise coding means such as a barcode for example which is read by the machine. Accordingly, corresponding parameters, such as for example the beverage strength, the beverage volume and/or the beverage crema or foam, can be adjusted by the control means. Denisart at 20:6-9:

K-FEE SYSTEM GMBH, EX2012, page 1499
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
	The capsule to be used in the device can be associated to a code containing information relative to one or more of the following parameters: flow rates, beverage volumes, speeds, beverage temperatures, etc. Denisart at 34:8-10: The capsule 3 to be used with the device or the system according to the present invention may be any of the capsules described in PCT/EP08/056310 (WO 2008/148646). Denisart at 38:15-23: The capsule device is opened by moving the two assemblies 20, 32 relatively one another, e.g., by means of a dedicated closing mechanism and separating the two assemblies 20, 32. As a result, a single-use capsule 3 containing a food substance can be inserted in the device, i.e., placed in the cavity of the rotating drum 16. The device is then closed by the assembly 20 being connected back onto the assembly 32 and locked by the closing mechanism. Denisart at Fig. 5: 

U.S. Patent No. 10,870,531	Disclosure
	Denisart at Fig. 6:  See also Denisart at Claims 5-19.
[1.f] the base element has a wall region with an electrically conductive section	Denisart discloses, either expressly or inherently, the base element has a wall region with an electrically conductive section. *See, e.g.*: Denisart at 34:8-10: The capsule 3 to be used with the device or the system according to the present invention may be any of the capsules described in PCT/EP08/056310 (WO 2008/148646). Denisart at 40:31-41:7:

U.S. Patent No. 10,870,531	Disclosure
	The upper surface of the capsule 3 may be equipped with a foil 45 which enables sealing of the capsule 3. The foil preferably covers the lid 17 and is welded or adhesively connected onto the peripheral edge 41 of the body of the capsule. The foil can be permanently connected to the edge if the foil is intended to be pierced for forming the inlet and outlets or, alternatively, the connection is peelable. Before the capsule is inserted into the rotary drum 16 of the device, said foil 45 needs to be pierced or removed in order to enable a preparation of the beverage.
[1.g] and radially spaced and vertically oriented grooves,	
[1.h] the cavity has radially spaced and vertically oriented ribs,	
[1.i] the portion capsule being free of a filter,	Denisart discloses, either expressly or inherently, the portion capsule being free of a filter. *See, e.g.*: Denisart at 19:20-30: The capsule to be used with the device according to the present invention is preferably a single-use capsule sealed in a protective atmosphere before use. The capsule can have a rigid dished body and a lid, wherein the lid of the capsule comprises outlet openings arranged at a peripheral portion of the lid. In a possible alternative, the capsule can be capsule permeable to liquid and gas when inserted in the device such as a filter capsule. The capsule preferably contains ground coffee, soluble coffee, tea, cocoa, milk and combinations thereof. Denisart at 34:11-27:

K-FEE SYSTEM GMBH, EX2012, page 1502
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
	The capsule 3 as shown in figure 3 is pre-opened before it is inserted in the device, i.e., a sealing foil arranged at an upper face of the capsule is removed by peeling, or a central hole is perforated in the foil of the capsule when the capsule is inserted in the device. The capsule 3 optionally comprises an inner member forming a lid 17 which is inserted in the dished body of the capsule. The lid 17 and body 42 delimit together an internal enclosure 33 for receiving a portioned food substance. The lid 17 comprises outlet openings 34 (see figure 4) at a peripheral section 47 of the lid 17 for filtering the beverage and maintaining the food (coffee) particles within the capsule 3 during the beverage preparation. Accordingly, only the liquid comestible to be prepared is discharged through the outlet openings 34.
[1.j] the base element and/or the lid are made of metal;	Denisart discloses, either expressly or inherently, the base element and/or the lid are made of metal. *See, e.g.*: Denisart at 34:8-10: The capsule 3 to be used with the device or the system according to the present invention may be any of the capsules described in PCT/EP08/056310 (WO 2008/148646). Denisart at 40:31-41:7: The upper surface of the capsule 3 may be equipped with a foil 45 which enables sealing of the capsule 3. The foil preferably covers the lid 17 and is welded or adhesively connected onto the peripheral edge 41 of the body of the capsule. The foil can be permanently connected to the edge if the foil is intended to be pierced for forming the inlet and outlets or, alternatively, the connection is peelable. Before the capsule is inserted into the rotary drum 16 of the device, said foil 45 needs to be pierced or removed in order to enable a preparation of the beverage.
[1.k] piercing the foil lid;	Denisart discloses, either expressly or inherently, piercing the foil lid.. *See, e.g.*:

U.S. Patent No. 10,870,531	Disclosure
	Denisart at 5:14-25: One enclosing member is preferably equipped with a liquid injection assembly which enables the provision of liquid to the capsule enclosed within the centrifugal unit of the device. Preferably, the injection assembly is arranged centrically with respect to a rotational axis of the centrifugal unit. The injection assembly preferably comprises a tubular member for providing liquid to a central inlet port of the capsule. In a possible embodiment, the injection assembly comprises a piercing member designed to pierce the inlet port in a face of the capsule. The injection assembly is connected to the liquid supply means of the device. Denisart at 9:21-33: The single-use capsule to be used with the present invention can be closed before use in a gas impervious manner to maintain freshness of the food ingredients housed therein. The capsule preferably contains a protective atmosphere for the ingredients such as inert gas. The capsule can be closed by a membrane which is pierced or peeled off during the beverage preparation process The capsule may comprise coding means such as a barcode for example which is read by the machine. Accordingly, corresponding parameters, such as for example the beverage strength, the beverage volume and/or the beverage crema or foam, can be adjusted by the control means. Denisart at 20:11-21: The injection of the liquid provided by the device preferably takes place at an upper face of the capsule which may already have an inlet port and the injection of liquid can be done by connecting an injection member such as a tube to an inlet port of the capsule. In a possible alternative, a foil of the capsule which covers the lid can be pierced by a piercing member connected to the injection member of the device. The output of the beverage to be prepared takes place at a peripheral section of the lid of the capsule which is provided with a plurality of outlet openings.

U.S. Patent No. 10,870,531	Disclosure
	Denisart at 34:8-10: The capsule 3 to be used with the device or the system according to the present invention may be any of the capsules described in PCT/EP08/056310 (WO 2008/148646). Denisart at 40:31-41:7: The upper surface of the capsule 3 may be equipped with a foil 45 which enables sealing of the capsule 3. The foil preferably covers the lid 17 and is welded or adhesively connected onto the peripheral edge 41 of the body of the capsule. The foil can be permanently connected to the edge if the foil is intended to be pierced for forming the inlet and outlets or, alternatively, the connection is peelable. Before the capsule is inserted into the rotary drum 16 of the device, said foil 45 needs to be pierced or removed in order to enable a preparation of the beverage. Denisart at 42:15-43:17: Figs. 7 and 8 provide a variant of the beverage preparation system of the invention in which the load of the valve means is adjustable for enabling a control of the opening pressure in order to control the foam or crema level. For simplifying the present description and avoid repetitions, the same numerical references have been used to refer to similar technical means as in the previous embodiments. The novel aspects of the present embodiment essentially lie in piercing means of the device for piercing inlet/outlets in the capsule and in a different configuration of the flow restriction valve 19 compared to the other embodiments. As illustrated, the water injector 21 extends coaxially in the capsule 3 by a hollow piercing member 51. The piercing member extends below the upper surface of the capsule 3, in the cavity 33. The piercing member is formed as a hollow tube to supply liquid in the capsule at its tip. The piercing member can so be used to pierce a sealing membrane 52 of the capsule which closes the lid in a gastight manner before the capsule is inserted in the device.

