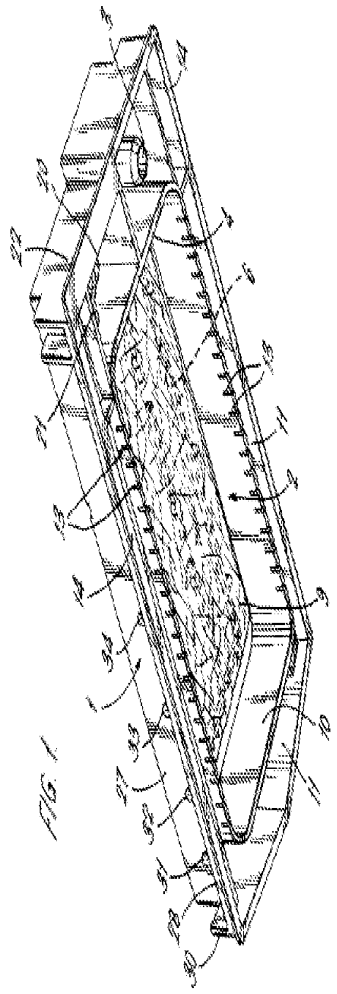
U.S. Patent No. 10,858,176	Disclosure
	incorporate an appropriate sensor or sensors into it, the sensor or sensors being designed to read the particular coding on the capsule and to send a signal to the controller, which then selects the appropriate beverage preparation cycle. Bentley at 5:40-54: The 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. 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. 10,858,176	Disclosure
	
[1.c] and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity,	Bentley discloses, either expressly or inherently, a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity. *See, e.g.*: Bentley at 3:7-12:

U.S. Patent No. 10,858,176	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 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

U.S. Patent No. 10,858,176	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 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.
[1.d] the base element including a circumferential flange having a top side to which the first foil lid is sealed and an opposing bottom side with a first barcode located on the bottom side,	Bentley discloses, either expressly or inherently, the base element including a circumferential flange having a top side to which the first foil lid is sealed and an opposing bottom side with a first 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

U.S. Patent No. 10,858,176	Disclosure
	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 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.

U.S. Patent No. 10,858,176	Disclosure
	Bentley at 7:26-35: 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

U.S. Patent No. 10,858,176	Disclosure
	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.e] the base element of the first portion capsule includes an outside surface having a plurality of vertically oriented grooves;	Bentley discloses, either expressly or inherently, the base element of the first portion capsule includes an outside surface having a plurality of 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.

U.S. Patent No. 10,858,176	Disclosure
	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 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:

U.S. Patent No. 10,858,176	Disclosure
	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.f] reading the first barcode with the barcode reader; controlling a production process of a first coffee beverage based upon the reading of the first barcode;	Bentley discloses, either expressly or inherently, reading the first barcode with the barcode reader; controlling a production process of a first coffee beverage based upon the reading of the first barcode. *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. 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

U.S. Patent No. 10,858,176	Disclosure
	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. *See also* [1.a] and [1.d]
[1.g] piercing the first foil lid with a mandrel of the apparatus in a region that is offset from a central axis of the first portion capsule;	Bentley discloses, either expressly or inherently, piercing the first foil lid with a mandrel of the apparatus in a region that is offset from a central axis of the first portion capsule. *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.

U.S. Patent No. 10,858,176	Disclosure
	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.h] sealing the first foil lid against a seal of the apparatus;	Bentley discloses, either expressly or inherently, sealing the first foil lid against a seal of the apparatus. *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 6:36-57: 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

U.S. Patent No. 10,858,176	Disclosure
	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.
[1.i] introducing heated water into the first portion capsule through a water inlet of the apparatus that is arranged along the central axis of the portion capsule to form the first coffee beverage;	Bentley discloses, either expressly or inherently, introducing heated water into the first portion capsule through a water inlet of the apparatus that is arranged along the central axis of the portion capsule to form the first coffee beverage. *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 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

U.S. Patent No. 10,858,176	Disclosure
	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 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.j] unloading the first portion capsule from the apparatus;	Bentley discloses, either expressly or inherently, unloading the first portion capsule from the apparatus. *See, e.g.*: Bentley at 1:21-55:

U.S. Patent No. 10,858,176	Disclosure
	Cartridges containing roast and ground coffee in which hot water flows under gravimetric force through the cartridge are also known. A cartridge of this general type is described in British Patent No. 1397116. In our European Patent Application No. 87311325.2 there is described a package which contains 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 containing 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 necessity for an external filter. 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. 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 beverage preparation ingredients such as powdered chocolate, powdered coffee or powdered soup.
[1.k] inserting a second portion capsule into the apparatus, the second portion capsule including a second foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity of the second	Bentley discloses, either expressly or inherently, inserting a second portion capsule into the apparatus, the second portion capsule including a second foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity of the second portion capsule being free of a filter and includes a central portion and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity, the base element of the second portion capsule including a circumferential flange having a top side to which the second foil is sealed and an opposing bottom side with

U.S. Patent No. 10,858,176	Disclosure
portion capsule being free of a filter and includes a central portion and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity, the base element of the second portion capsule including a circumferential flange having a top side to which the second foil is sealed and an opposing bottom side with a second barcode located on the bottom side and being different from the first barcode, the base element of the second portion capsule includes an outside surface having a plurality of vertically oriented grooves; reading the second barcode with the barcode reader; controlling a second production process of a second coffee beverage based upon the reading of the second barcode, the second production process being different than the first production process; piercing the second foil lid with the mandrel of the apparatus in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange and/or the second foil lid of the second portion capsule against the	a second barcode located on the bottom side and being different from the first barcode, the base element of the second portion capsule includes an outside surface having a plurality of vertically oriented grooves; reading the second barcode with the barcode reader; controlling a second production process of a second coffee beverage based upon the reading of the second barcode, the second production process being different than the first production process; piercing the second foil lid with the mandrel of the apparatus in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange and/or the second foil lid of the second portion capsule against the seal of the apparatus; and introducing the heated water into the second portion capsule to form the second coffee beverage. *See, e.g.*: Bentley at 2:36-40: Alternatively, the inlet and/or outlet may be open and the beverage package provided with an outer wrapping or the like. For example, a plurality of packages may be provided with a shrink wrapped outer layer. Bentley at 3:28-40: The package of the present invention, when filled with roast and ground coffee, preferably contains from 2.5 to 10 grams of roast and ground coffee, preferably from 4.5 to 6 grams for the preparation of a single cup. However, packages which are intended to provide multiple servings of coffee will contain an appropriate amount of roast and ground coffee, for example, packages intended to provide say five cups of coffee will contain from 20 to 50 grams of roast and ground coffee, preferably from 25 to 30 grams. The roast and ground coffee is generally compacted when the beverage package is filled in order to aid the distribution and transport of water through the package. Bentley at 5:34-39:

U.S. Patent No. 10,858,176	Disclosure
seal of the apparatus; and introducing the heated water into the second portion capsule to form the second coffee beverage.	The recognition system used on the beverage packages of the present invention enables a single beverage preparation machine to prepare from different beverage packages a great number of different beverages which require different beverage preparation conditions. *See also* [1.b]-[1.i].
[redacted]	
2. The method according to claim 1, wherein one or both of the introducing steps include: inducing turbulent flow of the heated water by the ribs.	Bentley discloses, either expressly or inherently, the method according to claim 1, wherein one or both of the introducing steps include: inducing turbulent flow of the heated water by the ribs. *See, e.g.*: Bentley at 4:19-28: The quality of the filtration of beverage preparation ingredients, in particular roast and ground coffee, is known to affect the flavour of the beverage. The brewing and flavour characteristics for roast and ground coffee charge with the roasting and grinding conditions and are effected by the size and shape of the particles. The beverage packages used in the present invention enable efficient filtration to be achieved and thereby give rise to beverages which have little or no turbidity and a good flavour. 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 our 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

K-FEE SYSTEM GMBH, EX2012, page 259
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,858,176	Disclosure
	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 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 7:36:46:

U.S. Patent No. 10,858,176	Disclosure
	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. *See also* [1].
3. The method according to claim 1, wherein the method comprises: comparing the read barcode with a stored reference.	Bentley discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises: comparing the read barcode with a stored reference. *See, e.g.*: Bentley at 4:41-50: 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. Bentley at 5:19-54: 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

U.S. Patent No. 10,858,176	Disclosure
	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. The recognition system used on the beverage packages of the present invention enables a single beverage preparation machine to prepare from different beverage packages a great number of different beverages which require different beverage preparation conditions. 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. *See also* [1].
10. The method according to claim 1, wherein the base element of the first portion capsule is made of metal.	Bentley discloses, either expressly or inherently, the method according to claim 1, wherein the base element of the first portion capsule is 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

U.S. Patent No. 10,858,176	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. *See also* [1].
11. The method according to claim 10, wherein the base element of the second portion capsule is made of metal.	Bentley discloses, either expressly or inherently, the method according to claim 10, wherein the base element of the second portion capsule is 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:

U.S. Patent No. 10,858,176	Disclosure
	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. *See also* [10].
12. The method according to claim 1, wherein the first foil lid and/or the second foil lid is made of metal.	Bentley discloses, either expressly or inherently, the method according to claim 1, wherein the first foil lid and/or the second foil lid is 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

U.S. Patent No. 10,858,176	Disclosure
	sensed; or one or more electrically conductive areas formed on the body of the package which can be sensed electrically. Bentley at 6:36-40: 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. *See also* [1].
[13.pre] A method of making a coffee beverage, comprising steps of:	Bentley discloses, either expressly or inherently, a method of making a coffee beverage. *See, e.g.*: *See* [1.pre].
[13.a] providing an apparatus including a barcode reader configured to read a barcode, the apparatus including a mandrel, a water inlet, and a seal;	Bentley discloses, either expressly or inherently, providing an apparatus including a barcode reader configured to read a barcode, the apparatus including a mandrel, a water inlet, and a seal. *See* [1.a], [1.g], [1.i], [1.h].
[13.b] inserting a first portion capsule into the apparatus, the first portion capsule being free of a filter and including a first lid that is sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that	Bentley discloses, either expressly or inherently, inserting a first portion capsule into the apparatus, the first portion capsule being free of a filter and including a first lid that is sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines the cavity with a central interior portion. *See, e.g.*: *See* [1.b].

U.S. Patent No. 10,858,176	Disclosure
defines the cavity with a central interior portion,	
[13.c] having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central interior portion and an outside surface of the wall having plurality of vertically oriented grooves,	Bentley discloses, either expressly or inherently, having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central interior portion and an outside surface of the wall having plurality of vertically oriented grooves. *See, e.g.*: *See* [1.c], [1.e].
[13.d] the base element having a circumferential flange having a top side to which the first lid is sealed and an opposing bottom side with a first barcode located on the bottom side;	Bentley discloses, either expressly or inherently, the base element having a circumferential flange having a top side to which the first lid is sealed and an opposing bottom side with a first barcode located on the bottom side. *See, e.g.*: *See* [1.d].
[13.e] piercing the first lid with the mandrel in a region that is offset from a central axis of the first portion capsule;	Bentley discloses, either expressly or inherently, piercing the first lid with the mandrel in a region that is offset from a central axis of the first portion capsule. *See, e.g.*: *See* [1.g].
[13.f] sealing the top side of the flange of the first portion capsule and/or the first lid against the seal of the apparatus;	Bentley discloses, either expressly or inherently, sealing the top side of the flange of the first portion capsule and/or the first lid against the seal of the apparatus. *See, e.g.*: *See* [1.h].
[13.g] reading the first barcode with the barcode reader; controlling production of a first coffee beverage based upon the reading of the first barcode; introducing heated water into the first portion capsule via the water inlet that is arranged along the central axis of the first portion	Bentley discloses, either expressly or inherently, reading the first barcode with the barcode reader; controlling production of a first coffee beverage based upon the reading of the first barcode; introducing heated water into the first portion capsule via the water inlet that is arranged along the central axis of the first portion capsule according to production conditions associated with the first barcode to form the first coffee beverage. *See, e.g.*: *See* [1.f], [1.i].

U.S. Patent No. 10,858,176	Disclosure
capsule according to production conditions associated with the first barcode to form the first coffee beverage;	
[13.h] unloading the first portion capsule from the apparatus;	Bentley discloses, either expressly or inherently, unloading the first portion capsule from the apparatus. *See, e.g.*: *See* [1.j].
[13.i] inserting second portion capsule into the apparatus, the second portion capsule being free of a filter and including a second lid sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines a cavity with a central interior portion, and having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the cavity central interior portion, and an outside surface of the wall having a plurality of vertically oriented grooves, the base element has a circumferential flange having a top side to which the second lid is sealed and an opposing bottom side with a second barcode that is located on the bottom side and being different from the first barcode;	Bentley discloses, either expressly or inherently, inserting second portion capsule into the apparatus, the second portion capsule being free of a filter and including a second lid sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines a cavity with a central interior portion, and having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the cavity central interior portion, and an outside surface of the wall having a plurality of vertically oriented grooves, the base element has a circumferential flange having a top side to which the second lid is sealed and an opposing bottom side with a second barcode that is located on the bottom side and being different from the first barcode; piercing the second lid with the mandrel in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange of the second portion capsule and/or the second lid against the seal of the apparatus; reading the second barcode with the barcode reader; controlling production of a second coffee beverage based upon the reading of the second barcode; introducing the heated water into the second portion capsule via the water inlet that is arranged along the central axis of the second portion capsule according to production conditions associated with the second barcode to form the second coffee beverage. *See, e.g.*: *See* [1.k]; [13.a]-[13.g].

U.S. Patent No. 10,858,176	Disclosure
piercing the second lid with the mandrel in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange of the second portion capsule and/or the second lid against the seal of the apparatus; reading the second barcode with the barcode reader; controlling production of a second coffee beverage based upon the reading of the second barcode; introducing the heated water into the second portion capsule via the water inlet that is arranged along the central axis of the second portion capsule according to production conditions associated with the second barcode to form the second coffee beverage.	
14. The method according to claim 13, wherein the production conditions associated with the first barcode are different from the production conditions associated with the second barcode, the production conditions include: pressure, temperature and/or an amount of the heated water.	Bentley discloses, either expressly or inherently, the method according to claim 13, wherein the production conditions associated with the first barcode are different from the production conditions associated with the second barcode, the production conditions include: pressure, temperature and/or an amount of the heated water. *See, e.g.*: Bentley at 2:36-40: Alternatively, the inlet and/or outlet may be open and the beverage package provided with an outer wrapping or the like. For example, a plurality of packages may be provided with a shrink wrapped outer layer.

U.S. Patent No. 10,858,176	Disclosure
	Bentley at 3:28-40: The package of the present invention, when filled with roast and ground coffee, preferably contains from 2.5 to 10 grams of roast and ground coffee, preferably from 4.5 to 6 grams for the preparation of a single cup. However, packages which are intended to provide multiple servings of coffee will contain an appropriate amount of roast and ground coffee, for example, packages intended to provide say five cups of coffee will contain from 20 to 50 grams of roast and ground coffee, preferably from 25 to 30 grams. The roast and ground coffee is generally compacted when the beverage package is filled in order to aid the distribution and transport of water through the package. Bentley at 5:34-39: The recognition system used on the beverage packages of the present invention enables a single beverage preparation machine to prepare from different beverage packages a great number of different beverages which require different beverage preparation conditions. *See also* [13].

Exhibit A-2 – Invalidity of U.S. Patent No. 10,858,176 in view of Boyd

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,176 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 '176 Patent under pre-AIA 35 U.S.C. § 102(b). Boyd anticipates and/or renders obvious the Asserted Claims of the '176 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 A-1 to A-9 and in Appendix A.

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 270
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

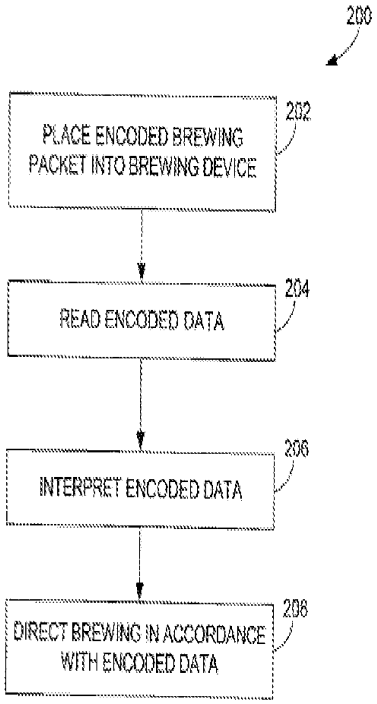
Exhibit A-2 – Invalidity of U.S. Patent No. 10,858,176 in view of Boyd

U.S. Patent No. 10,858,176	Disclosure
[1.pre] A method of making a coffee beverage comprising:	Boyd discloses, either expressly or inherently, a method for making a coffee 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 brewing espresso using espresso espresso packets in the form of filter capsules which are

K-FEE SYSTEM GMBH, EX2012, page 271
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

	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. 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. Boyd at Fig. 4:

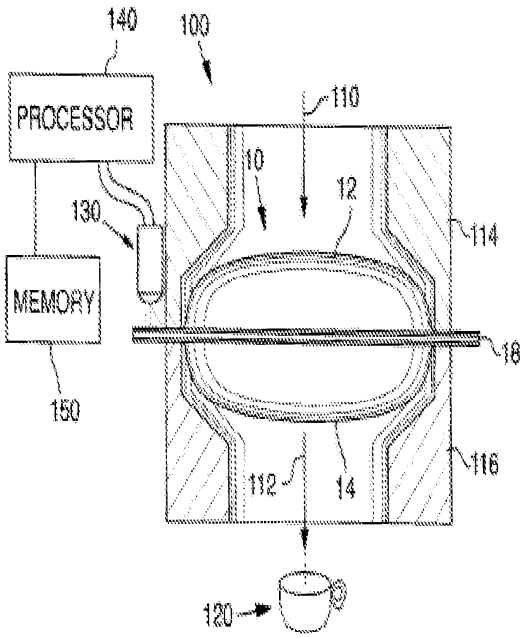
	 FIG. 4 *See also* Boyd at Claims 1-25.
[1.a] providing an apparatus including a barcode reader;	Boyd discloses, either expressly or inherently, providing an apparatus including a barcode reader. *See, e.g.*: Boyd at [0006]: A brewing packet is provided for use in the preparation of hot or cold beverages. 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 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]:

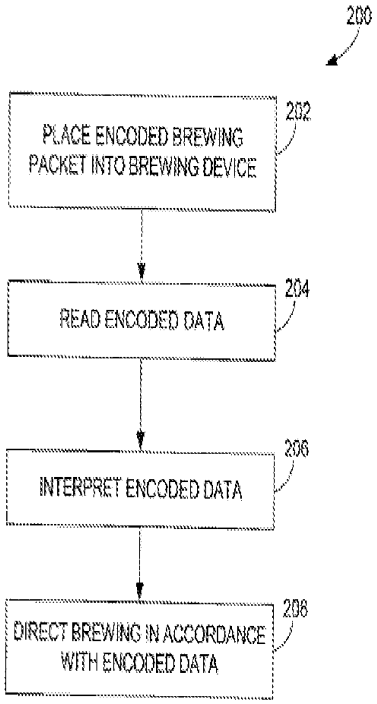
	With the foregoing in mind, it will be appreciated that it would be desirable to automatically customize the brew operation based on particular characteristics of the packet, the characteristics of the coffee, and/or the tastes of the user, whether or not the user is aware of what changes in the brew 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 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, 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:

FIG.3



Boyd at Fig. 4:

	 FIG. 4
[1.b] inserting a first portion capsule into the apparatus, the first portion capsule including a first foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity being free of a filter and including a central portion,	Boyd discloses, either expressly or inherently, inserting a first portion capsule into the apparatus, the first portion capsule including a first foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity being free of a filter and including a central portion. *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

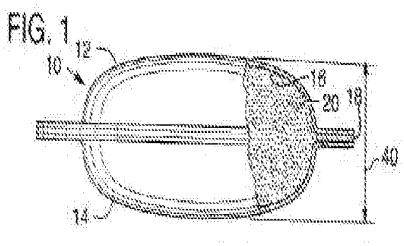
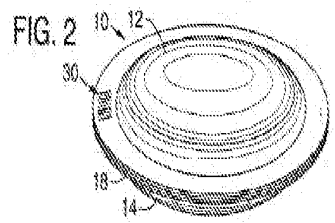
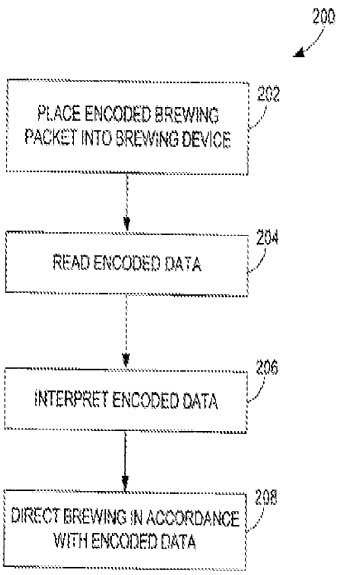
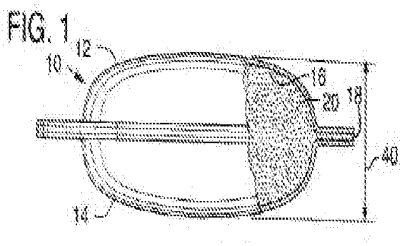
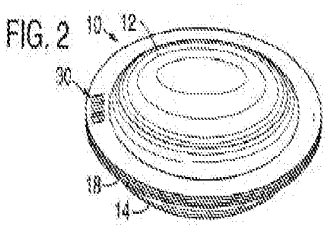
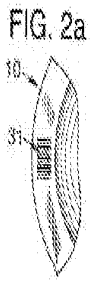
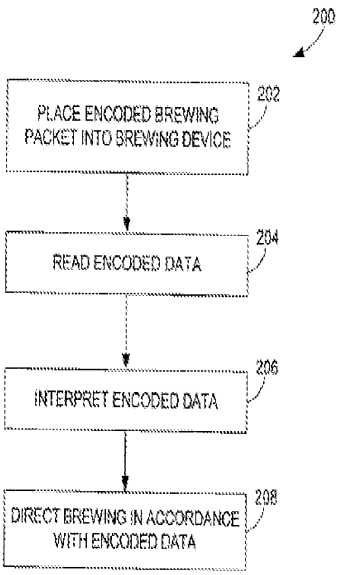
	operation suited for the particular brewing packet. This allows for producing the optimal beverage from the brewing ingredient. The packet may be utilized with a variety of brewing ingredients to produce a variety of beverages. Similarly, the packet may be configured to produce single or multiple servings 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:

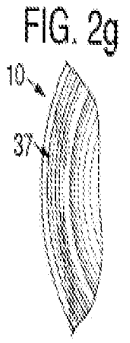
	FIG. 2  Boyd at Fig. 2a: FIG. 2a  Boyd at Fig. 4:

	 FIG. 4 Boyd at Claims 1-25.
[1.c] and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity,	
[1.d] the base element including a circumferential flange having a top side to which the first foil lid is sealed and an opposing bottom side with a first barcode located on the bottom side,	Boyd discloses, either expressly or inherently, the base element including a circumferential flange having a top side to which the first foil lid is sealed and an opposing bottom side with a first 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. 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:  Boyd at Fig. 2a:  Boyd at Fig. 4:

	 FIG. 4 Boyd at Claims 6, 25.
[1.e] the base element of the first portion capsule includes an outside surface having a plurality of vertically oriented grooves;	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

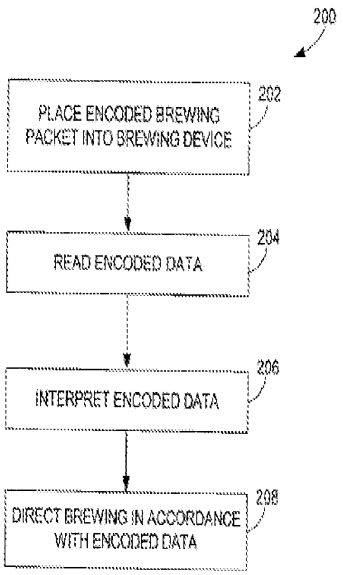
	the packet or may span its entire perimeter in singular or repetitive fashion. Grooves 37 are depicted in FIG. 2g. One or more grooves may be incorporated to create a texture. FIG. 2h shows holes. One or more holes may be used, which holes may be, of various shapes and sizes. The above-noted machine 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 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.f] reading the first barcode with the barcode reader; controlling a production process of a first coffee beverage based upon the reading of the first barcode;	Boyd discloses, reading the first barcode with the barcode reader, controlling a production process of a first coffee beverage based upon the reading of the first barcode. *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 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. 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]-[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

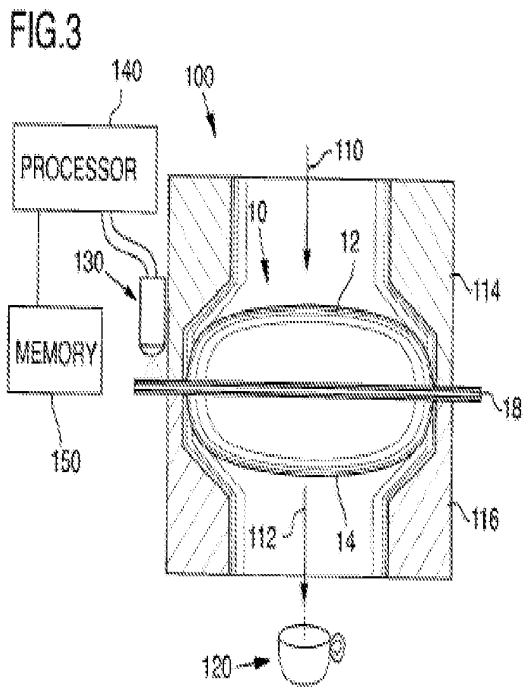
	contact time, contact pattern, fluid quantity, fluid temperature, fluid pressure, and/or fluid pass-through rate expressed in machine interpretable feature 30. Alternatively, the processor may itself make determinations of contact time, contact pattern, fluid quantity, fluid temperature, fluid pressure, 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, 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

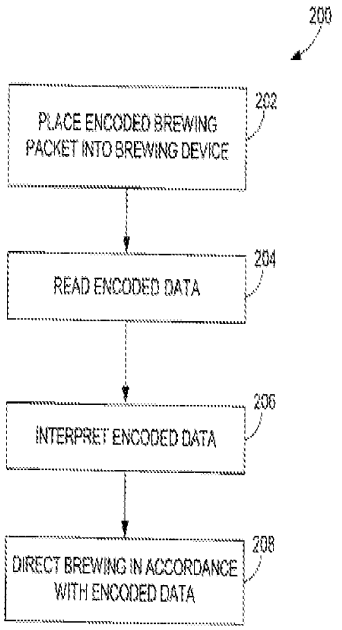
	brew characteristics thus may be controlled simply by selection of a packet with the desired encoded brewing directives (whether or not such directives are known to the coffee machine operator). Control of the brewing process thus may be handed off to the brewing professionals who produce the packets, 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 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
[1.g] piercing the first foil lid with a mandrel of the apparatus in a region that is offset from a central axis of the first portion capsule;	Boyd discloses, either expressly or inherently, piercing the first foil lid with a mandrel of the apparatus in a region that is offset from a central axis of the first portion capsule. *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.
[1.h] sealing the first foil lid against a seal of the apparatus;	Boyd discloses, either expressly or inherently, sealing the first foil lid against a seal of the apparatus. 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

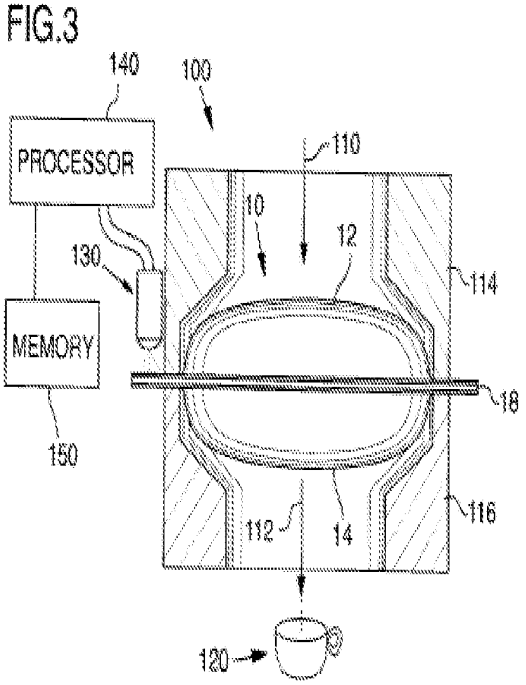
	packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference. While the aforementioned machines generally are described for use in connection with espresso packets which contain a single serving of espresso, 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 [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 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 [0031]: FIG. 3 schematically depicts a coffee machine 100 designed to utilize packet 10. In the depicted embodiment, packet 10 is positioned between input fluid path 110 and output fluid path 112. Gasket 18 helps form a seal between chamber 114, defining the input fluid path, and chamber 116, defining the output fluid path. Gasket 18 also helps secure packet 10 in place. In other embodiments, packet 10 is held in place by gravity, water pressure, friction, adhesion, magnetism, or other suitable mechanisms. As depicted, water passes into packet 10 along input fluid path 110, passing through filter portion 12. The water contacts ground coffee within packet 10, producing a coffee beverage. The coffee beverage then flows

	through packet 10 and out through filter portion 14. Thereafter, the coffee beverage continues along output fluid path 112 and into beverage receptacle 120. In one embodiment, water is stored in a reservoir (not shown) within coffee machine 100 and heated before entering input fluid path 110. Alternatively, water is externally heated before entering input fluid path 110, or not heated at all. Beverage receptacle 120 may be dimensioned to accommodate multiple servings of the brewed coffee beverage, or may be dimensioned to receive a single serving of brewed coffee. Boyd at Fig. 3:  Boyd at Fig. 4:

	 FIG. 4
[1.i] introducing heated water into the first portion capsule through a water inlet of the apparatus that is arranged along the central axis of the portion capsule to form the first coffee beverage;	Boyd discloses, either expressly or inherently, introducing heated water into the first portion capsule through a water inlet of the apparatus that is arranged along the central axis of the portion capsule to form the first coffee beverage. 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 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 [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 [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. Boyd at [0031]:

	FIG. 3 schematically depicts a coffee machine 100 designed to utilize packet 10. In the depicted embodiment, packet 10 is positioned between input fluid path 110 and output fluid path 112. Gasket 18 helps form a seal between chamber 114, defining the input fluid path, and chamber 116, defining the output fluid path. Gasket 18 also helps secure packet 10 in place. In other embodiments, packet 10 is held in place by gravity, water pressure, friction, adhesion, magnetism, or other suitable mechanisms. As depicted, water passes into packet 10 along input fluid path 110, passing through filter portion 12. The water contacts ground coffee within packet 10, producing a coffee beverage. The coffee beverage then flows through packet 10 and out through filter portion 14. Thereafter, the coffee beverage continues along output fluid path 112 and into beverage receptacle 120. In one embodiment, water is stored in a reservoir (not shown) within coffee machine 100 and heated before entering input fluid path 110. Alternatively, water is externally heated before entering input fluid path 110, or not heated at all. Beverage receptacle 120 may be dimensioned to accommodate multiple servings of the brewed coffee beverage, or may be dimensioned to receive a single serving of brewed coffee. Boyd at [0036]: 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. Boyd at Fig. 3:

	
[1.j] unloading the first portion capsule from the apparatus;	Boyd discloses, either expressly or inherently, unloading the first portion capsule from the apparatus. 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,

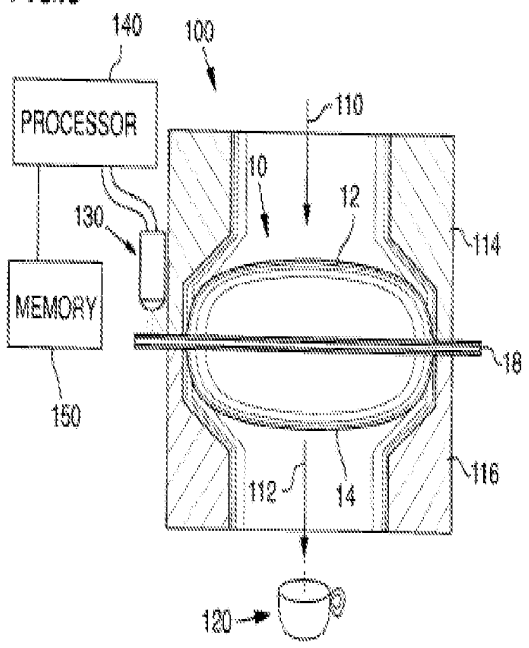
	4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated 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.
[1.k] inserting a second portion capsule into the apparatus, the second portion capsule including a second foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity of the second portion capsule being free of a filter and includes a central portion and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity, the base element of the second portion capsule including a circumferential flange having a top side to which the second foil is sealed and an opposing bottom side with a second barcode located on the bottom side	Boyd discloses, either expressly or inherently, inserting a second portion capsule into the apparatus, the second portion capsule including a second foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity of the second portion capsule being free of a filter and includes a central portion and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity, the base element of the second portion capsule including a circumferential flange having a top side to which the second foil is sealed and an opposing bottom side with a second barcode located on the bottom side and being different from the first barcode, the base element of the second portion capsule includes an outside surface having a plurality of vertically oriented grooves; reading the second barcode with the barcode reader; controlling a second production process of a second coffee beverage based upon the reading of the second barcode, the second production process being different than the first production process; piercing the second foil lid with the mandrel of the apparatus in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange and/or the second foil lid of the second portion capsule against the seal of the apparatus; and introducing the heated water into the second portion capsule to form the second coffee beverage. *See* [1.b]-[1.i].

and being different from the first barcode, the base element of the second portion capsule includes an outside surface having a plurality of vertically oriented grooves; reading the second barcode with the barcode reader; controlling a second production process of a second coffee beverage based upon the reading of the second barcode, the second production process being different than the first production process; piercing the second foil lid with the mandrel of the apparatus in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange and/or the second foil lid of the second portion capsule against the seal of the apparatus; and introducing the heated water into the second portion capsule to form the second coffee beverage.	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 [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 [0035]-[0037]: 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.
[redacted]	
2. The method according to claim 1, wherein one or both of the introducing steps include: inducing turbulent flow of the heated water by the ribs.	Boyd discloses, either expressly or inherently, the method according to claim 1, wherein one or both of the introducing steps include: inducing turbulent flow of the heated water by the ribs. 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 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 [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 [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. Boyd at [0031]: FIG. 3 schematically depicts a coffee machine 100 designed to utilize packet 10. In the depicted embodiment, packet 10 is positioned between input fluid path 110 and output fluid path 112. Gasket 18 helps form a seal between chamber 114, defining the input fluid path, and chamber 116, defining the output fluid path. Gasket 18 also helps secure packet 10 in place. In other embodiments, packet 10 is held in place by gravity, water pressure, friction, adhesion, magnetism, or other suitable mechanisms. As depicted, water passes into packet 10 along input fluid path 110, passing through filter portion 12. The water contacts ground coffee within packet 10, producing a coffee beverage. The coffee beverage then flows through packet 10 and out through filter portion 14. Thereafter, the coffee beverage continues along output fluid path 112 and into beverage receptacle 120. In one embodiment, water is stored in a reservoir (not shown) within coffee machine 100 and heated before entering input fluid path 110. Alternatively, water is externally heated before entering input fluid path 110, or not heated at all. Beverage receptacle 120 may be dimensioned to accommodate multiple servings of the brewed coffee beverage, or may be dimensioned to receive a single serving of brewed coffee. Boyd at [0036]: 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. Boyd at Fig. 3:

	FIG.3  *See also* [1].
3. The method according to claim 1, wherein the method comprises: comparing the read barcode with a stored reference.	Boyd discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises: comparing the read barcode with a stored reference. 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 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 [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]: 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 accordance with the packet-characteristic data read by the sensor and interpreted by the processor. *See also* [1].
[redacted]	

10. The method according to claim 1, wherein the base element of the first portion capsule is made of metal.	Boyd discloses, either expressly or inherently, the method according to claim 1, wherein the base element of the first portion capsule is 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 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].
[redacted]	

11. The method according to claim 10, wherein the base element of the second portion capsule is made of metal.	Boyd discloses, either expressly or inherently, the method according to claim 10, wherein the base element of the second portion capsule is 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 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].
[redacted]	

12. The method according to claim 1, wherein the first foil lid and/or the second foil lid is made of metal.	Boyd discloses, either expressly or inherently, the method according to claim 1, wherein the first foil lid and/or the second foil lid is 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 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].
[redacted]	