U.S. Patent No. 10,870,531	Disclosure
	The capsule rotary engaging member 39 can further comprise outlet piercing members 53 placed in axial alignment with the liquid collector of the capsule when the member 39 is engaged in closure on the capsule. The outlet piercing members 53 serve to pierce the membrane 52 of the capsule to define a plurality of outlets at the periphery of the capsule from which liquid collected in the collector can leave the capsule. The outlet piercing members are introduced in the collecting recess 18 of the capsule which is sized in such a way that the peripheral portion 47 of the lid cannot be perforated. The centrifuged liquid can thus be discharged from the collecting recess 18 via the holes which are formed in the sealing foil 52 by the piercing members.
[1.l] reading the barcode with the barcode reader;	Denisart discloses, either expressly or inherently, reading the barcode with the barcode reader. *See, e.g.*: Denisart at 3:19-24: Based on the prior art, the present invention aims at providing a device and a method for allowing an efficient control of the strength of a liquid comestible such as a coffee or tea beverage in a centrifugal beverage production device which takes into account the flow attributes through the ingredients. Denisart at 3:31-4:7: In particular, one aspect of the invention, is to ensure that the key quality attributes of the beverage can be controlled properly. In particular, one aspect of the invention is to ensure that the strength or concentration of the beverage is reproducible, i.e., that this characteristic does not fluctuate much for a same desired beverage. Still an aspect of the invention is to ensure the key quality attributes (i.e., concentration, coffee crema level) as well as the volume of the beverage can be produced and selected in a controllable manner depending on the type of beverages desired. Denisart at 4:11-28:

U.S. Patent No. 10,870,531	Disclosure
	In a first aspect, the present invention relates to a beverage production device for preparing a liquid comestible from a portioned food substance contained in a capsule or cell, comprising a centrifugal unit for receiving the capsule or cell, driving means connected to the centrifugal unit for enabling a rotational motion of the capsule or cell in the unit, liquid supply means being connected to the centrifugal unit to supply liquid in the capsule or cell, means for measuring the flow rate, or respectively the pressure, of the liquid, and a control unit for controlling the flow rate of liquid, or respectively the pressure of liquid, to match a flow rate reference, or respectively a pressure reference, in a control loop by automatically adjusting the rotational speed of the driving means during the extraction phase of the beverage production depending on the measured flow rate, or respectively the measured pressure, of the liquid. Denisart at 8:4-8: Moreover, the control unit is configured for controlling the volume of the beverage by receiving data from the flow measuring means and controlling accordingly the volume of liquid supplied by the liquid supply means, in particular, the pump, to the capsule or cell. Denisart at 8:10-19: However, it may as well be possible that the strength and/or volume are set by identification means arranged within the device which interact with the capsule provided to the device. Such identifications means may be a barcode scanner for example which reads a barcode provided on an outside face of the capsule and which enables a detection of the type of capsule and/or the nature of ingredients provided within the capsule in order to apply a predefined extraction profile for the beverage to be prepared. Denisart at 9:21-33: The single-use capsule to be used with the present invention can be closed before use in a gas impervious manner to maintain freshness of the food ingredients housed therein. The capsule preferably contains a protective atmosphere for the ingredients such as inert gas. The capsule

U.S. Patent No. 10,870,531	Disclosure
	can be closed by a membrane which is pierced or peeled off during the beverage preparation process. The capsule may comprise coding means such as a barcode for example which is read by the machine. Accordingly, corresponding parameters, such as for example the beverage strength, the beverage volume and/or the beverage crema or foam, can be adjusted by the control means. Denisart at 17:27-30: According to the described embodiment, it can be possible to control both the beverage strength (for example the coffee concentration in the coffee liquid extract in the cup) and the amount of foam or crema on the beverage. Denisart at 20:6-9: The capsule to be used in the device can be associated to a code containing information relative to one or more of the following parameters: flow rates, beverage volumes, speeds, beverage temperatures, etc. Denisart at 21:12-18: In particular, the flow rate is controlled in relation to a selection of strength of the beverage carried out by the user. Furthermore, the level of crema or foam can also be controlled by adjusting the load on the restriction valve at the exit of the capsule or cell. Denisart at 20:29-21:18: In a third aspect, the present invention relates to a method for preparing a liquid comestible from a portioned food substance contained in a capsule or cell by passing liquid through the substance using centrifugal forces, comprising the steps of connecting the capsule or cell to a liquid supply, rotating the capsule or cell about its rotational axis to enable an interaction

U.S. Patent No. 10,870,531	Disclosure
	between the liquid and the portioned ingredients provided within the capsule, controlling the flow rate, or respectively the pressure, of liquid to match a flow rate reference, or respectively a pressure reference, by automatically adjusting the rotational speed of the driving means during the extraction phase of the beverage production depending on the measured flow rate, or respectively the measured pressure, of liquid. In particular, the flow rate is controlled in relation to a selection of strength of the beverage carried out by the user. Furthermore, the level of crema or foam can also be controlled by adjusting the load on the restriction valve at the exit of the capsule or cell. Denisart at 27:29-28:5: Simultaneously or shortly after, the motor speed is started at a low speed to ensure a pre-wetting of the dry food ingredients, e.g., roast and ground coffee, provided within the centrifugal cell respectively the capsule 3. Preferably, said pre-wetting phase A lasts for a given time ti between 3 and 10 seconds. The prewetting time is preferably a time as determined by a count of impulse data generated by the flow sensing means, which is already stored or storable such as by transfer from a code on the capsule or cell in the memory of the controller 12.
[1.m] determining whether the read barcode agrees with a stored reference; and activating the pump to push heated water into the portion capsule only upon a determination that the read barcode agrees with the stored reference.	Denisart discloses, either expressly or inherently, determining whether the read barcode agrees with a stored reference; and activating the pump to push heated water into the portion capsule only upon a determination that the read barcode agrees with the stored reference. *See, e.g.*: *See* [1.l].
[redacted]	

K-FEE SYSTEM GMBH, EX2012, page 1509
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

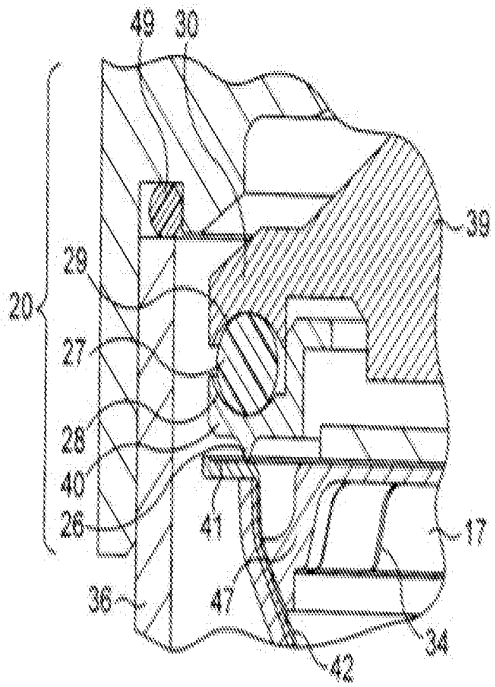
U.S. Patent No. 10,870,531	Disclosure
2. The method according to claim 1, wherein the method comprises not activating the pump to push the heated water into the portion capsule upon a determination that the read barcode does not agree with the stored reference.	Denisart discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises not activating the pump to push the heated water into the portion capsule upon a determination that the read barcode does not agree with the stored reference. *See, e.g.*: Denisart at 3:19-24: Based on the prior art, the present invention aims at providing a device and a method for allowing an efficient control of the strength of a liquid comestible such as a coffee or tea beverage in a centrifugal beverage production device which takes into account the flow attributes through the ingredients. Denisart at 3:31-4:7: In particular, one aspect of the invention, is to ensure that the key quality attributes of the beverage can be controlled properly. In particular, one aspect of the invention is to ensure that the strength or concentration of the beverage is reproducible, i.e., that this characteristic does not fluctuate much for a same desired beverage. Still an aspect of the invention is to ensure the key quality attributes (i.e., concentration, coffee crema level) as well as the volume of the beverage can be produced and selected in a controllable manner depending on the type of beverages desired. Denisart at 4:11-28: In a first aspect, the present invention relates to a beverage production device for preparing a liquid comestible from a portioned food substance contained in a capsule or cell, comprising a centrifugal unit for receiving the capsule or cell, driving means connected to the centrifugal unit for enabling a rotational motion of the capsule or cell in the unit, liquid supply means being connected to the centrifugal unit to supply liquid in the capsule or cell, means for measuring the flow rate, or respectively the pressure, of the liquid, and a control unit for controlling the flow rate of liquid, or respectively the pressure of liquid, to match a flow rate reference, or respectively a pressure reference, in a control loop by automatically adjusting