[13.pre] A method of making a coffee beverage, comprising steps of:	Boyd discloses, either expressly or inherently, a method of making a coffee beverage. *See, e.g.*: *See* [1.pre].
[13.a] providing an apparatus including a barcode reader configured to read a barcode, the apparatus including a mandrel, a water inlet, and a seal;	Boyd discloses, either expressly or inherently, providing an apparatus including a barcode reader configured to read a barcode, the apparatus including a mandrel, a water inlet, and a seal. *See* [1.a], [1.g], [1.i], [1.h].
[13.b] inserting a first portion capsule into the apparatus, the first portion capsule being free of a filter and including a first lid that is sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines the cavity with a central interior portion,	Boyd discloses, either expressly or inherently, inserting a first portion capsule into the apparatus, the first portion capsule being free of a filter and including a first lid that is sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines the cavity with a central interior portion. *See, e.g.*: *See* [1.b].
[13.c] having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central interior portion and an outside surface of the wall having plurality of vertically oriented grooves,	Boyd discloses, either expressly or inherently, having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central interior portion and an outside surface of the wall having plurality of vertically oriented grooves. *See, e.g.*: *See* [1.c], [1.e].
[13.d] the base element having a circumferential flange having a top side to which the first lid is sealed and an opposing bottom side with a	Boyd discloses, either expressly or inherently, the base element having a circumferential flange having a top side to which the first lid is sealed and an opposing bottom side with a first barcode located on the bottom side. *See, e.g.*:

first barcode located on the bottom side;	*See* [1.d].
[13.e] piercing the first lid with the mandrel in a region that is offset from a central axis of the first portion capsule;	Boyd discloses, either expressly or inherently, piercing the first lid with the mandrel in a region that is offset from a central axis of the first portion capsule. *See, e.g.*: *See* [1.g].
[13.f] sealing the top side of the flange of the first portion capsule and/or the first lid against the seal of the apparatus;	Boyd discloses, either expressly or inherently, sealing the top side of the flange of the first portion capsule and/or the first lid against the seal of the apparatus. *See, e.g.*: *See* [1.h].
[13.g] reading the first barcode with the barcode reader; controlling production of a first coffee beverage based upon the reading of the first barcode; introducing heated water into the first portion capsule via the water inlet that is arranged along the central axis of the first portion capsule according to production conditions associated with the first barcode to form the first coffee beverage;	Boyd discloses, either expressly or inherently, reading the first barcode with the barcode reader; controlling production of a first coffee beverage based upon the reading of the first barcode; introducing heated water into the first portion capsule via the water inlet that is arranged along the central axis of the first portion capsule according to production conditions associated with the first barcode to form the first coffee beverage. *See, e.g.*: *See* [1.f], [1.i].
[13.h] unloading the first portion capsule from the apparatus;	Boyd discloses, either expressly or inherently, unloading the first portion capsule from the apparatus. *See, e.g.*: *See* [1.j].
[13.i] inserting second portion capsule into the apparatus, the second portion capsule being free of	Boyd discloses, either expressly or inherently, inserting second portion capsule into the apparatus, the second portion capsule being free of a filter and including a second lid sealed to a base element having a cavity within which a powdered coffee material is located, the

a filter and including a second lid sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines a cavity with a central interior portion, and having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the cavity central interior portion, and an outside surface of the wall having a plurality of vertically oriented grooves, the base element has a circumferential flange having a top side to which the second lid is sealed and an opposing bottom side with a second barcode that is located on the bottom side and being different from the first barcode; piercing the second lid with the mandrel in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange of the second portion capsule and/or the second lid against the seal of the apparatus; reading the second barcode with the barcode reader; controlling production of a second coffee beverage based upon the reading of the second barcode; introducing the heated water into the second portion capsule via the water inlet that is	base element has been shaped to define a wall that defines a cavity with a central interior portion, and having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the cavity central interior portion, and an outside surface of the wall having a plurality of vertically oriented grooves, the base element has a circumferential flange having a top side to which the second lid is sealed and an opposing bottom side with a second barcode that is located on the bottom side and being different from the first barcode; piercing the second lid with the mandrel in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange of the second portion capsule and/or the second lid against the seal of the apparatus; reading the second barcode with the barcode reader; controlling production of a second coffee beverage based upon the reading of the second barcode; introducing the heated water into the second portion capsule via the water inlet that is arranged along the central axis of the second portion capsule according to production conditions associated with the second barcode to form the second coffee beverage. *See, e.g.*: *See* [1.k]; [13.a]-[13.g].

arranged along the central axis of the second portion capsule according to production conditions associated with the second barcode to form the second coffee beverage.	
[redacted]	
14. The method according to claim 13, wherein the production conditions associated with the first barcode are different from the production conditions associated with the second barcode, the production conditions include: pressure, temperature and/or an amount of the heated water.	Boyd discloses, either expressly or inherently, the method according to claim 13, wherein the production conditions associated with the first barcode are different from the production conditions associated with the second barcode, the production conditions include: pressure, temperature and/or an amount of the heated water. *See* [1.f] and [1.k]. 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 [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 [0035]-[0037]: 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.

	See also [13].

K-FEE SYSTEM GMBH, EX2012, page 316
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

Exhibit A-3 – Invalidity of U.S. Patent No. 10,858,176 in view of Denisart

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,176 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 '176 Patent under pre-AIA 35 U.S.C. § 102(a). Denisart anticipates and/or renders obvious the Asserted Claims of the '176 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 the charts in Exhibits A-1 to A-9, and in Appendix A.

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 317
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

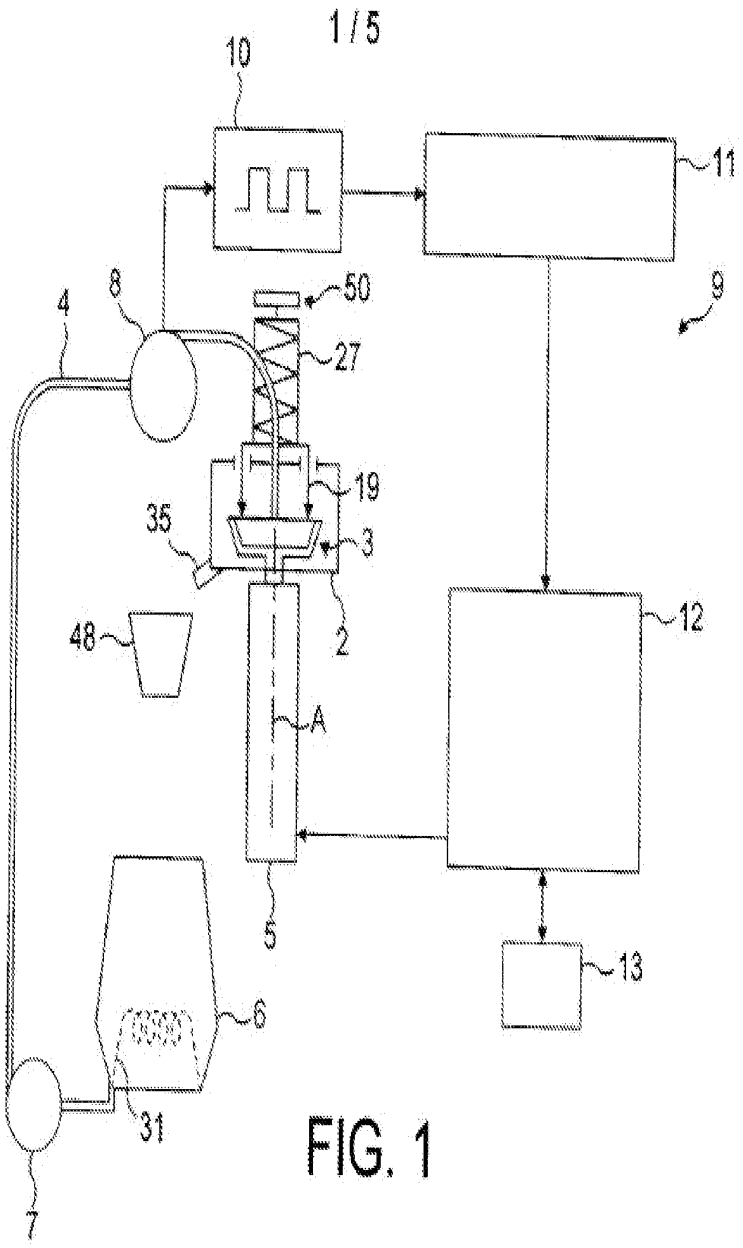
Exhibit A-3 – Invalidity of U.S. Patent No. 10,858,176 in view of Denisart

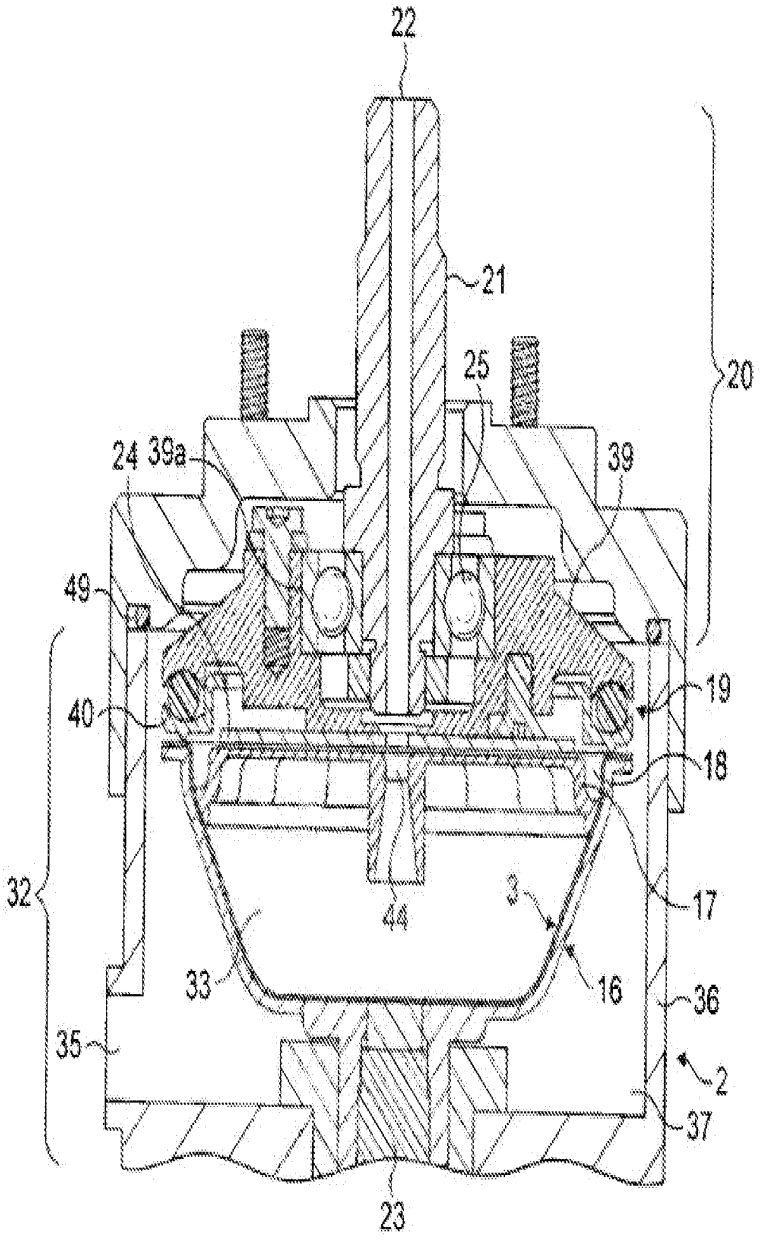
U.S. Patent No. 10,858,176	Disclosure
[1.pre] A method of making a coffee beverage comprising:	Denisart discloses, either expressly or inherently, a method for making a coffee beverage. *See, e.g.*: Denisart at Abstract: The present invention relates to a beverage production device for preparing a liquid 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 substance using centrifugal forces, comprising the steps of connecting the capsule or cell to a

U.S. Patent No. 10,858,176	Disclosure
	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.

	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: 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. 10,858,176	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 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.

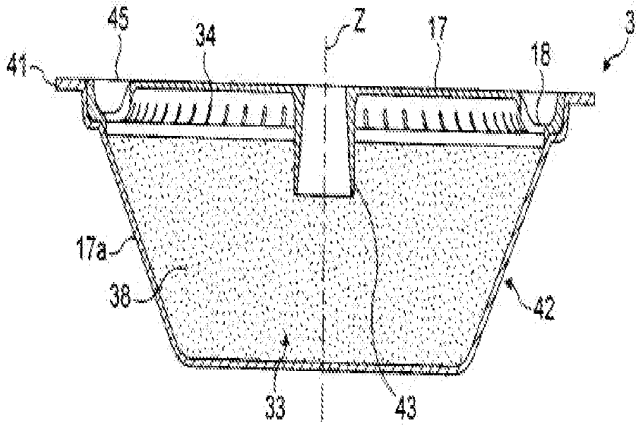
	Denisart at Fig. 1:  FIG. 1

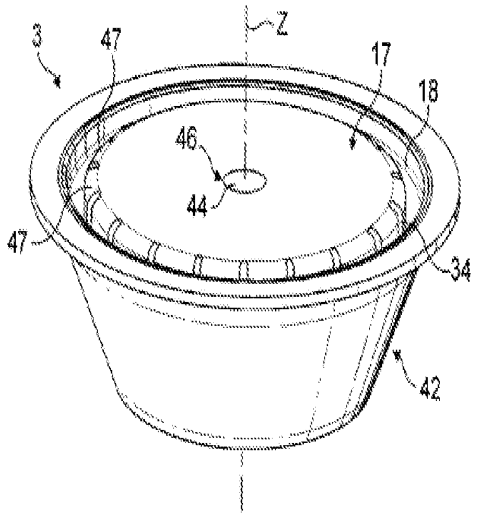
	Denisart at Fig. 3: 

U.S. Patent No. 10,858,176	Disclosure
	See also Denisart at Claims 5-19.
[1.b] inserting a first portion capsule into the apparatus, the first portion capsule including a first foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity being free of a filter and including a central portion,	Denisart discloses, either expressly or inherently, inserting a first portion capsule into the apparatus, the first portion capsule including a first foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity being free of a filter and including a central portion. *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: 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:

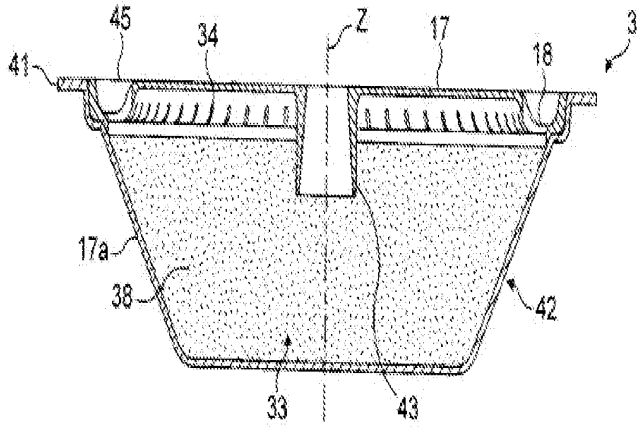
U.S. Patent No. 10,858,176	Disclosure
	In a preferred embodiment, the capsule is removably insertable into the centrifugal unit of the device. The centrifugal unit of the device preferably comprises two enclosing members which are movably arranged relatively to each other and which are designed to enclose 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 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.

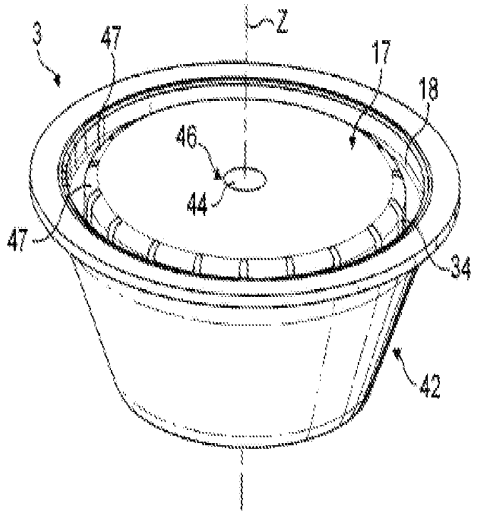
U.S. Patent No. 10,858,176	Disclosure
	The capsule preferably contains ground coffee, soluble coffee, tea, cocoa, milk and combinations thereof. Denisart at 34:8-10: The capsule 3 to be used with the device or the system according to the present invention may be any of the capsules described in PCT/EP08/056310 (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 (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

U.S. Patent No. 10,858,176	Disclosure
	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. Denisart at Fig. 5: 

U.S. Patent No. 10,858,176	Disclosure
	Denisart at Fig. 6:  *See also* Denisart at Claims 5-19.
[1.c] and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity,	
[1.d] the base element including a circumferential flange having a top side to which the first foil lid is sealed and an opposing bottom	Denisart discloses, either expressly or inherently, the base element including a circumferential flange having a top side to which the first foil lid is sealed and an opposing bottom side with a first barcode located on the bottom side. *See, e.g.*: Denisart at 8:10-19:

U.S. Patent No. 10,858,176	Disclosure
side with a first barcode located on the bottom side,	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: 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:

U.S. Patent No. 10,858,176	Disclosure
	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 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 Fig. 5:  Denisart at Fig. 6:

U.S. Patent No. 10,858,176	Disclosure
	 *See also* Denisart at Claims 5-19.
[1.e] the base element of the first portion capsule includes an outside surface having a plurality of vertically oriented grooves;	
[1.f] reading the first barcode with the barcode reader; controlling a production process of a first coffee beverage based upon the reading of the first barcode;	Denisart discloses, either expressly or inherently, reading the first barcode with the barcode reader; controlling a production process of a first coffee beverage based upon the reading of the first barcode. *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

U.S. Patent No. 10,858,176	Disclosure
	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 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.

U.S. Patent No. 10,858,176	Disclosure
	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: 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.

U.S. Patent No. 10,858,176	Disclosure
	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. 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

U.S. Patent No. 10,858,176	Disclosure
	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.a] and [1.d]
[1.g] piercing the first foil lid with a mandrel of the apparatus in a region that is offset from a central axis of the first portion capsule;	Denisart discloses, either expressly or inherently, piercing the first foil lid with a mandrel of the apparatus in a region that is offset from a central axis of the first 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. 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. 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.

U.S. Patent No. 10,858,176	Disclosure
	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.
[1.h] sealing the first foil lid against a seal of the apparatus;	Denisart discloses, either expressly or inherently, sealing the first foil lid against a seal of the apparatus. *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 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 34:8-16: 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). 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. 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.

U.S. Patent No. 10,858,176	Disclosure
	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 order to enable a discharging of liquid from the capsule 3 to the outlet 35 of the device can be adjusted.Denisart at 40:31-41:16: 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. The lid 17 further comprises a peripheral portion 47 including a collecting recess 18. The collecting recess 18 forms a U-shape in transversal section (figure 6) which opens in the direction of the sealing foil 45. The recess is preferably continuously extending at the periphery of the lid 17 although it can be replaced by several discontinuous recessed portions which may be separated by reinforcing elements or walls, for example.
[1.i] introducing heated water into the first portion capsule through a water inlet of the apparatus that is arranged along the central axis of the portion capsule to form the first coffee beverage;	Denisart discloses, either expressly or inherently, introducing heated water into the first portion capsule through a water inlet of the apparatus that is arranged along the central axis of the portion capsule to form the first coffee beverage. *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

U.S. Patent No. 10,858,176	Disclosure
	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: 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

U.S. Patent No. 10,858,176	Disclosure
	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. 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. 10,858,176	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.
[1.j] unloading the first portion capsule from the apparatus;	Denisart discloses, either expressly or inherently, unloading the first portion capsule from the apparatus. Denisart at 7:21-26: In a preferred mode, the control unit is preferably configured for selecting or calculating different preset flow rates corresponding to respectively different beverage (e.g., coffee) strengths. The control unit is preferably connected to a user's interface for a selection of the different beverages by the user. Denisart at 28:26-29:8: The parameters regarding the rotational speed SA, the volume of the provided liquid and the time ti of the pre- wetting phase A are preferably equal for all different kinds of beverages to be prepared. For example, for different types of coffee beverages such as e.g. λristretto' , 'espresso' or λlungo' , Ni or ti may be the same. However, the parameters of the pre-wetting phase A may as well be set different for different kinds of beverages to provide different wetting profiles. After the pre-wetting phase A, the extraction phase B of the beverage preparation cycle takes place. Hence, when the number Ni of counted impulses is reached, the control means 12 accelerate the driving means 5 in a ramp-up phase B' to the extraction phase B to reach a

U.S. Patent No. 10,858,176	Disclosure
	predetermined speed set-point Si respectively S2 for the rotational speed of the driving means 5. Denisart at 29:14-25: The set point Si, S2 is the initial speed value for the extraction phase which can be determined in relation to the selection made at the manual interface. The set point Si, S2 preferably differs for different beverages such as different coffee beverages for example. As can be seen in figure 2, the set point S2 of the lighter beverage 15 relates to a higher rotational speed of the driving means 5 than the set point S i of the comparatively strong beverage 14, as the contact time between water and the food ingredients within the centrifugal cell 3 is proportionally shorter at a higher rotational speed (at set point S2).
[1.k] inserting a second portion capsule into the apparatus, the second portion capsule including a second foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity of the second portion capsule being free of a filter and includes a central portion and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity, the base element of the second portion capsule including a circumferential flange having a top side to which the second foil is sealed and an opposing bottom side with a	Denisart discloses, either expressly or inherently, inserting a second portion capsule into the apparatus, the second portion capsule including a second foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity of the second portion capsule being free of a filter and includes a central portion and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity, the base element of the second portion capsule including a circumferential flange having a top side to which the second foil is sealed and an opposing bottom side with a second barcode located on the bottom side and being different from the first barcode, the base element of the second portion capsule includes an outside surface having a plurality of vertically oriented grooves; reading the second barcode with the barcode reader; controlling a second production process of a second coffee beverage based upon the reading of the second barcode, the second production process being different than the first production process; piercing the second foil lid with the mandrel of the apparatus in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange and/or the second foil lid of the second portion capsule against the seal of the apparatus; and introducing the heated water into the second portion capsule to form the second coffee beverage. *See, e.g.*: *See* [1.b]-[1.i].

U.S. Patent No. 10,858,176	Disclosure
second barcode located on the bottom side and being different from the first barcode, the base element of the second portion capsule includes an outside surface having a plurality of vertically oriented grooves; reading the second barcode with the barcode reader; controlling a second production process of a second coffee beverage based upon the reading of the second barcode, the second production process being different than the first production process; piercing the second foil lid with the mandrel of the apparatus in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange and/or the second foil lid of the second portion capsule against the seal of the apparatus; and introducing the heated water into the second portion capsule to form the second coffee beverage.	Denisart at 28:26-29:8: The parameters regarding the rotational speed SA, the volume of the provided liquid and the time ti of the pre- wetting phase A are preferably equal for all different kinds of beverages to be prepared. For example, for different types of coffee beverages such as e.g. λristretto' , 'espresso' or λlungo' , Ni or ti may be the same. However, the parameters of the pre-wetting phase A may as well be set different for different kinds of beverages to provide different wetting profiles. After the pre-wetting phase A, the extraction phase B of the beverage preparation cycle takes place. Hence, when the number Ni of counted impulses is reached, the control means 12 accelerate the driving means 5 in a ramp-up phase B' to the extraction phase B to reach a predetermined speed set-point Si respectively S2 for the rotational speed of the driving means 5. Denisart at 29:14-25: The set point Si, S2 is the initial speed value for the extraction phase which can be determined in relation to the selection made at the manual interface. The set point Si, S2 preferably differs for different beverages such as different coffee beverages for example. As can be seen in figure 2, the set point S2 of the lighter beverage 15 relates to a higher rotational speed of the driving means 5 than the set point S i of the comparatively strong beverage 14, as the contact time between water and the food ingredients within the centrifugal cell 3 is proportionally shorter at a higher rotational speed (at set point S2).
[redacted]	

Exhibit A-3 – Invalidity of U.S. Patent No. 10,858,176 in view of Denisart

U.S. Patent No. 10,858,176	Disclosure
2. The method according to claim 1, wherein one or both of the introducing steps include: inducing turbulent flow of the heated water by the ribs.	Denisart discloses, either expressly or inherently, the method according to claim 1, wherein one or both of the introducing steps include: inducing turbulent flow of the heated water by the ribs. *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: 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. 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:

U.S. Patent No. 10,858,176	Disclosure
	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 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].
3. The method according to claim 1, wherein the method comprises: comparing the read barcode with a stored reference.	Denisart discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises: comparing the read barcode with a stored reference. *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 12:4-12: When different kinds of beverage are proposed such as coffee, tea, milk, etc., the selection means may also be used to select the kind of beverage to be prepared in such as coffee, tea, herbal tea, soup or hot chocolate for example. Thereby, the selections means may provide information about different liquid comestibles to be prepared for which different extraction profiles are stored. Denisart at 12:33-13:5: Considering in particular, coffee preparation from ground coffee contained in the cell, i.e., a single-use capsule, the extraction profile set by the control means of the device preferably comprises at least a pre-wetting phase, an extraction phase and a dry-spinning phase which differ normally in at least the associated rotational speed of the driving means. Denisart at 15:21-27: The extraction profile and particularly the rotational speed may vary for each kind of beverage to be prepared in order to influence the concentration or strength of the beverage. Accordingly, different extraction profiles may be chosen by means of the manual interface. The predefined extraction profiles are preferably stored in the control means or memory means connected thereto.

U.S. Patent No. 10,858,176	Disclosure
	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 26:10-22: Moreover, the central controller 12 preferably comprises a memory (not shown) in which certain parameters of the extraction profile can be saved such as rotational speeds of the centrifugal cell, initial extraction speed of the cell, calibration of the flow meter, prewetting time, dry spinning time, acceleration and deceleration speed ramps, etc. In particular, the controller 12 may contain the set points and values of the rotational speed of the driving means 5 at different phases of the beverage preparation cycle. These parameters serve as part of different predetermined beverage preparation profiles in relation to control algorithms for processing the different profiles on demand. 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].
10. The method according to claim 1, wherein the base element	Denisart discloses, either expressly or inherently, the method according to claim 1, wherein the base element of the first portion capsule is made of metal. *See, e.g.*:

K-FEE SYSTEM GMBH, EX2012, page 349
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,858,176	Disclosure
of the first portion capsule is made of metal.	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). *See also* [1].
11. The method according to claim 10, wherein the base element of the second portion capsule is made of metal.	Denisart discloses, either expressly or inherently, the method according to claim 10, wherein the base element of the second portion capsule is 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). *See also* [1].
12. The method according to claim 1, wherein the first foil lid and/or the second foil lid is made of metal.	Denisart discloses, either expressly or inherently, the method according to claim 1, wherein the first foil lid and/or the second foil lid is made of metal. *See, e.g.*: Denisart at 19:20-27: 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.

U.S. Patent No. 10,858,176	Disclosure
	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). *See also* [1].
[13.pre] A method of making a coffee beverage, comprising steps of:	Denisart discloses, either expressly or inherently, a method of making a coffee beverage. *See, e.g.*: *See* [1.pre].
[13.a] providing an apparatus including a barcode reader configured to read a barcode, the apparatus including a mandrel, a water inlet, and a seal;	Denisart discloses, either expressly or inherently, providing an apparatus including a barcode reader configured to read a barcode, the apparatus including a mandrel, a water inlet, and a seal. *See* [1.a], [1.g], [1.i], [1.h].
[13.b] inserting a first portion capsule into the apparatus, the	Denisart discloses, either expressly or inherently, inserting a first portion capsule into the apparatus, the first portion capsule being free of a filter and including a first lid that is sealed to

U.S. Patent No. 10,858,176	Disclosure
first portion capsule being free of a filter and including a first lid that is sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines the cavity with a central interior portion,	a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines the cavity with a central interior portion. *See, e.g.*: *See* [1.b].
[13.c] having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central interior portion and an outside surface of the wall having plurality of vertically oriented grooves,	Denisart discloses, either expressly or inherently, having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central interior portion and an outside surface of the wall having plurality of vertically oriented grooves. *See, e.g.*: *See* [1.c], [1.e].
[13.d] the base element having a circumferential flange having a top side to which the first lid is sealed and an opposing bottom side with a first barcode located on the bottom side;	Denisart discloses, either expressly or inherently, the base element having a circumferential flange having a top side to which the first lid is sealed and an opposing bottom side with a first barcode located on the bottom side. *See, e.g.*: *See* [1.d].
[13.e] piercing the first lid with the mandrel in a region that is offset from a central axis of the first portion capsule;	Denisart discloses, either expressly or inherently, piercing the first lid with the mandrel in a region that is offset from a central axis of the first portion capsule. *See, e.g.*: *See* [1.g].

U.S. Patent No. 10,858,176	Disclosure
[13.f] sealing the top side of the flange of the first portion capsule and/or the first lid against the seal of the apparatus;	Denisart discloses, either expressly or inherently, sealing the top side of the flange of the first portion capsule and/or the first lid against the seal of the apparatus. *See, e.g.*: *See* [1.h].
[13.g] reading the first barcode with the barcode reader; controlling production of a first coffee beverage based upon the reading of the first barcode; introducing heated water into the first portion capsule via the water inlet that is arranged along the central axis of the first portion capsule according to production conditions associated with the first barcode to form the first coffee beverage;	Denisart discloses, either expressly or inherently, reading the first barcode with the barcode reader; controlling production of a first coffee beverage based upon the reading of the first barcode; introducing heated water into the first portion capsule via the water inlet that is arranged along the central axis of the first portion capsule according to production conditions associated with the first barcode to form the first coffee beverage. *See, e.g.*: *See* [1.f], [1.i].
[13.h] unloading the first portion capsule from the apparatus;	Denisart discloses, either expressly or inherently, unloading the first portion capsule from the apparatus. *See, e.g.*: *See* [1.j].
[13.i] inserting second portion capsule into the apparatus, the second portion capsule being free of a filter and including a second lid sealed to a base element having a cavity within which a powdered coffee material is located, the base element has	Denisart discloses, either expressly or inherently, inserting second portion capsule into the apparatus, the second portion capsule being free of a filter and including a second lid sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines a cavity with a central interior portion, and having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the cavity central interior portion, and an outside surface of the wall having a plurality of vertically oriented grooves, the base element has a circumferential flange having a top side to which the second lid is sealed and an opposing bottom side with a second barcode

U.S. Patent No. 10,858,176	Disclosure
been shaped to define a wall that defines a cavity with a central interior portion, and having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the cavity central interior portion, and an outside surface of the wall having a plurality of vertically oriented grooves, the base element has a circumferential flange having a top side to which the second lid is sealed and an opposing bottom side with a second barcode that is located on the bottom side and being different from the first barcode; piercing the second lid with the mandrel in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange of the second portion capsule and/or the second lid against the seal of the apparatus; reading the second barcode with the barcode reader; controlling production of a second coffee beverage based upon the reading of the second barcode; introducing the heated water into the second portion	that is located on the bottom side and being different from the first barcode; piercing the second lid with the mandrel in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange of the second portion capsule and/or the second lid against the seal of the apparatus; reading the second barcode with the barcode reader; controlling production of a second coffee beverage based upon the reading of the second barcode; introducing the heated water into the second portion capsule via the water inlet that is arranged along the central axis of the second portion capsule according to production conditions associated with the second barcode to form the second coffee beverage. *See, e.g.*: *See* [1.k]; [13.a]-[13.g].

U.S. Patent No. 10,858,176	Disclosure
capsule via the water inlet that is arranged along the central axis of the second portion capsule according to production conditions associated with the second barcode to form the second coffee beverage.	
14. The method according to claim 13, wherein the production conditions associated with the first barcode are different from the production conditions associated with the second barcode, the production conditions include: pressure, temperature and/or an amount of the heated water.	Denisart discloses, either expressly or inherently, the method according to claim 13, wherein the production conditions associated with the first barcode are different from the production conditions associated with the second barcode, the production conditions include: pressure, temperature and/or an amount of the heated water. *See, e.g.*: *See* Denisart at 7:21-26: In a preferred mode, the control unit is preferably configured for selecting or calculating different preset flow rates corresponding to respectively different beverage (e.g., coffee) strengths. The control unit is preferably connected to a user's interface for a selection of the different beverages by the user. *See also* [13].

Exhibit A-4 – Invalidity of U.S. Patent No. 10,858,176 in view of Erlandsson

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,176 in view of Erlandsson

According to its cover page, U.S. Patent Pub. 2007/0203587A1 ("Erlandsson") was published on August 30, 2007. Erlandsson therefore constitutes prior art to the '176 Patent under pre-AIA 35 U.S.C. § 102(b). Erlandsson anticipates and/or renders obvious the Asserted Claims of the '176 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 Erlandsson, a person of ordinary skill in the art would have found it obvious to combine the teachings of Erlandsson 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 A-1 to A-9 and in Appendix A.

The chart below provides representative examples of where each element of each claim is found within Erlandsson. 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 Erlandsson. 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 Erlandsson "discloses" a limitation, that disclosure may be express, implicit, and/or inherent.

K-FEE SYSTEM GMBH, EX2012, page 356
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

Exhibit A-4 – Invalidity of U.S. Patent No. 10,858,176 in view of Erlandsson

U.S. Patent No. 10,858,176	Disclosure
[1.pre] A method of making a coffee beverage comprising:	Erlandsson discloses, either expressly or inherently, a method for making a coffee beverage. *See, e.g.*: Erlandsson at Abstract: The invention relates to a system (1) for preparing a beverage from a beverage base material (5), comprising an apparatus (2) for preparing a beverage extract from a beverage base material (5) and a liquid and a container (3) for containing the beverage base material (5) during storage, the container (3) comprising an identifier (4) provided with data (A), which apparatus (2) comprises a reader (14) for reading the data (A) in said identifier (4) and a controller (6) for controlling a beverage brewing process in dependence on the data (A) during operation of the apparatus (2). In this manner the brewing process parameters for the beverage extract can be optimized for the specific variety of beverage in a user-friendly manner. Erlandsson at [0006]: To achieve this object, a system according to the invention is characterized in that the container comprises an identifier provided with data, and the apparatus comprises a reader for reading the data in said identifier, and a controller for controlling a preparation process during operation of the apparatus based on the data. When a user wants to prepare a consumable matter, such as a cup of beverage, for example coffee, the container is picked up and placed in the vicinity of the apparatus, to take out the basis material, in this case coffee pad. This basis material is then placed in the apparatus for preparing a consumable matter, for example an apparatus for preparing a beverage. When the container is present at a certain predetermined distance from the apparatus, the reader in the apparatus is able to read the data that are provided in the identifier comprised in the container. Based on this information, the controller in the apparatus controls a preparation during operation of the apparatus, which is based on the data in the identifier. In this manner the parameters of the preparation process can be tailored to their optimum, to obtain an optimum result for the prepared consumable matter.

K-FEE SYSTEM GMBH, EX2012, page 357
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

Exhibit A-4 – Invalidity of U.S. Patent No. 10,858,176 in view of Erlandsson

U.S. Patent No. 10,858,176	Disclosure
	See also Erlandsson at Claims 1-8.
[1.a] providing an apparatus including a barcode reader;	Erlandsson discloses, either expressly or inherently, providing an apparatus including a barcode reader. *See, e.g.*: Erlandsson at [0006]-[0008]: To achieve this object, a system according to the invention is characterized in that the container comprises an identifier provided with data, and the apparatus comprises a reader for reading the data in said identifier, and a controller for controlling a preparation process during operation of the apparatus based on the data. When a user wants to prepare a consumable matter, such as a cup of beverage, for example coffee, the container is picked up and placed in the vicinity of the apparatus, to take out the basis material, in this case coffee pad. This basis material is then placed in the apparatus for preparing a consumable matter, for example an apparatus for preparing a beverage. When the container is present at a certain predetermined distance from the apparatus, the reader in the apparatus is able to read the data that are provided in the identifier comprised in the container. Based on this information, the controller in the apparatus controls a preparation during operation of the apparatus, which is based on the data in the identifier. In this manner the parameters of the preparation process can be tailored to their optimum, to obtain an optimum result for the prepared consumable matter. An embodiment according to the invention is characterized in that the container comprises an identifier provided with data, and the apparatus comprises a reader for reading the data in said identifier and a controller for controlling a beverage brewing process in dependence on the data during operation of the apparatus. When a user wants to prepare a cup of beverage, for example coffee, the container is picked up and placed in the vicinity of the apparatus, and the beverage base material is taken out. This beverage base material is then placed in the apparatus for preparing a beverage. When the container is present at a certain predetermined distance from the apparatus, the reader in the apparatus is able to read the data provided in the identifier comprised in the container. Based on this information, the controller in the apparatus controls a beverage brewing process during operation of the apparatus, which is

K-FEE SYSTEM GMBH, EX2012, page 358
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

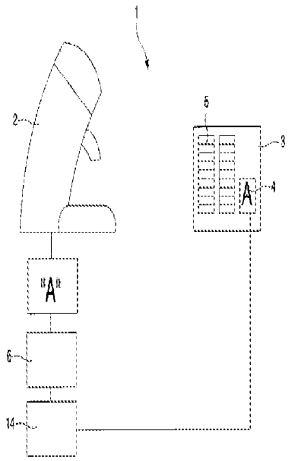
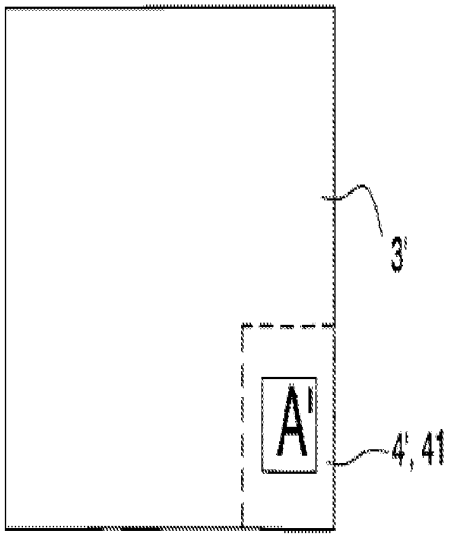
U.S. Patent No. 10,858,176	Disclosure
	based on the data in the identifier. In this manner the parameters of the brewing process can be optimized so as to obtain an optimum beverage result. An embodiment of a system according to the invention is characterized in that the data comprise information identifying the type of beverage base material comprised in the container. In this manner the brewing process parameters can be optimized for the specific type of beverage such as, for example, coffee or hot chocolate. Erlandsson at [0012]: An embodiment of a system according to the invention is characterized in that said controller comprises a processing unit which comprises a plurality of pre-programmed brewing process parameters, from which a selection is made during operation in dependence on the data as read. Various brewing processing parameters for different beverage types are pre-programmed into the processing unit and are assigned different integers. The integer corresponding to the most appropriate program for the beverage base material in the container is present as the data in the identifier and is read as such by the reader when the container is present at a certain predetermined distance from the apparatus. Based on this read integer, the program with appropriate brewing processing parameters is then activated in the apparatus by the controller for preparing a beverage extract. Erlandsson at [0016]: The invention further relates to an apparatus for preparing a beverage extract from beverage base material and a liquid, for use with the system according to the invention, characterized in that said apparatus comprises a reader for reading data in an identifier which is comprised in a container for containing a beverage base material, and a controller for controlling a beverage brewing process in dependence on the data during operation of the apparatus.

	Erlandsson at [0024]: The container 3 comprises an identifier 4 provided with data A, and the apparatus 2 comprises a reader 14 for reading the data A in said identifier. The identifier in this embodiment comprises a radio frequency transponder which can be read by a radio frequency reader comprised in the apparatus. In this embodiment, a radio frequency transponder is placed in every bag, and a radio frequency reader incorporated into the beverage maker. There are several methods of identifying objects using RFID, but the most common one is to store a serial number that identifies a product, and perhaps other information, on a microchip that is attached to an antenna (the chip and the antenna together are called an RFID transponder or an RFID tag). The reader sends out electromagnetic waves that induce a current in the tag's antenna, powering the chip, and enabling transmission of the identification information back to the reader. The reader demodulates the radio waves returned from the RFID tag, then interprets the serial number. In this application, the range of the reader will be limited so that data stored on the tag can be read by bringing the bag into close proximity with the beverage maker, avoiding any conflict with other bags the user may have purchased. Erlandsson at [0026]: It is noted that other known types of identifier technologies, such as bar codes on the container and a bar code reader in or connected to the apparatus, may also be applied. The apparatus 2 further comprises a controller 6 for controlling a beverage brewing process "A" during operation of the apparatus 2 based on the data A. This will be further illustrated with an example. Erlandsson at [0028]: In this embodiment, the controller 6 comprises a processing unit which comprises a plurality of pre-programmed brewing process parameters from which a selection is made during operation dependent on the data as read. The processing unit in the apparatus comprises various pre-programmed brewing processes, which are assigned different integers. The data in the identifier in each container comprise an integer corresponding to the most appropriate

U.S. Patent No. 10,858,176	Disclosure
	brewing process for the specific type of beverage base material comprised in the container. After reading out of the integer by the reader, the correct pre-programmed brewing process is selected by the controller in dependence on that integer, to control the operation of the apparatus. In another embodiment, the data in the identifier itself comprise specific brewing parameters such as a pre-selected fluid quantity, fluid temperature, and fluid pass-through rate, which are read out by the reader and transferred to the control unit 6 to control the beverage brewing process. Erlandsson at [0032]: FIG. 2a is a schematic view of a container 3' for containing a beverage base material during storage, for use with a system according to the invention. Said container 3' comprises an identifier 4' provided with data A', said data A', being readable by a reader in an apparatus for preparing a beverage, and a beverage brewing process during operation of the apparatus being controlled in dependence on the data. In this embodiment, the identifier 4' comprises an element 41 which is detachably connected to the container 3'. The element 41 in this embodiment is connected to the container via a perforated line and can be torn off the container 3'. It is noted that the element 41 may also be detachably connected to the container by means of other known types of connections, the element for example comprising a sticker or a clip which is removably attached to the container. Erlandsson at [0033]: In another embodiment, the identifier comprises a separate element for inclusion in a container for containing the beverage base material during storage, which element is provided with data which can be read by a reader in an apparatus for preparing a beverage, and a beverage brewing process during operation of the apparatus being controlled in dependence on said data.
[1.b] inserting a first portion capsule into the apparatus, the first portion capsule including a first foil lid sealed to a base element having a	Erlandsson discloses, either expressly or inherently, inserting a first portion capsule into the apparatus, the first portion capsule including a first foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity being free of a filter and including a central portion. *See, e.g.*:

U.S. Patent No. 10,858,176	Disclosure
cavity within which a powdered coffee material is located, the cavity being free of a filter and including a central portion,	Erlandsson at [0006]: To achieve this object, a system according to the invention is characterized in that the container comprises an identifier provided with data, and the apparatus comprises a reader for reading the data in said identifier, and a controller for controlling a preparation process during operation of the apparatus based on the data. When a user wants to prepare a consumable matter, such as a cup of beverage, for example coffee, the container is picked up and placed in the vicinity of the apparatus, to take out the basis material, in this case coffee pad. This basis material is then placed in the apparatus for preparing a consumable matter, for example an apparatus for preparing a beverage. When the container is present at a certain predetermined distance from the apparatus, the reader in the apparatus is able to read the data that are provided in the identifier comprised in the container. Based on this information, the controller in the apparatus controls a preparation during operation of the apparatus, which is based on the data in the identifier. In this manner the parameters of the preparation process can be tailored to their optimum, to obtain an optimum result for the prepared consumable matter. Erlandsson at [0007]: An embodiment according to the invention is characterized in that the container comprises an identifier provided with data, and the apparatus comprises a reader for reading the data in said identifier and a controller for controlling a beverage brewing process in dependence on the data during operation of the apparatus. When a user wants to prepare a cup of beverage, for example coffee, the container is picked up and placed in the vicinity of the apparatus, and the beverage base material is taken out. This beverage base material is then placed in the apparatus for preparing a beverage. When the container is present at a certain predetermined distance from the apparatus, the reader in the apparatus is able to read the data provided in the identifier comprised in the container. Based on this information, the controller in the apparatus controls a beverage brewing process during operation of the apparatus, which is based on the data in the identifier. In this manner the parameters of the brewing process can be optimized so as to obtain an optimum beverage result.

U.S. Patent No. 10,858,176	Disclosure
	Erlandsson at [0022]: FIGS. 3a, 3b and 3c are perspective views of further embodiments of an identifier according to the invention. Erlandsson at [0023]: FIG. 1 is a schematic view of a system 1 according to the invention, comprising an apparatus 2 in this embodiment an apparatus for preparing a beverage extract from beverage base material 5 and a liquid, and a container 3 for containing the beverage base material 5 during storage. In this embodiment, the beverage base material 5 comprises a plurality of pouches 51 made of filter material and containing ground coffee. One or two pouches, depending on whether one or two cups of beverage are to be prepared, are placed in a holder in the apparatus, to prepare a coffee extract from the ground coffee and water that flows through the pouch during the brewing process in the apparatus. It is noted, however, that the beverage base material 5 may comprise alternative types of beverage base material, with or without an enclosure of filter material such as, for example, loose ground coffee, chocolate milk powder, or tea leaves in a teabag. The container 3 in this embodiment comprises a flexible bag comprising a plurality of coffee pouches, but it is noted that this container may comprise any known type of container such as, for example, tins, canisters, boxes, etc., for containing any type of beverage base material.

U.S. Patent No. 10,858,176	Disclosure
	Erlandsson at Fig. 1:  Fig.1 Erlandsson at Fig. 2a: 

U.S. Patent No. 10,858,176	Disclosure
[1.c] and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity,	
[1.d] the base element including a circumferential flange having a top side to which the first foil lid is sealed and an opposing bottom side with a first barcode located on the bottom side,	Erlandsson discloses, either expressly or inherently, the base element including a circumferential flange having a top side to which the first foil lid is sealed and an opposing bottom side with a first barcode located on the bottom side. *See, e.g.*: Erlandsson at [0005]-[0008]: It is an object of the invention to provide a system for preparing a consumable matter in which the parameters can be tailored to their optimum for the specific variety of consumable matter, in a user-friendly manner. To achieve this object, a system according to the invention is characterized in that the container comprises an identifier provided with data, and the apparatus comprises a reader for reading the data in said identifier, and a controller for controlling a preparation process during operation of the apparatus based on the data. When a user wants to prepare a consumable matter, such as a cup of beverage, for example coffee, the container is picked up and placed in the vicinity of the apparatus, to take out the basis material, in this case coffee pad. This basis material is then placed in the apparatus for preparing a consumable matter, for example an apparatus for preparing a beverage. When the container is present at a certain predetermined distance from the apparatus, the reader in the apparatus is able to read the data that are provided in the identifier comprised in the container. Based on this information, the controller in the apparatus controls a preparation during operation of the apparatus, which is based on the data in the identifier. In this manner the parameters of the preparation process can be tailored to their optimum, to obtain an optimum result for the prepared consumable matter. An embodiment according to the invention is characterized in that the container comprises an identifier provided with data, and the apparatus comprises a reader for reading the data in said identifier and a controller for controlling a beverage brewing process in dependence on

U.S. Patent No. 10,858,176	Disclosure
	the data during operation of the apparatus. When a user wants to prepare a cup of beverage, for example coffee, the container is picked up and placed in the vicinity of the apparatus, and the beverage base material is taken out. This beverage base material is then placed in the apparatus for preparing a beverage. When the container is present at a certain predetermined distance from the apparatus, the reader in the apparatus is able to read the data provided in the identifier comprised in the container. Based on this information, the controller in the apparatus controls a beverage brewing process during operation of the apparatus, which is based on the data in the identifier. In this manner the parameters of the brewing process can be optimized so as to obtain an optimum beverage result. An embodiment of a system according to the invention is characterized in that the data comprise information identifying the type of beverage base material comprised in the container. In this manner the brewing process parameters can be optimized for the specific type of beverage such as, for example, coffee or hot chocolate. Erlandsson at [0023]-[0026]: FIG. 1 is a schematic view of a system 1 according to the invention, comprising an apparatus 2 in this embodiment an apparatus for preparing a beverage extract from beverage base material 5 and a liquid, and a container 3 for containing the beverage base material 5 during storage. In this embodiment, the beverage base material 5 comprises a plurality of pouches 51 made of filter material and containing ground coffee. One or two pouches, depending on whether one or two cups of beverage are to be prepared, are placed in a holder in the apparatus, to prepare a coffee extract from the ground coffee and water that flows through the pouch during the brewing process in the apparatus. It is noted, however, that the beverage base material 5 may comprise alternative types of beverage base material, with or without an enclosure of filter material such as, for example, loose ground coffee, chocolate milk powder, or tea leaves in a teabag. The container 3 in this embodiment comprises a flexible bag comprising a plurality of coffee pouches, but it is noted that this container may comprise any known type of container such as, for example, tins, canisters, boxes, etc., for containing any type of beverage base material.

U.S. Patent No. 10,858,176	Disclosure
	The container 3 comprises an identifier 4 provided with data A, and the apparatus 2 comprises a reader 14 for reading the data A in said identifier. The identifier in this embodiment comprises a radio frequency transponder which can be read by a radio frequency reader comprised in the apparatus. In this embodiment, a radio frequency transponder is placed in every bag, and a radio frequency reader incorporated into the beverage maker. There are several methods of identifying objects using RFID, but the most common one is to store a serial number that identifies a product, and perhaps other information, on a microchip that is attached to an antenna (the chip and the antenna together are called an RFID transponder or an RFID tag). The reader sends out electromagnetic waves that induce a current in the tag's antenna, powering the chip, and enabling transmission of the identification information back to the reader. The reader demodulates the radio waves returned from the RFID tag, then interprets the serial number. In this application, the range of the reader will be limited so that data stored on the tag can be read by bringing the bag into close proximity with the beverage maker, avoiding any conflict with other bags the user may have purchased. Interpretation of the tag's data will lead to verification of the manufacturer and unique identification of the variety of beverage within the pad, so that the brewing parameters can be optimized for the drink. This optimization can be achieved either by selection of pre-programmed parameters, or by interpretation of the data provided by the RF tag into brewing instructions, increasing brewing versatility and allowing the introduction of new beverage types after manufacture of the beverage maker. If no tag or a tag of some unrecognized format is detected, default brewing parameters will be adopted. It is noted that other known types of identifier technologies, such as bar codes on the container and a bar code reader in or connected to the apparatus, may also be applied. The apparatus 2 further comprises a controller 6 for controlling a beverage brewing process "A" during operation of the apparatus 2 based on the data A. This will be further illustrated with an example.
[1.e] the base element of the first portion capsule includes an outside	

U.S. Patent No. 10,858,176	Disclosure
surface having a plurality of vertically oriented grooves;	
[1.f] reading the first barcode with the barcode reader; controlling a production process of a first coffee beverage based upon the reading of the first barcode;	Erlandsson discloses, either expressly or inherently, reading the first barcode with the barcode reader; controlling a production process of a first coffee beverage based upon the reading of the first barcode. *See, e.g.*: Erlandsson at [0005]-[0008]: It is an object of the invention to provide a system for preparing a consumable matter in which the parameters can be tailored to their optimum for the specific variety of consumable matter, in a user-friendly manner. To achieve this object, a system according to the invention is characterized in that the container comprises an identifier provided with data, and the apparatus comprises a reader for reading the data in said identifier, and a controller for controlling a preparation process during operation of the apparatus based on the data. When a user wants to prepare a consumable matter, such as a cup of beverage, for example coffee, the container is picked up and placed in the vicinity of the apparatus, to take out the basis material, in this case coffee pad. This basis material is then placed in the apparatus for preparing a consumable matter, for example an apparatus for preparing a beverage. When the container is present at a certain predetermined distance from the apparatus, the reader in the apparatus is able to read the data that are provided in the identifier comprised in the container. Based on this information, the controller in the apparatus controls a preparation during operation of the apparatus, which is based on the data in the identifier. In this manner the parameters of the preparation process can be tailored to their optimum, to obtain an optimum result for the prepared consumable matter. An embodiment according to the invention is characterized in that the container comprises an identifier provided with data, and the apparatus comprises a reader for reading the data in said identifier and a controller for controlling a beverage brewing process in dependence on the data during operation of the apparatus. When a user wants to prepare a cup of beverage, for example coffee, the container is picked up and placed in the vicinity of the apparatus, and

U.S. Patent No. 10,858,176	Disclosure
	the beverage base material is taken out. This beverage base material is then placed in the apparatus for preparing a beverage. When the container is present at a certain predetermined distance from the apparatus, the reader in the apparatus is able to read the data provided in the identifier comprised in the container. Based on this information, the controller in the apparatus controls a beverage brewing process during operation of the apparatus, which is based on the data in the identifier. In this manner the parameters of the brewing process can be optimized so as to obtain an optimum beverage result. An embodiment of a system according to the invention is characterized in that the data comprise information identifying the type of beverage base material comprised in the container. In this manner the brewing process parameters can be optimized for the specific type of beverage such as, for example, coffee or hot chocolate. Erlandsson at [0011]-[0012]: It is advantageous when the identifier comprises an identifier chosen from a group of radio frequency transponders and bar codes, and the reader comprises a reader chosen from a group of radio frequency readers and bar code readers. An embodiment of a system according to the invention is characterized in that said controller comprises a processing unit which comprises a plurality of pre-programmed brewing process parameters, from which a selection is made during operation in dependence on the data as read. Various brewing processing parameters for different beverage types are pre-programmed into the processing unit and are assigned different integers. The integer corresponding to the most appropriate program for the beverage base material in the container is present as the data in the identifier and is read as such by the reader when the container is present at a certain predetermined distance from the apparatus. Based on this read integer, the program with appropriate brewing processing parameters is then activated in the apparatus by the controller for preparing a beverage extract. Erlandsson at [0015]-[0017]:

U.S. Patent No. 10,858,176	Disclosure
	The invention further relates to a container for containing a beverage base material during storage, for use with the system according to the invention, characterized in that said container comprises an identifier provided with data, said data being readable by a reader in an apparatus for preparing a beverage, and a beverage brewing process being controlled in dependence on the data during operation of the apparatus. The invention further relates to an apparatus for preparing a beverage extract from beverage base material and a liquid, for use with the system according to the invention, characterized in that said apparatus comprises a reader for reading data in an identifier which is comprised in a container for containing a beverage base material, and a controller for controlling a beverage brewing process in dependence on the data during operation of the apparatus. The invention further relates to an identifier for use with the system according to the invention, characterized in that said identifier comprises a separate element for inclusion in a container for containing the beverage base material during storage, which element is provided with data which are readable by a reader in an apparatus for preparing a beverage, and a beverage brewing process being controlled in dependence on said data during operation of the apparatus. Erlandsson at [0025]-[0029]: Interpretation of the tag's data will lead to verification of the manufacturer and unique identification of the variety of beverage within the pad, so that the brewing parameters can be optimized for the drink. This optimization can be achieved either by selection of pre-programmed parameters, or by interpretation of the data provided by the RF tag into brewing instructions, increasing brewing versatility and allowing the introduction of new beverage types after manufacture of the beverage maker. If no tag or a tag of some unrecognized format is detected, default brewing parameters will be adopted. It is noted that other known types of identifier technologies, such as bar codes on the container and a bar code reader in or connected to the apparatus, may also be applied. The

U.S. Patent No. 10,858,176	Disclosure
	apparatus 2 further comprises a controller 6 for controlling a beverage brewing process "A" during operation of the apparatus 2 based on the data A. This will be further illustrated with an example. In this embodiment, the data A comprise information identifying the type of beverage base material present in the container, for example, 'regular roast coffee'. A user will pick up the container and bring it into the vicinity of the apparatus for preparing a beverage, in this embodiment coffee extract. When the container is in a certain predetermined area around the apparatus, said area being defined by the chosen identifier and reader, the reader 14 in the apparatus is able to read the type of beverage base material that is contained in the container, in this case `regular roast coffee'. After reading of this data, the controller 6 in the apparatus 2 is ready to initiate a beverage brewing process which is especially designed for this specific type of beverage. The specific beverage brewing process comprises the optimum parameters such as fluid temperature, fluid pressure, and fluid pass-through rate for this specific type of beverage, which ensure an optimal cup of `regular roast coffee' resulting from the beverage brewing process in the apparatus 2. It is noted that the specific brewing process in the apparatus may start after activation of the on/off button of the apparatus by the user, after a certain pre-determined period of time starting from the moment the data are read, or upon detection of a pouch being placed in the holder of the apparatus. In this embodiment, the controller 6 comprises a processing unit which comprises a plurality of pre-programmed brewing process parameters from which a selection is made during operation dependent on the data as read. The processing unit in the apparatus comprises various pre-programmed brewing processes, which are assigned different integers. The data in the identifier in each container comprise an integer corresponding to the most appropriate brewing process for the specific type of beverage base material comprised in the container. After reading out of the integer by the reader, the correct pre-programmed brewing process is selected by the controller in dependence on that integer, to control the operation of the apparatus. In another embodiment, the data in the identifier itself comprise specific brewing parameters such as a pre-selected fluid quantity, fluid temperature, and fluid pass-through rate, which are read out by the reader and transferred to the control unit 6 to control the beverage brewing process.

U.S. Patent No. 10,858,176	Disclosure
	Furthermore, the apparatus may comprise a function to add additives such as milk, sugar, cream, and the like to the beverage extract, which addition can be controlled by reference to the data in the identifier. Erlandsson at [0032]-[0033]: FIG. 2a is a schematic view of a container 3' for containing a beverage base material during storage, for use with a system according to the invention. Said container 3' comprises an identifier 4' provided with data A', said data A' being readable by a reader in an apparatus for preparing a beverage, and a beverage brewing process during operation of the apparatus being controlled in dependence on the data. In this embodiment, the identifier 4' comprises an element 41 which is detachably connected to the container 3'. The element 41 in this embodiment is connected to the container via a perforated line and can be torn off the container 3'. It is noted that the element 41 may also be detachably connected to the container by means of other known types of connections, the element for example comprising a sticker or a clip which is removably attached to the container. In another embodiment, the identifier comprises a separate element for inclusion in a container for containing the beverage base material during storage, which element is provided with data which can be read by a reader in an apparatus for preparing a beverage, and a beverage brewing process during operation of the apparatus being controlled in dependence on said data. Erlandsson at [0035]: Other embodiments of these elements are shown in FIGS. 3a and 3b. FIG. 3a shows a rigid tag 44 with a flange positioned at a variable distance from its free end, which tag is included in the container with the beverage base material. This tag 44 can be inserted into a recess in the body of the beverage making apparatus, where it operates a spring-loaded sliding switch that indicates the length of the tag and thus controls the beverage processing parameters. FIG. 3b shows a rigid tag 45 with a notch positioned a variable distance from an orientation

U.S. Patent No. 10,858,176	Disclosure
	feature at one side of the tag, which is included in the container with the beverage base material. This tag can be inserted into a recess in the beverage making apparatus, where it operates a sliding switch that indicates the position of the notch and thus controls the beverage brewing parameters. Erlandsson at [0037]: It is noted that, in addition to systems for preparing coffee extract from ground coffee and water, the invention is also advantageously applicable to other systems for preparing a beverage extract from beverage base material and a liquid. The beverage base material may comprise, for example, other types of beverage base material such as milk powder, chocolate milk powder, soft drink syrup, tea leaves, dried soup, etc. These materials may be in loose form, or may be enclosed in a filter material or a capsule. The liquid may comprise, for example, other types of liquid such as milk, beer, carbonated water, etc. It is noted that the term beverage brewing process is not limited to the preparation of hot beverage extracts such as coffee, but that the preparation of cold drinks such as soft drinks is also included. The specific brewing parameters that are controlled via the identifier are dependent on the type of beverage extract to be prepared. Erlandsson at [0043]: In this embodiment, a system according to the invention is characterized in that the container, in this embodiment a beer keg, comprises an identifier provided with data, and the apparatus, in this case a beer tapping device, comprises a reader for reading the data in said identifier, and a controller for controlling the preparation during operation of the apparatus based on the data. The identifier comprises for example information as to what kind of temperature the apparatus should cool the beer, before the beer is tapped into a glass, and the correct pressure to be applied in the apparatus. In this manner the parameters to be used in the tapping device for the tapping process can be tailored to their optimum, to obtain an optimum result of the tapped beer. Different types of beer may for example require, among other things, different tapping temperatures and pressures.

U.S. Patent No. 10,858,176	Disclosure
	Erlandsson at [0044]: It is noted furthermore that next to an application with beverage base material and liquid, the invention also relates to other types of applications with consumable matter, such as for example a system for baking bread. In this embodiment, a system according to the invention is characterized in that the container, in this embodiment a container holding bread flour mix, comprises an identifier provided with data, and the apparatus, in this case a bread baking device, comprises a reader for reading the data in said identifier, and a controller for controlling the preparation of a baked bread during operation of the apparatus based on the data. The parameters controlled here may comprise for example baking temperature, duration of baking, rising time of dough, duration of kneading, etc., depending on the type of bread flour mix present in the container. See also [1.a] and [1.d].
[1.g] piercing the first foil lid with a mandrel of the apparatus in a region that is offset from a central axis of the first portion capsule;	
[1.h] sealing the first foil lid against a seal of the apparatus;	
[1.i] introducing heated water into the first portion capsule through a water inlet of the apparatus that is arranged along the central axis of the portion capsule to form the first coffee beverage;	Erlandsson discloses, either expressly or inherently, introducing heated water into the first portion capsule through a water inlet of the apparatus that is arranged along the central axis of the portion capsule to form the first coffee beverage. *See, e.g.*: Erlandsson at [0003]: A system for preparing a consumable matter as described in the opening paragraph is known from EP0904718. The known system comprises an apparatus for preparing a coffee extract from ground coffee and water. The ground coffee is contained in a pouch made of a filter material, which pouch is placed in a holder in the apparatus. During operation hot water passes through the pouch to create a coffee extract which is then transported into a cup. The

U.S. Patent No. 10,858,176	Disclosure
	coffee pouches are sold in a container, in this case a bag, which contains a number of pouches. Numerous varieties of coffee pouches are offered to the consumer, who can select his or her preferred cup of coffee. These varieties may comprise for example coffee with special flavors (vanilla, chocolate etc.), coffee of varying strengths, or coffee without caffeine. Erlandsson at [0023]: FIG. 1 is a schematic view of a system 1 according to the invention, comprising an apparatus 2 in this embodiment an apparatus for preparing a beverage extract from beverage base material 5 and a liquid, and a container 3 for containing the beverage base material 5 during storage. In this embodiment, the beverage base material 5 comprises a plurality of pouches 51 made of filter material and containing ground coffee. One or two pouches, depending on whether one or two cups of beverage are to be prepared, are placed in a holder in the apparatus, to prepare a coffee extract from the ground coffee and water that flows through the pouch during the brewing process in the apparatus. It is noted, however, that the beverage base material 5 may comprise alternative types of beverage base material, with or without an enclosure of filter material such as, for example, loose ground coffee, chocolate milk powder, or tea leaves in a teabag. The container 3 in this embodiment comprises a flexible bag comprising a plurality of coffee pouches, but it is noted that this container may comprise any known type of container such as, for example, tins, canisters, boxes, etc., for containing any type of beverage base material.
[1.j] unloading the first portion capsule from the apparatus;	Erlandsson discloses, either expressly or inherently, unloading the first portion capsule from the apparatus. *See, e.g.*: Erlandsson at [0003]: A system for preparing a consumable matter as described in the opening paragraph is known from EP0904718. The known system comprises an apparatus for preparing a coffee extract from ground coffee and water. The ground coffee is contained in a pouch made of a filter material, which pouch is placed in a holder in the apparatus. During operation hot water passes through the pouch to create a coffee extract which is then transported into a cup. The

U.S. Patent No. 10,858,176	Disclosure
	coffee pouches are sold in a container, in this case a bag, which contains a number of pouches. Numerous varieties of coffee pouches are offered to the consumer, who can select his or her preferred cup of coffee. These varieties may comprise for example coffee with special flavors (vanilla, chocolate etc.), coffee of varying strengths, or coffee without caffeine.
[1.k] inserting a second portion capsule into the apparatus, the second portion capsule including a second foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity of the second portion capsule being free of a filter and includes a central portion and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity, the base element of the second portion capsule including a circumferential flange having a top side to which the second foil is sealed and an opposing bottom side with a second barcode located on the bottom side and being different from the first barcode, the base element of the second portion capsule includes an outside surface having a plurality of vertically oriented grooves; reading the second barcode with the barcode reader; controlling a second	Erlandsson discloses, either expressly or inherently, inserting a second portion capsule into the apparatus, the second portion capsule including a second foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity of the second portion capsule being free of a filter and includes a central portion and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity, the base element of the second portion capsule including a circumferential flange having a top side to which the second foil is sealed and an opposing bottom side with a second barcode located on the bottom side and being different from the first barcode, the base element of the second portion capsule includes an outside surface having a plurality of vertically oriented grooves; reading the second barcode with the barcode reader; controlling a second production process of a second coffee beverage based upon the reading of the second barcode, the second production process being different than the first production process; piercing the second foil lid with the mandrel of the apparatus in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange and/or the second foil lid of the second portion capsule against the seal of the apparatus; and introducing the heated water into the second portion capsule to form the second coffee beverage. *See, e.g.*: *See* [1.b]-[1.i].

U.S. Patent No. 10,858,176	Disclosure
production process of a second coffee beverage based upon the reading of the second barcode, the second production process being different than the first production process; piercing the second foil lid with the mandrel of the apparatus in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange and/or the second foil lid of the second portion capsule against the seal of the apparatus; and introducing the heated water into the second portion capsule to form the second coffee beverage.	
[redacted]	
2. The method according to claim 1, wherein one or both of the introducing steps include: inducing turbulent flow of the heated water by the ribs.	
[redacted]	
3. The method according to claim 1, wherein the method comprises: comparing the read barcode with a stored reference.	Erlandsson discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises: comparing the read barcode with a stored reference. *See, e.g.*: Erlandsson at [0006]-[0008]:

U.S. Patent No. 10,858,176	Disclosure
	To achieve this object, a system according to the invention is characterized in that the container comprises an identifier provided with data, and the apparatus comprises a reader for reading the data in said identifier, and a controller for controlling a preparation process during operation of the apparatus based on the data. When a user wants to prepare a consumable matter, such as a cup of beverage, for example coffee, the container is picked up and placed in the vicinity of the apparatus, to take out the basis material, in this case coffee pad. This basis material is then placed in the apparatus for preparing a consumable matter, for example an apparatus for preparing a beverage. When the container is present at a certain predetermined distance from the apparatus, the reader in the apparatus is able to read the data that are provided in the identifier comprised in the container. Based on this information, the controller in the apparatus controls a preparation during operation of the apparatus, which is based on the data in the identifier. In this manner the parameters of the preparation process can be tailored to their optimum, to obtain an optimum result for the prepared consumable matter. An embodiment according to the invention is characterized in that the container comprises an identifier provided with data, and the apparatus comprises a reader for reading the data in said identifier and a controller for controlling a beverage brewing process in dependence on the data during operation of the apparatus. When a user wants to prepare a cup of beverage, for example coffee, the container is picked up and placed in the vicinity of the apparatus, and the beverage base material is taken out. This beverage base material is then placed in the apparatus for preparing a beverage. When the container is present at a certain predetermined distance from the apparatus, the reader in the apparatus is able to read the data provided in the identifier comprised in the container. Based on this information, the controller in the apparatus controls a beverage brewing process during operation of the apparatus, which is based on the data in the identifier. In this manner the parameters of the brewing process can be optimized so as to obtain an optimum beverage result. An embodiment of a system according to the invention is characterized in that the data comprise information identifying the type of beverage base material comprised in the

U.S. Patent No. 10,858,176	Disclosure
	container. In this manner the brewing process parameters can be optimized for the specific type of beverage such as, for example, coffee or hot chocolate. Erlandsson at [0011]-[0012]: It is advantageous when the identifier comprises an identifier chosen from a group of radio frequency transponders and bar codes, and the reader comprises a reader chosen from a group of radio frequency readers and bar code readers. An embodiment of a system according to the invention is characterized in that said controller comprises a processing unit which comprises a plurality of pre-programmed brewing process parameters, from which a selection is made during operation in dependence on the data as read. Various brewing processing parameters for different beverage types are pre-programmed into the processing unit and are assigned different integers. The integer corresponding to the most appropriate program for the beverage base material in the container is present as the data in the identifier and is read as such by the reader when the container is present at a certain predetermined distance from the apparatus. Based on this read integer, the program with appropriate brewing processing parameters is then activated in the apparatus by the controller for preparing a beverage extract. Erlandsson at [0015]-[0017]: The invention further relates to a container for containing a beverage base material during storage, for use with the system according to the invention, characterized in that said container comprises an identifier provided with data, said data being readable by a reader in an apparatus for preparing a beverage, and a beverage brewing process being controlled in dependence on the data during operation of the apparatus. The invention further relates to an apparatus for preparing a beverage extract from beverage base material and a liquid, for use with the system according to the invention, characterized in that said apparatus comprises a reader for reading data in an identifier which is comprised

K-FEE SYSTEM GMBH, EX2012, page 379
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,858,176	Disclosure
	in a container for containing a beverage base material, and a controller for controlling a beverage brewing process in dependence on the data during operation of the apparatus. The invention further relates to an identifier for use with the system according to the invention, characterized in that said identifier comprises a separate element for inclusion in a container for containing the beverage base material during storage, which element is provided with data which are readable by a reader in an apparatus for preparing a beverage, and a beverage brewing process being controlled in dependence on said data during operation of the apparatus. Erlandsson at [0025]-[0029]: Interpretation of the tag's data will lead to verification of the manufacturer and unique identification of the variety of beverage within the pad, so that the brewing parameters can be optimized for the drink. This optimization can be achieved either by selection of pre-programmed parameters, or by interpretation of the data provided by the RF tag into brewing instructions, increasing brewing versatility and allowing the introduction of new beverage types after manufacture of the beverage maker. If no tag or a tag of some unrecognized format is detected, default brewing parameters will be adopted. It is noted that other known types of identifier technologies, such as bar codes on the container and a bar code reader in or connected to the apparatus, may also be applied. The apparatus 2 further comprises a controller 6 for controlling a beverage brewing process "A" during operation of the apparatus 2 based on the data A. This will be further illustrated with an example. In this embodiment, the data A comprise information identifying the type of beverage base material present in the container, for example, 'regular roast coffee'. A user will pick up the container and bring it into the vicinity of the apparatus for preparing a beverage, in this embodiment coffee extract. When the container is in a certain predetermined area around the apparatus, said area being defined by the chosen identifier and reader, the reader 14 in the apparatus is able to read the type of beverage base material that is contained in the container, in this case `regular roast coffee'. After reading of this data, the controller 6 in the apparatus

U.S. Patent No. 10,858,176	Disclosure
	2 is ready to initiate a beverage brewing process which is especially designed for this specific type of beverage. The specific beverage brewing process comprises the optimum parameters such as fluid temperature, fluid pressure, and fluid pass-through rate for this specific type of beverage, which ensure an optimal cup of `regular roast coffee' resulting from the beverage brewing process in the apparatus 2. It is noted that the specific brewing process in the apparatus may start after activation of the on/off button of the apparatus by the user, after a certain pre-determined period of time starting from the moment the data are read, or upon detection of a pouch being placed in the holder of the apparatus. In this embodiment, the controller 6 comprises a processing unit which comprises a plurality of pre-programmed brewing process parameters from which a selection is made during operation dependent on the data as read. The processing unit in the apparatus comprises various pre-programmed brewing processes, which are assigned different integers. The data in the identifier in each container comprise an integer corresponding to the most appropriate brewing process for the specific type of beverage base material comprised in the container. After reading out of the integer by the reader, the correct pre-programmed brewing process is selected by the controller in dependence on that integer, to control the operation of the apparatus. In another embodiment, the data in the identifier itself comprise specific brewing parameters such as a pre-selected fluid quantity, fluid temperature, and fluid pass-through rate, which are read out by the reader and transferred to the control unit 6 to control the beverage brewing process. Furthermore, the apparatus may comprise a function to add additives such as milk, sugar, cream, and the like to the beverage extract, which addition can be controlled by reference to the data in the identifier. Erlandsson at [0032]-[0033]: FIG. 2a is a schematic view of a container 3' for containing a beverage base material during storage, for use with a system according to the invention. Said container 3' comprises an identifier 4' provided with data A', said data A' being readable by a reader in an apparatus for preparing a beverage, and a beverage brewing process during operation of the apparatus being controlled in dependence on the data. In this embodiment, the identifier 4' comprises

U.S. Patent No. 10,858,176	Disclosure
	an element 41 which is detachably connected to the container 3'. The element 41 in this embodiment is connected to the container via a perforated line and can be torn off the container 3'. It is noted that the element 41 may also be detachably connected to the container by means of other known types of connections, the element for example comprising a sticker or a clip which is removably attached to the container. In another embodiment, the identifier comprises a separate element for inclusion in a container for containing the beverage base material during storage, which element is provided with data which can be read by a reader in an apparatus for preparing a beverage, and a beverage brewing process during operation of the apparatus being controlled in dependence on said data. Erlandsson at [0035]: Other embodiments of these elements are shown in FIGS. 3a and 3b. FIG. 3a shows a rigid tag 44 with a flange positioned at a variable distance from its free end, which tag is included in the container with the beverage base material. This tag 44 can be inserted into a recess in the body of the beverage making apparatus, where it operates a spring-loaded sliding switch that indicates the length of the tag and thus controls the beverage processing parameters. FIG. 3b shows a rigid tag 45 with a notch positioned a variable distance from an orientation feature at one side of the tag, which is included in the container with the beverage base material. This tag can be inserted into a recess in the beverage making apparatus, where it operates a sliding switch that indicates the position of the notch and thus controls the beverage brewing parameters. Erlandsson at [0037]: It is noted that, in addition to systems for preparing coffee extract from ground coffee and water, the invention is also advantageously applicable to other systems for preparing a beverage extract from beverage base material and a liquid. The beverage base material may comprise, for example, other types of beverage base material such as milk powder, chocolate milk powder, soft drink syrup, tea leaves, dried soup, etc. These materials may be in loose

U.S. Patent No. 10,858,176	Disclosure
	form, or may be enclosed in a filter material or a capsule. The liquid may comprise, for example, other types of liquid such as milk, beer, carbonated water, etc. It is noted that the term beverage brewing process is not limited to the preparation of hot beverage extracts such as coffee, but that the preparation of cold drinks such as soft drinks is also included. The specific brewing parameters that are controlled via the identifier are dependent on the type of beverage extract to be prepared. Erlandsson at [0043]: In this embodiment, a system according to the invention is characterized in that the container, in this embodiment a beer keg, comprises an identifier provided with data, and the apparatus, in this case a beer tapping device, comprises a reader for reading the data in said identifier, and a controller for controlling the preparation during operation of the apparatus based on the data. The identifier comprises for example information as to what kind of temperature the apparatus should cool the beer, before the beer is tapped into a glass, and the correct pressure to be applied in the apparatus. In this manner the parameters to be used in the tapping device for the tapping process can be tailored to their optimum, to obtain an optimum result of the tapped beer. Different types of beer may for example require, among other things, different tapping temperatures and pressures. Erlandsson at [0044]: It is noted furthermore that next to an application with beverage base material and liquid, the invention also relates to other types of applications with consumable matter, such as for example a system for baking bread. In this embodiment, a system according to the invention is characterized in that the container, in this embodiment a container holding bread flour mix, comprises an identifier provided with data, and the apparatus, in this case a bread baking device, comprises a reader for reading the data in said identifier, and a controller for controlling the preparation of a baked bread during operation of the apparatus based on the data. The parameters controlled here may comprise for example baking temperature, duration of baking, rising time of dough, duration of kneading, etc., depending on the type of bread flour mix present in the container.

U.S. Patent No. 10,858,176	Disclosure
	See also [1].
10. The method according to claim 1, wherein the base element of the first portion capsule is made of metal.	Erlandsson discloses, either expressly or inherently, the method according to claim 1, wherein the base element of the first portion capsule is made of metal. *See, e.g.*: Erlandsson at [0003]: A system for preparing a consumable matter as described in the opening paragraph is known from EP0904718. The known system comprises an apparatus for preparing a coffee extract from ground coffee and water. The ground coffee is contained in a pouch made of a filter material, which pouch is placed in a holder in the apparatus. During operation hot water passes through the pouch to create a coffee extract which is then transported into a cup. The coffee pouches are sold in a container, in this case a bag, which contains a number of pouches. Numerous varieties of coffee pouches are offered to the consumer, who can select his or her preferred cup of coffee. These varieties may comprise for example coffee with special flavors (vanilla, chocolate etc.), coffee of varying strengths, or coffee without caffeine. Erlandsson at [0023]: FIG. 1 is a schematic view of a system 1 according to the invention, comprising an apparatus 2 in this embodiment an apparatus for preparing a beverage extract from beverage base material 5 and a liquid, and a container 3 for containing the beverage base material 5 during storage. In this embodiment, the beverage base material 5 comprises a plurality of pouches 51 made of filter material and containing ground coffee. One or two pouches, depending on whether one or two cups of beverage are to be prepared, are placed in a holder in the apparatus, to prepare a coffee extract from the ground coffee and water that flows through the pouch during the brewing process in the apparatus. It is noted, however, that the beverage base material 5 may comprise alternative types of beverage base material, with or without an enclosure of filter material such as, for example, loose ground coffee, chocolate

U.S. Patent No. 10,858,176	Disclosure
	milk powder, or tea leaves in a teabag. The container 3 in this embodiment comprises a flexible bag comprising a plurality of coffee pouches, but it is noted that this container may comprise any known type of container such as, for example, tins, canisters, boxes, etc., for containing any type of beverage base material. *See also* [1].
[redacted]	
11. The method according to claim 10, wherein the base element of the second portion capsule is made of metal.	Erlandsson discloses, either expressly or inherently, the method according to claim 10, wherein the base element of the second portion capsule is made of metal. *See, e.g.*: Erlandsson at [0003]: A system for preparing a consumable matter as described in the opening paragraph is known from EP0904718. The known system comprises an apparatus for preparing a coffee extract from ground coffee and water. The ground coffee is contained in a pouch made of a filter material, which pouch is placed in a holder in the apparatus. During operation hot water passes through the pouch to create a coffee extract which is then transported into a cup. The coffee pouches are sold in a container, in this case a bag, which contains a number of pouches. Numerous varieties of coffee pouches are offered to the consumer, who can select his or her preferred cup of coffee. These varieties may comprise for example coffee with special flavors (vanilla, chocolate etc.), coffee of varying strengths, or coffee without caffeine. Erlandsson at [0023]: FIG. 1 is a schematic view of a system 1 according to the invention, comprising an apparatus 2 in this embodiment an apparatus for preparing a beverage extract from beverage base material 5 and a liquid, and a container 3 for containing the beverage base material 5 during storage. In this embodiment, the beverage base material 5 comprises a plurality of pouches 51 made of filter material and containing ground coffee. One or two pouches, depending on whether one or two cups of beverage are to be prepared, are placed in a holder in the

U.S. Patent No. 10,858,176	Disclosure
	apparatus, to prepare a coffee extract from the ground coffee and water that flows through the pouch during the brewing process in the apparatus. It is noted, however, that the beverage base material 5 may comprise alternative types of beverage base material, with or without an enclosure of filter material such as, for example, loose ground coffee, chocolate milk powder, or tea leaves in a teabag. The container 3 in this embodiment comprises a flexible bag comprising a plurality of coffee pouches, but it is noted that this container may comprise any known type of container such as, for example, tins, canisters, boxes, etc., for containing any type of beverage base material. *See also* [10].
12. The method according to claim 1, wherein the first foil lid and/or the second foil lid is made of metal.	
[13.pre] A method of making a coffee beverage, comprising steps of:	Erlandsson discloses, either expressly or inherently, a method of making a coffee beverage. *See, e.g.*: See [1.pre].
[13.a] providing an apparatus including a barcode reader configured to read a barcode, the apparatus including a mandrel, a water inlet, and a seal;	Erlandsson discloses, either expressly or inherently, providing an apparatus including a barcode reader configured to read a barcode, the apparatus including a mandrel, a water inlet, and a seal. See [1.a], [1.g], [1.i], [1.h].
[13.b] inserting a first portion capsule into the apparatus, the first portion capsule being free of a filter and including a first lid that is sealed to a base element having a cavity within which a powdered coffee	Erlandsson discloses, either expressly or inherently, inserting a first portion capsule into the apparatus, the first portion capsule being free of a filter and including a first lid that is sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines the cavity with a central interior portion. *See, e.g.*:

U.S. Patent No. 10,858,176	Disclosure
material is located, the base element has been shaped to define a wall that defines the cavity with a central interior portion,	See [1.b].
[13.c] having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central interior portion and an outside surface of the wall having plurality of vertically oriented grooves,	Erlandsson discloses, either expressly or inherently, having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central interior portion and an outside surface of the wall having plurality of vertically oriented grooves. *See, e.g.*: See [1.c], [1.e].
[13.d] the base element having a circumferential flange having a top side to which the first lid is sealed and an opposing bottom side with a first barcode located on the bottom side;	Erlandsson discloses, either expressly or inherently, the base element having a circumferential flange having a top side to which the first lid is sealed and an opposing bottom side with a first barcode located on the bottom side. *See, e.g.*: See [1.d].
[13.e] piercing the first lid with the mandrel in a region that is offset from a central axis of the first portion capsule;	Erlandsson discloses, either expressly or inherently, piercing the first lid with the mandrel in a region that is offset from a central axis of the first portion capsule. *See, e.g.*: See [1.g].
[13.f] sealing the top side of the flange of the first portion capsule and/or the first lid against the seal of the apparatus;	Erlandsson discloses, either expressly or inherently, sealing the top side of the flange of the first portion capsule and/or the first lid against the seal of the apparatus. *See, e.g.*: See [1.h].
[13.g] reading the first barcode with the barcode reader; controlling production of a first coffee beverage based upon the reading of the first barcode; introducing heated water	Erlandsson discloses, either expressly or inherently, reading the first barcode with the barcode reader; controlling production of a first coffee beverage based upon the reading of the first barcode; introducing heated water into the first portion capsule via the water inlet that is arranged along the central axis of the first portion capsule according to production conditions associated with the first barcode to form the first coffee beverage. *See, e.g.*:

U.S. Patent No. 10,858,176	Disclosure
into the first portion capsule via the water inlet that is arranged along the central axis of the first portion capsule according to production conditions associated with the first barcode to form the first coffee beverage;	See [1.f], [1.i].
[13.h] unloading the first portion capsule from the apparatus;	Erlandsson discloses, either expressly or inherently, unloading the first portion capsule from the apparatus. *See, e.g.*: See [1.j].
[13.i] inserting second portion capsule into the apparatus, the second portion capsule being free of a filter and including a second lid sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines a cavity with a central interior portion, and having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the cavity central interior portion, and an outside surface of the wall having a plurality of vertically oriented grooves, the base element has a circumferential flange having a top side to which the second lid is sealed and an opposing bottom side	Erlandsson discloses, either expressly or inherently, inserting second portion capsule into the apparatus, the second portion capsule being free of a filter and including a second lid sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines a cavity with a central interior portion, and having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the cavity central interior portion, and an outside surface of the wall having a plurality of vertically oriented grooves, the base element has a circumferential flange having a top side to which the second lid is sealed and an opposing bottom side with a second barcode that is located on the bottom side and being different from the first barcode; piercing the second lid with the mandrel in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange of the second portion capsule and/or the second lid against the seal of the apparatus; reading the second barcode with the barcode reader; controlling production of a second coffee beverage based upon the reading of the second barcode; introducing the heated water into the second portion capsule via the water inlet that is arranged along the central axis of the second portion capsule according to production conditions associated with the second barcode to form the second coffee beverage. *See, e.g.*: See [1.k]; [13.a]-[13.g].

K-FEE SYSTEM GMBH, EX2012, page 388
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,858,176	Disclosure
with a second barcode that is located on the bottom side and being different from the first barcode; piercing the second lid with the mandrel in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange of the second portion capsule and/or the second lid against the seal of the apparatus; reading the second barcode with the barcode reader; controlling production of a second coffee beverage based upon the reading of the second barcode; introducing the heated water into the second portion capsule via the water inlet that is arranged along the central axis of the second portion capsule according to production conditions associated with the second barcode to form the second coffee beverage.	
14. The method according to claim 13, wherein the production conditions associated with the first barcode are different from the production conditions associated with the second barcode, the production conditions include:	Erlandsson discloses, either expressly or inherently, the method according to claim 13, wherein the production conditions associated with the first barcode are different from the production conditions associated with the second barcode, the production conditions include: pressure, temperature and/or an amount of the heated water. *See, e.g.*: See also [13].

U.S. Patent No. 10,858,176	Disclosure
pressure, temperature and/or an amount of the heated water.	

Exhibit A-5 – Invalidity of U.S. Patent No. 10,858,176 in view of Jarisch

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,176 in view of Jarisch

According to its cover page, U.S. Patent Pub. US2013/0064937A1 ("Jarisch") was published on March 14, 2013 from an application filed on May 12, 2011. Jarisch therefore constitutes prior art under pre-AIA 35 U.S.C. § 102(e) to the '176 Patent's PCT filing date. Jarisch anticipates and/or renders obvious the Asserted Claims of the '176 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 Jarisch, a person of ordinary skill in the art would have found it obvious to combine the teachings of Jarisch 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 A-1 to A-9 and in Appendix A.

The chart below provides representative examples of where each element of each claim is found within Jarisch. 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.

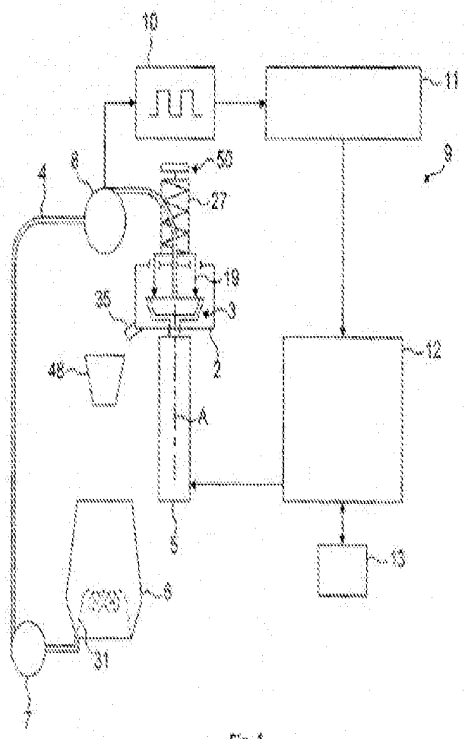
K-fee has yet to identify any limitation of the Asserted Claims that it contends is not anticipated and/or rendered obvious by Jarisch. Nespresso therefore expressly reserves the right to respond to any such contention, including by identifying additional obviousness combinations, if K-fee makes any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

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

K-FEE SYSTEM GMBH, EX2012, page 391
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

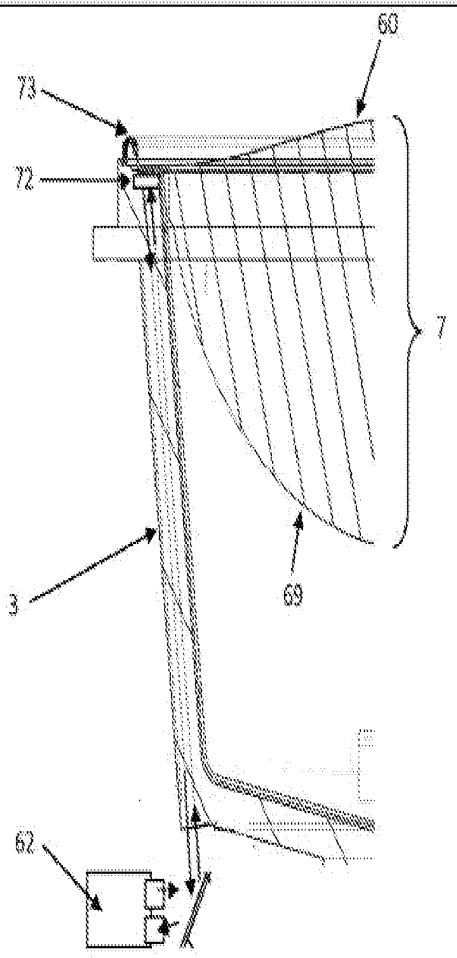
Exhibit A-5 – Invalidity of U.S. Patent No. 10,858,176 in view of Jarisch

U.S. Patent No. 10,858,176	Disclosure
[1.pre] A method of making a coffee beverage comprising:	Jarisch discloses, either expressly or inherently, a method for making a coffee beverage. *See, e.g.*: Jarisch at Abstract: Capsule for the preparation of a beverage comprising a con-tainer and a beverage ingredient contained therein, wherein the container comprises a code (65) adapted for being iden-tified or read by external reading means (62), wherein the code is arranged on the container to be read while the capsule is rotated around an axis of rotation traversing the capsule. Jarisch at [0014]: The aim of the present invention is to propose an improved way to identify the capsule within a beverage production machine to ensure a more reliable and convenient retrieval or reading of information so as to adjust working parameters of the machine. Jarisch at [0023]: The invention further relates to a system for preparing a beverage from a capsule as aforementioned and further comprising a beverage preparation device; wherein the device comprises capsule holding means for holding the capsule and rotational drive means for driving the holding means and capsule in rotation along said axis of rotation and reading means arranged for reading the code when the capsule is rotated along said axis. Jarisch at [0034]: FIG. 1 illustrates an example of a beverage preparation system 1 as described in WO2010/026053 for which the capsule of the invention can be used. Jarisch at FIG. 1:

U.S. Patent No. 10,858,176	Disclosure
	 Fig. 1
[1.a] providing an apparatus including a barcode reader;	Jarisch discloses, either expressly or inherently, providing an apparatus including a barcode reader. *See, e.g.*: Jarisch at [0023]: The invention further relates to a system for preparing a beverage from a capsule as aforementioned and further comprising a beverage preparation device; wherein the device comprises capsule holding means for holding the capsule and rotational drive means for driving the holding means and capsule in rotation along said axis of rotation and reading means arranged for reading the code when the capsule is rotated along said axis.

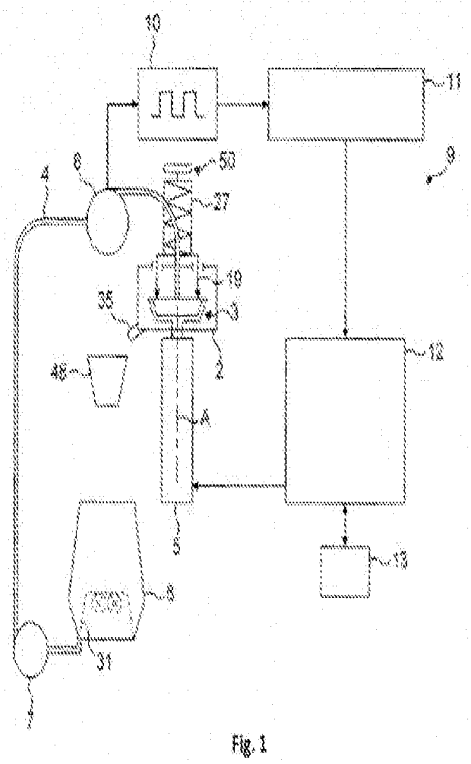
U.S. Patent No. 10,858,176	Disclosure
	Jarisch at [0024]: In particular, the reading means may comprise a light emitter and a light sensor. In an alternative, the reading means comprises an inductive sensor. The optical reading means or inductive sensor may be arranged to detect a code on the rim of the capsule. Jarisch at [0071]-[0073]: The reader may consist of: • A light source with/without focusing optic, and • A light sensor with/without focusing optic. Jarisch at [0082]: In the embodiment of the figure 4, the light source is placed at the bottom of the centrifugal cell 3. This cell is light conductive allowing the beam to reach the bottom side 72 of its rim 73. The reflected light is conducted by the transparent (or light conductive) centrifugal cell 3 to reach the sensor 62. In case that the sensor 62 cannot be aligned with the transparent part of the centrifugal cell 3, a mirror can be placed as illustrated in the figure 4 to deflect the forward and backward beams. *See also* Jarisch at Claims 14-16; FIGs. 2-7.
[1.b] inserting a first portion capsule into the apparatus, the first portion capsule including a first foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity	Jarisch discloses, either expressly or inherently, inserting a first portion capsule into the apparatus, the first portion capsule including a first foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity being free of a filter and including a central portion. *See, e.g.*: Jarisch at [0021]:

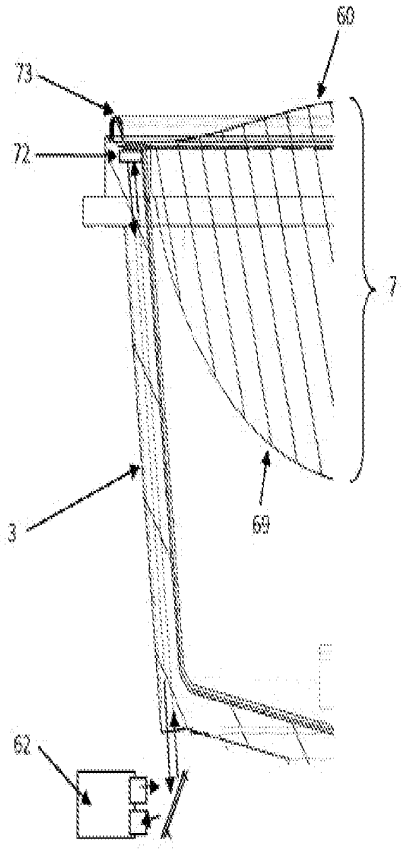
U.S. Patent No. 10,858,176	Disclosure
being free of a filter and including a central portion,	In an embodiment, the container comprises a body and a lid connected to the body and wherein the code is present on the lid of the container. The lid may be a closed foil and/or a filter, for example. Jarisch at [0036]: In the following examples (see FIG. 4), the capsule comprises a cup-shaped body 69 extending by a flange-like rim 73. A lid such as a foil or membrane (liquid-tight or permeable to liquid) 60 is connected to the body, e.g., sealed on the rim. The capsule is filled with beverage ingredient such as ground coffee. *See also* Jarisch at FIG. 4:

U.S. Patent No. 10,858,176	Disclosure
	 Fig. 4
[1.c] and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity,	

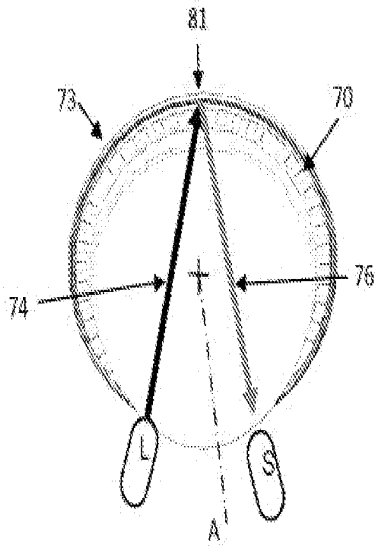
U.S. Patent No. 10,858,176	Disclosure
[1.d] the base element including a circumferential flange having a top side to which the first foil lid is sealed and an opposing bottom side with a first barcode located on the bottom side,	Jarisch discloses, either expressly or inherently, the base element including a circumferential flange having a top side to which the first foil lid is sealed and an opposing bottom side with a first barcode located on the bottom side. *See, e.g.*: Jarisch at [0016]-[0017]: More particularly, the capsule has a circumference wherein the code is arranged on the container along an arc-shaped or circular path of the circumference. In a particular mode, the capsule has a circumference wherein the code comprises successive segments which are individually rectilinear but extend substantially along at least a part of the circumference. More particularly, the code is arranged along at least a eighth of the circumference. This configuration provides a reliable reading or retrieval of information as well as an effective portion for information. In order to ensure a reliable reading or retrieval of information, the code is repeated along said circumference. The repetition ensures a higher probability that at least one code is readable but also may potentially reduce the reading time. Preferably, the code is an optical code. The code may be a bit code formed by a series of discrete polygonal (e.g., rectangles or squares) or dot surfaces printed on the container and/or embossed in the container. Jarisch at [0019]: Preferably, the code is printed or embossed to form a pattern which possesses surfaces having different reflective and/or absorbing properties to light. In particular, the pattern possesses first surfaces and second surfaces having different reflective and/or absorbing properties to light. More particularly, the pattern possesses first surfaces inclined mirroring or absorbing properties to light and second surfaces having flat mirroring or flat reflective properties to light. Jarisch at [0022]:

U.S. Patent No. 10,858,176	Disclosure
	In another embodiment, the code is present on the rim of the capsule. In the most preferred embodiment, the code is present on the bottom of the rim of the capsule which is opposed to the lid of the capsule. The bottom of the rim is sufficiently away from the liquid injection and beverage delivery areas so that there is a lower risk for the code to become unreadable such if partly or totally hidden or soiled by beverage residues or otherwise (e.g., coffee particles). As a result, the reading is made more reliable. The reading may also be carried out while the capsule is in place in the beverage production device. Therefore, the preparation of the beverage is simplified and the preparation time can be reduced. Jarisch at [0024]: In particular the reading means may comprise a light emitter and a light sensor. In an alternative, the reading means comprises an inductive sensor. The optical reading means or inductive sensor may be arranged to detect a code on the rim of the capsule. Jarisch at [0063]-[0064]: <u>2) Optical reading on rim bottom side of capsule (figures 4 to 7):</u> The capsule 7 may comprise a code 70 on the bottom side 72 of its rim 73. The bit code is formed of a succession of small rectangular surfaces having light mirroring properties and intermediate surfaces having flat mirroring and/or diffusing properties.

U.S. Patent No. 10,858,176	Disclosure
	Jarisch at FIG. 1:  Fig. 1 Jarisch at FIG. 4:

U.S. Patent No. 10,858,176	Disclosure
	 Jarisch at [0022]: In the most preferred embodiment, the code is present on the bottom of the rim of the capsule which is opposed to the lid of the capsule. The bottom of the rim is sufficiently away from the liquid injection and beverage delivery areas so that there is a lower risk for the code to become unreadable such if partly or totally hidden or soiled by beverage residues or otherwise (e.g., coffee particles). As a result, the reading is made more reliable. The reading may also be carried out while the capsule is in place in the beverage production device. Therefore, the preparation of the beverage is simplified and the preparation time can be reduced.

U.S. Patent No. 10,858,176	Disclosure
	Jarisch at [0042]-[0048]: Onto the capsule foil 60, a plurality of bits forming the code 61 is applied along a circular or arc-shaped path. Preferably, the code is placed on a flat portion of the lid and close to the peripheral edge of the capsule. The code is preferably placed the lid that is supported by the flange-like rim of the capsule or overlaps with the rim. Hence, the code is not distorted due to mechanical constraints and can be read more reliably. The marks may consist of: Mirroring or absorbing surfaces for providing bit 0 and, Diffusing and reflective surfaces for providing bit 1 The binary values 0 and 1 are arbitrary chosen and can be inversed. The code is read by rotating the capsule along a central axis A (FIG. 1). Jarisch at [0070]: The bit code is read by rotating the capsule along its central axis A. Jarisch at [0086]: Therefore, the number of bits and their bit code depend on the number and specific arrangement of mirror surfaces (e.g. rectangles) and diffusing or absorbing surfaces (e.g., zones between the rectangles). The same sequence of bits forming a code can be repeated several times on the circumference of the rim. This repetition provides redundancy and more reliability to the reading. Jarisch at [0099]: The code preferably comprises three sections, the synchronization section, the payload section and the verification section. The synchronization section serves for the

U.S. Patent No. 10,858,176	Disclosure
	synchronization purpose i.e. to inform the sensor when the code begins. Since the speed of the rotation of the capsule can vary, the synchronization is achieved through a known sequence of bits such as 0.1.0.1. Then the payload of the code identifying the capsule can be read. In order to avoid misinterpretation of the code, the payload can be followed by verification bits. These bits can be a checksum on the payload or a similar verification function. Jarisch at FIG. 5:  *See also* Jarisch at Claims 11-14; FIGs. 6-7.
[1.e] the base element of the first portion capsule includes an outside surface having a plurality of vertically oriented grooves;	

U.S. Patent No. 10,858,176	Disclosure
[1.f] reading the first barcode with the barcode reader; controlling a production process of a first coffee beverage based upon the reading of the first barcode;	Jarisch discloses, either expressly or inherently, reading the first barcode with the barcode reader; controlling a production process of a first coffee beverage based upon the reading of the first barcode. *See, e.g.*: Jarisch at [0022]: In the most preferred embodiment, the code is present on the bottom of the rim of the capsule which is opposed to the lid of the capsule. The bottom of the rim is sufficiently away from the liquid injection and beverage delivery areas so that there is a lower risk for the code to become unreadable such if partly or totally hidden or soiled by beverage residues or otherwise (e.g., coffee particles). As a result, the reading is made more reliable. The reading may also be carried out while the capsule is in place in the beverage production device. Therefore, the preparation of the beverage is simplified and the preparation time can be reduced. *See also* [1.a] and [1.d].
[1.g] piercing the first foil lid with a mandrel of the apparatus in a region that is offset from a central axis of the first portion capsule;	Jarisch discloses, either expressly or inherently, piercing the first foil lid with a mandrel of the apparatus in a region that is offset from a central axis of the first portion capsule. *See, e.g.*: Jarisch at [0021]: In an embodiment, the container comprises a body and a lid connected to the body and wherein the code is present on the lid of the container. The lid may be a closed foil and/or a filter, for example. Jarisch at [0036]: In the following examples (see FIG. 4), the capsule comprises a cup-shaped body 69 extending by a flange-like rim 73. A lid such as a foil or membrane (liquid-tight or

K-FEE SYSTEM GMBH, EX2012, page 403
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,858,176	Disclosure
	permeable to liquid) 60 is connected to the body, e.g., sealed on the rim. The capsule is filled with beverage ingredient such as ground coffee.
[1.h] sealing the first foil lid against a seal of the apparatus;	Jarisch discloses, either expressly or inherently, sealing the first foil lid against a seal of the apparatus. *See, e.g.*: Jarisch at [0021]: In an embodiment, the container comprises a body and a lid connected to the body and wherein the code is present on the lid of the container. The lid may be a closed foil and/or a filter, for example. Jarisch at [0036]: In the following examples (see FIG. 4), the capsule comprises a cup-shaped body 69 extending by a flange-like rim 73. A lid such as a foil or membrane (liquid-tight or permeable to liquid) 60 is connected to the body, e.g., sealed on the rim. The capsule is filled with beverage ingredient such as ground coffee.
[1.i] introducing heated water into the first portion capsule through a water inlet of the apparatus that is arranged along the central axis of the portion capsule to form the first coffee beverage;	Jarisch discloses, either expressly or inherently, introducing heated water into the first portion capsule through a water inlet of the apparatus that is arranged along the central axis of the portion capsule to form the first coffee beverage. *See, e.g.*:
[1.j] unloading the first portion capsule from the apparatus;	Jarisch discloses, either expressly or inherently, unloading the first portion capsule from the apparatus. *See, e.g.*:
[1.k] inserting a second portion capsule into the apparatus, the second portion capsule including a	Jarisch discloses, either expressly or inherently, inserting a second portion capsule into the apparatus, the second portion capsule including a second foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity of the second

U.S. Patent No. 10,858,176	Disclosure
second foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity of the second portion capsule being free of a filter and includes a central portion and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity, the base element of the second portion capsule including a circumferential flange having a top side to which the second foil is sealed and an opposing bottom side with a second barcode located on the bottom side and being different from the first barcode, the base element of the second portion capsule includes an outside surface having a plurality of vertically oriented grooves; reading the second barcode with the barcode reader; controlling a second production process of a second coffee beverage based upon the reading of the second barcode, the second production process being different than the first production process; piercing the second foil lid with the mandrel of the apparatus in a region that is offset from a central	portion capsule being free of a filter and includes a central portion and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity, the base element of the second portion capsule including a circumferential flange having a top side to which the second foil is sealed and an opposing bottom side with a second barcode located on the bottom side and being different from the first barcode, the base element of the second portion capsule includes an outside surface having a plurality of vertically oriented grooves; reading the second barcode with the barcode reader; controlling a second production process of a second coffee beverage based upon the reading of the second barcode, the second production process being different than the first production process; piercing the second foil lid with the mandrel of the apparatus in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange and/or the second foil lid of the second portion capsule against the seal of the apparatus; and introducing the heated water into the second portion capsule to form the second coffee beverage. *See, e.g.*: *See* [1.b]-[1.i]. Jarisch at [0014]-[0015]: The aim of the present invention is to propose an improved way to identify the capsule within a beverage pro-duction machine to ensure a more reliable and convenient retrieval or reading of information so as to adjust working parameters of the machine. This aim is achieved by a capsule for the preparation of a beverage comprising a container and a beverage ingre-dient contained therein, wherein the container comprises a code adapted for being identified or read by external reading means, wherein the code is arranged on the container to be read while the capsule is rotated around an axis of rotation traversing the capsule.

U.S. Patent No. 10,858,176	Disclosure
axis of the second portion capsule; sealing the top side of the flange and/or the second foil lid of the second portion capsule against the seal of the apparatus; and introducing the heated water into the second portion capsule to form the second coffee beverage.	
[redacted]	
2. The method according to claim 1, wherein one or both of the introducing steps include: inducing turbulent flow of the heated water by the ribs.	Jarisch discloses, either expressly or inherently, the method according to claim 1, wherein one or both of the introducing steps include: inducing turbulent flow of the heated water by the ribs. *See, e.g.*: *See also* [1].
[redacted]	
3. The method according to claim 1, wherein the method comprises: comparing the read barcode with a stored reference.	Jarisch discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises: comparing the read barcode with a stored reference. *See, e.g.*: *See also* [1].
[redacted]	
10. The method according to claim 1, wherein the base element of the first portion capsule is made of metal.	Jarisch discloses, either expressly or inherently, the method according to claim 1, wherein the base element of the first portion capsule is made of metal. *See, e.g.*: Jarisch at [0007]:

K-FEE SYSTEM GMBH, EX2012, page 406
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,858,176	Disclosure
	Recognition means can 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. Jarisch at [0093]-[0095]: -Printing on the inner surface of a capsule container, using the curl as information support (Aluminum capsule technology) 4 Inductive Code Reading: Another mode consists in sensing a code provided on a metallic surface of the capsule using an inductive sensor. The code is formed by reliefs or recesses in the metallic surface. *See also* [1].
11. The method according to claim 10, wherein the base element of the second portion capsule is made of metal.	Jarisch discloses, either expressly or inherently, the method according to claim 10, wherein the base element of the second portion capsule is made of metal. *See, e.g.*: Jarisch at [0007]: Recognition means can 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. 10,858,176	Disclosure
	Jarisch at [0093]-[0095]: -Printing on the inner surface of a capsule container, using the curl as information support (Aluminum capsule technology) <u>4 Inductive Code Reading:</u> Another mode consists in sensing a code provided on a metallic surface of the capsule using an inductive sensor. The code is formed by reliefs or recesses in the metallic surface. *See also* [10].
12. The method according to claim 1, wherein the first foil lid and/or the second foil lid is made of metal.	Jarisch discloses, either expressly or inherently, the method according to claim 1, wherein the first foil lid and/or the second foil lid is made of metal. *See, e.g.*: Jarisch at [0021]: In an embodiment, the container comprises a body and a lid connected to the body and wherein the code is present on the lid of the container. The lid may be a closed foil and/or a filter, for example. Jarisch at [0036]: In the following examples (see FIG. 4), the capsule comprises a cup-shaped body 69 extending by a flange-like rim 73. A lid such as a foil or membrane (liquid-tight or permeable to liquid) 60 is connected to the body, e.g., sealed on the rim. The capsule is filled with beverage ingredient such as ground coffee. *See also* [1].

Exhibit A-5 – Invalidity of U.S. Patent No. 10,858,176 in view of Jarisch

U.S. Patent No. 10,858,176	Disclosure
[redacted]	
[13.pre] A method of making a coffee beverage, comprising steps of:	Jarisch discloses, either expressly or inherently, a method of making a coffee beverage. *See, e.g.*: *See* [1.pre].
[13.a] providing an apparatus including a barcode reader configured to read a barcode, the apparatus including a mandrel, a water inlet, and a seal;	Jarisch discloses, either expressly or inherently, providing an apparatus including a barcode reader configured to read a barcode, the apparatus including a mandrel, a water inlet, and a seal. *See* [1.a], [1.g], [1.i], [1.h].
[13.b] inserting a first portion capsule into the apparatus, the first portion capsule being free of a filter and including a first lid that is sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines the cavity with a central interior portion,	Jarisch discloses, either expressly or inherently, inserting a first portion capsule into the apparatus, the first portion capsule being free of a filter and including a first lid that is sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines the cavity with a central interior portion. *See, e.g.*: *See* [1.b].
[13.c] having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central interior portion and an outside surface of the wall having plurality of vertically oriented grooves,	Jarisch discloses, either expressly or inherently, having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central interior portion and an outside surface of the wall having plurality of vertically oriented grooves. *See, e.g.*: *See* [1.c], [1.e].

K-FEE SYSTEM GMBH, EX2012, page 409
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,858,176	Disclosure
[13.d] the base element having a circumferential flange having a top side to which the first lid is sealed and an opposing bottom side with a first barcode located on the bottom side;	Jarisch discloses, either expressly or inherently, the base element having a circumferential flange having a top side to which the first lid is sealed and an opposing bottom side with a first barcode located on the bottom side. *See, e.g.*: *See* [1.d].
[13.e] piercing the first lid with the mandrel in a region that is offset from a central axis of the first portion capsule;	Jarisch discloses, either expressly or inherently, piercing the first lid with the mandrel in a region that is offset from a central axis of the first portion capsule. *See, e.g.*: *See* [1.g].
[13.f] sealing the top side of the flange of the first portion capsule and/or the first lid against the seal of the apparatus;	Jarisch discloses, either expressly or inherently, sealing the top side of the flange of the first portion capsule and/or the first lid against the seal of the apparatus. *See, e.g.*: *See* [1.h].
[13.g] reading the first barcode with the barcode reader; controlling production of a first coffee beverage based upon the reading of the first barcode; introducing heated water into the first portion capsule via the water inlet that is arranged along the central axis of the first portion capsule according to production conditions associated with the first barcode to form the first coffee beverage;	Jarisch discloses, either expressly or inherently, reading the first barcode with the barcode reader; controlling production of a first coffee beverage based upon the reading of the first barcode; introducing heated water into the first portion capsule via the water inlet that is arranged along the central axis of the first portion capsule according to production conditions associated with the first barcode to form the first coffee beverage. *See, e.g.*: *See* [1.f], [1.i].

U.S. Patent No. 10,858,176	Disclosure
[13.h] unloading the first portion capsule from the apparatus;	Jarisch discloses, either expressly or inherently, unloading the first portion capsule from the apparatus. *See, e.g.*: *See* [1.j].
[13.i] inserting second portion capsule into the apparatus, the second portion capsule being free of a filter and including a second lid sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines a cavity with a central interior portion, and having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the cavity central interior portion, and an outside surface of the wall having a plurality of vertically oriented grooves, the base element has a circumferential flange having a top side to which the second lid is sealed and an opposing bottom side with a second barcode that is located on the bottom side and being different from the first barcode; piercing the second lid with the mandrel in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange of the second	Jarisch discloses, either expressly or inherently, inserting second portion capsule into the apparatus, the second portion capsule being free of a filter and including a second lid sealed to a base element having a cavity within which a powdered coffee material is located, the base element has been shaped to define a wall that defines a cavity with a central interior portion, and having a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the cavity central interior portion, and an outside surface of the wall having a plurality of vertically oriented grooves, the base element has a circumferential flange having a top side to which the second lid is sealed and an opposing bottom side with a second barcode that is located on the bottom side and being different from the first barcode; piercing the second lid with the mandrel in a region that is offset from a central axis of the second portion capsule; sealing the top side of the flange of the second portion capsule and/or the second lid against the seal of the apparatus; reading the second barcode with the barcode reader; controlling production of a second coffee beverage based upon the reading of the second barcode; introducing the heated water into the second portion capsule via the water inlet that is arranged along the central axis of the second portion capsule according to production conditions associated with the second barcode to form the second coffee beverage. *See, e.g.*: *See* [1.k]; [13.a]-[13.g].

K-FEE SYSTEM GMBH, EX2012, page 411
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,858,176	Disclosure
portion capsule and/or the second lid against the seal of the apparatus; reading the second barcode with the barcode reader; controlling production of a second coffee beverage based upon the reading of the second barcode; introducing the heated water into the second portion capsule via the water inlet that is arranged along the central axis of the second portion capsule according to production conditions associated with the second barcode to form the second coffee beverage.	
14. The method according to claim 13, wherein the production conditions associated with the first barcode are different from the production conditions associated with the second barcode, the production conditions include: pressure, temperature and/or an amount of the heated water.	Jarisch discloses, either expressly or inherently, the method according to claim 13, wherein the production conditions associated with the first barcode are different from the production conditions associated with the second barcode, the production conditions include: pressure, temperature and/or an amount of the heated water. *See, e.g.*: Jarisch at [0014]-[0015]: The aim of the present invention is to propose an improved way to identify the capsule within a beverage pro-duction machine to ensure a more reliable and convenient retrieval or reading of information so as to adjust working parameters of the machine. This aim is achieved by a capsule for the preparation of a beverage comprising a container and a beverage ingre-dient contained therein, wherein the container comprises a code adapted for being identified or read by external reading means, wherein the code is arranged

U.S. Patent No. 10,858,176	Disclosure
	on the container to be read while the capsule is rotated around an axis of rotation traversing the capsule. *See also* [13].

K-FEE SYSTEM GMBH, EX2012, page 413
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

Exhibit A-6 – Invalidity of U.S. Patent No. 10,858,176 in view of Panesar

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,176 in view of Panesar

According to its cover page, PCT Pub. WO2005/079638A1 ("Panesar") was published on September 1, 2005. Panesar therefore constitutes prior art to the '176 Patent under pre-AIA 35 U.S.C. § 102(b). Panesar anticipates and/or renders obvious the Asserted Claims of the '176 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 Panesar, a person of ordinary skill in the art would have found it obvious to combine the teachings of Panesar 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 A-1 to A-9, and in Appendix A.

The chart below provides representative examples of where each element of each claim is found within Panesar. 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.

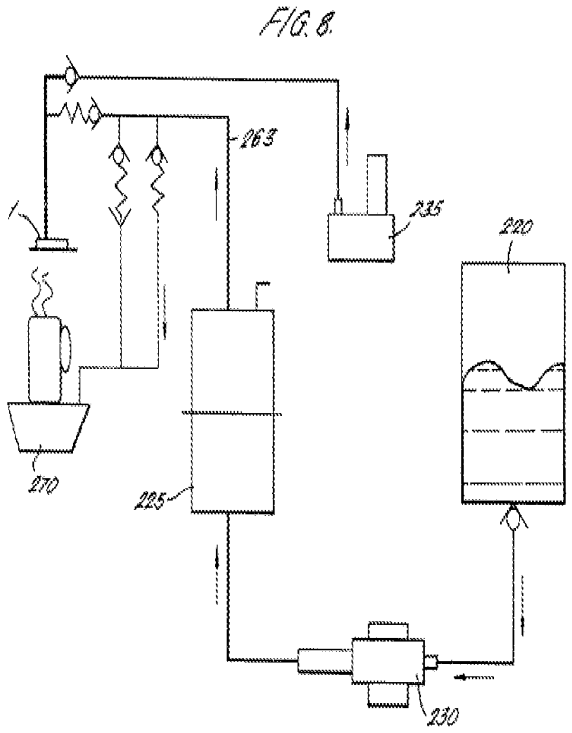
It is Nespresso's position that K-fee's Infringement Contentions have not established that any accused product or service infringes any valid claim. Thus, Nespresso's statements below should not be treated as an admission, implication, or suggestion that Nespresso agrees with K-fee regarding either the 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 Panesar. 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 Panesar "discloses" a limitation, that disclosure may be express, implicit, and/or inherent.