U.S. Patent No. 10,870,531	Disclosure
	the rotational speed of the driving means during the extraction phase of the beverage production depending on the measured flow rate, or respectively the measured pressure, of the liquid. Denisart at 8:4-8: Moreover, the control unit is configured for controlling the volume of the beverage by receiving data from the flow measuring means and controlling accordingly the volume of liquid supplied by the liquid supply means, in particular, the pump, to the capsule or cell. Denisart at 8:10-19: However, it may as well be possible that the strength and/or volume are set by identification means arranged within the device which interact with the capsule provided to the device. Such identifications means may be a barcode scanner for example which reads a barcode provided on an outside face of the capsule and which enables a detection of the type of capsule and/or the nature of ingredients provided within the capsule in order to apply a predefined extraction profile for the beverage to be prepared. Denisart at 9:21-33: The single-use capsule to be used with the present invention can be closed before use in a gas impervious manner to maintain freshness of the food ingredients housed therein. The capsule preferably contains a protective atmosphere for the ingredients such as inert gas. The capsule can be closed by a membrane which is pierced or peeled off during the beverage preparation process. The capsule may comprise coding means such as a barcode for example which is read by the machine. Accordingly, corresponding parameters, such as for example the beverage strength, the beverage volume and/or the beverage crema or foam, can be adjusted by the control means. Denisart at 17:27-30:

U.S. Patent No. 10,870,531	Disclosure
	According to the described embodiment, it can be possible to control both the beverage strength (for example the coffee concentration in the coffee liquid extract in the cup) and the amount of foam or crema on the beverage. Denisart at 20:6-9: The capsule to be used in the device can be associated to a code containing information relative to one or more of the following parameters: flow rates, beverage volumes, speeds, beverage temperatures, etc. Denisart at 21:12-18: In particular, the flow rate is controlled in relation to a selection of strength of the beverage carried out by the user. Furthermore, the level of crema or foam can also be controlled by adjusting the load on the restriction valve at the exit of the capsule or cell. Denisart at 20:29-21:18: In a third aspect, the present invention relates to a method for preparing a liquid comestible from a portioned food substance contained in a capsule or cell by passing liquid through the substance using centrifugal forces, comprising the steps of connecting the capsule or cell to a liquid supply, rotating the capsule or cell about its rotational axis to enable an interaction between the liquid and the portioned ingredients provided within the capsule, controlling the flow rate, or respectively the pressure, of liquid to match a flow rate reference, or respectively a pressure reference, by automatically adjusting the rotational speed of the driving means during the extraction phase of the beverage production depending on the measured flow rate, or respectively the measured pressure, of liquid.

U.S. Patent No. 10,870,531	Disclosure
	In particular, the flow rate is controlled in relation to a selection of strength of the beverage carried out by the user. Furthermore, the level of crema or foam can also be controlled by adjusting the load on the restriction valve at the exit of the capsule or cell. Denisart at 27:29-28:5: Simultaneously or shortly after, the motor speed is started at a low speed to ensure a pre-wetting of the dry food ingredients, e.g., roast and ground coffee, provided within the centrifugal cell respectively the capsule 3. Preferably, said pre-wetting phase A lasts for a given time ti between 3 and 10 seconds. The prewetting time is preferably a time as determined by a count of impulse data generated by the flow sensing means, which is already stored or storable such as by transfer from a code on the capsule or cell in the memory of the controller 12. *See also* [1].
[redacted]	
3. The method according to claim 1, wherein the method comprises engaging the portion capsule with a pair of holding arms, and wherein the base element and/or the foil lid are made of aluminum.	Denisart at 17:4-10: In a preferred embodiment, the flow restriction valve can be formed by at least one engaging portion of the device which is adapted to move relatively to an engaged portion of the device or, alternatively, of an engaged portion of the capsule under the effect of the pressurized liquid exiting the capsule, for making a thin annular laminating passage for the liquid. Denisart at 37:14-19:

K-FEE SYSTEM GMBH, EX2012, page 1513
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,870,531	Disclosure
	As can be seen in figure 4 , the annular engaging portion 40 includes a pressing peripheral pinching edge 26 which applies a closing force on the peripheral rim 41 of the capsule 3 to be able to restrict the flow of liquid under the force of the elastic loading means 27.  FIG. 4
5. The method according to claim 1, wherein the method comprises sealing a seal of the apparatus against the foil lid, and wherein the grooves are free from extending all the way	Denisart discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises sealing a seal of the apparatus against the foil lid, and wherein the grooves are free from extending all the way into a region of the base element that is immediately adjacent to the flange. *See, e.g.*:

U.S. Patent No. 10,870,531	Disclosure
into a region of the base element that is immediately adjacent to the flange.	Denisart at 34:11-27: The capsule 3 as shown in figure 3 is pre-opened before it is inserted in the device, i.e., a sealing foil arranged at an upper face of the capsule is removed by peeling, or a central hole is perforated in the foil of the capsule when the capsule is inserted in the device. The capsule 3 optionally comprises an inner member forming a lid 17 which is inserted in the dished body of the capsule. The lid 17 and body 42 delimit together an internal enclosure 33 for receiving a portioned food substance. The lid 17 comprises outlet openings 34 (see figure 4) at a peripheral section 47 of the lid 17 for filtering the beverage and maintaining the food (coffee) particles within the capsule 3 during the beverage preparation. Accordingly, only the liquid comestible to be prepared is discharged through the outlet openings 34. Denisart at 37:6-31: The water injection assembly 20 further comprises a valve system 19 for controlling the flow of liquid that is discharged from the capsule 3 during operation of the device. The valve system 19 can be arranged on the capsule rotary engaging part 39 in the form of an annular engaging portion 40 which is biased under the force of elastic loading means 27. As can be seen in figure 4, the annular engaging portion 40 includes a pressing peripheral pinching edge 26 which applies a closing force on the peripheral rim 41 of the capsule 3 to be able to restrict the flow of liquid under the force of the elastic loading means 27. As can be seen in figure 4, the elastic loading means 27 can be a rubber-elastic ring member which is supported by an upper and a lower annular seat portion 28, 29. Other means such as spring-biased loading means 27 may as well be applied to the device. It should be understood that the load of the elastic loading means 27 is preferably adjustable. Hence, the pressure of the liquid which has to be exerted on the flow restriction valve 19 in

U.S. Patent No. 10,870,531	Disclosure
	order to enable a discharging of liquid from the capsule 3 to the outlet 35 of the device can be adjusted. Denisart at 40:31-41:7: The upper surface of the capsule 3 may be equipped with a foil 45 which enables sealing of the capsule 3. The foil preferably covers the lid 17 and is welded or adhesively connected onto the peripheral edge 41 of the body of the capsule. The foil can be permanently connected to the edge if the foil is intended to be pierced for forming the inlet and outlets or, alternatively, the connection is peelable. Before the capsule is inserted into the rotary drum 16 of the device, said foil 45 needs to be pierced or removed in order to enable a preparation of the beverage. *See also* [1].
6. The method according to claim 1, wherein the method comprises introducing the heated water into the portion capsule along a central axis of the portion capsule.	Denisart discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises introducing the heated water into the portion capsule along a central axis of the portion capsule. *See, e.g.*: Denisart at 5:14-25: One enclosing member is preferably equipped with a liquid injection assembly which enables the provision of liquid to the capsule enclosed within the centrifugal unit of the device. Preferably, the injection assembly is arranged centrically with respect to a rotational axis of the centrifugal unit. The injection assembly preferably comprises a tubular member for providing liquid to a central inlet port of the capsule. In a possible embodiment, the injection assembly comprises a piercing member designed to pierce the inlet port in a face of the capsule. The injection assembly is connected to the liquid supply means of the device.

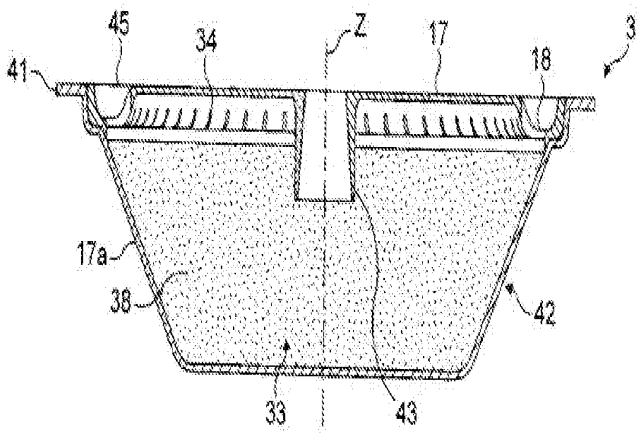
U.S. Patent No. 10,870,531	Disclosure
	Denisart at 6:7-20: The liquid supply means of the device comprise a reservoir for storing liquid. Preferably, the reservoir is a boiler which comprises heating means in order to heat the liquid therein. However, the liquid supply means may as well comprise a liquid reservoir and an in-line heating element such as a thermoblock or an instant heater placed downstream of the reservoir in the fluid circuit. Moreover, the liquid supply means preferably comprise a pump for providing liquid from the reservoir to the injection assembly and thus, to the centrifugal unit of the device. The pump is preferably connected to the control means of the device. Denisart at 9:1-4: During the extraction phase, a centrifugal cell which is placed within the centrifugal unit acts as a centrifugal pump by drawing liquid such as water from the liquid supply. Accordingly, the rotational speed of the motor Denisart at 10:9-26: The pump of the liquid supply means is set to supply a sufficient quantity of water during the beverage preparation cycle to the centrifugal cell whereas the rotational speed of the centrifugal cell actually regulates the flow rate of the dispensed liquid. The pump is preferably a low pressure pump such as a centrifugal pump or any other suitable low pressure pump. The contact time between the food ingredients and hot water contained in the capsule varies in inverse proportion to the water flow rate which circulates in the liquid supply circuit and thus, through the centrifugal cell. In general, for obtaining a higher concentration or strength of the beverage to be prepared, the water flow rate can be set at a relatively low value,

U.S. Patent No. 10,870,531	Disclosure
	whereas for obtaining a lighter concentration or strength of the beverage, the water flow rate is set at a relatively higher value. Denisart at 13:7-17: The pre-wetting phase of the extraction profile takes place at the beginning of the beverage preparation cycle. Thereby, liquid such as water is supplied to the centrifugal cell, i.e. the capsule, which is maintained static or is rotated at relatively low speed, preferably lower than 200 rpm, most preferably lower than 100 rpm. Accordingly, the pre-wetting phase enables a homogeneous wetting of the dry food ingredients, i.e., ground coffee, housed within the capsule. Hence, the compacting of dry ingredients and a resulting blockage during the beverage preparation cycle can be effectively prevented. Denisart at 23:25-32: The system further comprises liquid supply means which comprise a water reservoir 6 and a fluid circuit 4. The reservoir 6 preferably comprises water heating means 31 for heating the water contained within the reservoir 6. The heating means 31 may be a heating coil. The heating of the water may as well be obtained by a thermoblock in the fluid circuit 4 and placed downstream relatively to the water reservoir 6. Denisart at 27:23-27: At the beginning of the beverage preparation cycle, and after the user's selection, the centrifugal pump 7 is switched on by the controller 12 and thus, hot water is pumped from the reservoir 6 to the centrifugal cell 3 through the flow-metering turbine 8. Denisart at 34:8-10: The capsule 3 to be used with the device or the system according to the present invention may be any of the capsules described in PCT/EP08/056310 (WO 2008/148646).

U.S. Patent No. 10,870,531	Disclosure
	Denisart at 35:28-36:5: In the shown embodiment, the water injector 21 is designed as a simple water inlet of the capsule. However, the water injector 21 may as well be equipped with puncturing means which are designed to puncture or tear a membrane or foil provided at an upper face of the capsule 3. About the water injector 21 is mounted a capsule rotary engaging part 39. The engaging part 39 has a central bore 39a for receiving the water injector 21 and rotational guiding means such as a ball or needle bearing 25 inserted between the engaging part 39 and the injector 21. *See also* [1].
7. The method according to claim 1, wherein the method comprises piercing the foil lid in a region that is offset from a central axis of the portion capsule, and wherein the lid is crowned in a region of the central axis of the portion capsule relative to a region of the lid adjacent to the flange.	Denisart discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises piercing the foil lid in a region that is offset from a central axis of the portion capsule, and wherein the lid is crowned in a region of the central axis of the portion capsule relative to a region of the lid adjacent to the flange. *See, e.g.*: Denisart at 5:14-25: One enclosing member is preferably equipped with a liquid injection assembly which enables the provision of liquid to the capsule enclosed within the centrifugal unit of the device. Preferably, the injection assembly is arranged centrically with respect to a rotational axis of the centrifugal unit. The injection assembly preferably comprises a tubular member for providing liquid to a central inlet port of the capsule. In a possible embodiment, the injection assembly comprises a piercing member designed to pierce the inlet port in a face of the capsule. The injection assembly is connected to the liquid supply means of the device. Denisart at 9:21-33:

U.S. Patent No. 10,870,531	Disclosure
	The single-use capsule to be used with the present invention can be closed before use in a gas impervious manner to maintain freshness of the food ingredients housed therein. The capsule preferably contains a protective atmosphere for the ingredients such as inert gas. The capsule can be closed by a membrane which is pierced or peeled off during the beverage preparation process The capsule may comprise coding means such as a barcode for example which is read by the machine. Accordingly, corresponding parameters, such as for example the beverage strength, the beverage volume and/or the beverage crema or foam, can be adjusted by the control means. Denisart at 20:11-21: The injection of the liquid provided by the device preferably takes place at an upper face of the capsule which may already have an inlet port and the injection of liquid can be done by connecting an injection member such as a tube to an inlet port of the capsule. In a possible alternative, a foil of the capsule which covers the lid can be pierced by a piercing member connected to the injection member of the device. The output of the beverage to be prepared takes place at a peripheral section of the lid of the capsule which is provided with a plurality of outlet openings. Denisart at 34:8-10: The capsule 3 to be used with the device or the system according to the present invention may be any of the capsules described in PCT/EP08/056310 (WO 2008/148646). Denisart at 40:31-41:7: The upper surface of the capsule 3 may be equipped with a foil 45 which enables sealing of the capsule 3. The foil preferably covers the lid 17 and is welded or adhesively connected onto the peripheral edge 41 of the body of the capsule. The foil can be permanently connected to the edge if the foil is intended to be pierced for forming the inlet and outlets or, alternatively, the connection is peelable. Before the capsule is inserted into the rotary drum 16

U.S. Patent No. 10,870,531	Disclosure
	of the device, said foil 45 needs to be pierced or removed in order to enable a preparation of the beverage. Denisart at 42:15-43:17: Figs. 7 and 8 provide a variant of the beverage preparation system of the invention in which the load of the valve means is adjustable for enabling a control of the opening pressure in order to control the foam or crema level. For simplifying the present description and avoid repetitions, the same numerical references have been used to refer to similar technical means as in the previous embodiments. The novel aspects of the present embodiment essentially lie in piercing means of the device for piercing inlet/outlets in the capsule and in a different configuration of the flow restriction valve 19 compared to the other embodiments. As illustrated, the water injector 21 extends coaxially in the capsule 3 by a hollow piercing member 51. The piercing member extends below the upper surface of the capsule 3, in the cavity 33. The piercing member is formed as a hollow tube to supply liquid in the capsule at its tip. The piercing member can so be used to pierce a sealing membrane 52 of the capsule which closes the lid in a gastight manner before the capsule is inserted in the device. The capsule rotary engaging member 39 can further comprise outlet piercing members 53 placed in axial alignment with the liquid collector of the capsule when the member 39 is engaged in closure on the capsule. The outlet piercing members 53 serve to pierce the membrane 52 of the capsule to define a plurality of outlets at the periphery of the capsule from which liquid collected in the collector can leave the capsule. The outlet piercing members are introduced in the collecting recess 18 of the capsule which is sized in such a way that the peripheral portion 47 of the lid cannot be perforated. The centrifuged liquid can thus be discharged from the collecting recess 18 via the holes which are formed in the sealing foil 52 by the piercing members. *See also* [1].

U.S. Patent No. 10,870,531	Disclosure
[8.pre] The method according to claim 1,	Denisart discloses, either expressly or inherently, the method according to claim 1. *See, e.g.*: *See* [1].
[8.a] wherein the method comprises controlling a production process of the beverage according to the read barcode,	Denisart discloses, either expressly or inherently, wherein the method comprises controlling a production process of the beverage according to the read barcode. *See, e.g.*: *See* [1.m].
[8.b] and wherein the wall comprises an upper section and a lower section, the upper section is located adjacent to the flange, and the lower section is located in between the upper section and a bottom of the base element,	Denisart discloses, either expressly or inherently, that the wall comprises an upper section and a lower section, the upper section is located adjacent to the flange, and the lower section is located in between the upper section and a bottom of the base element. *See, e.g.*: Denisart at Fig. 5:  Denisart at Fig. 6: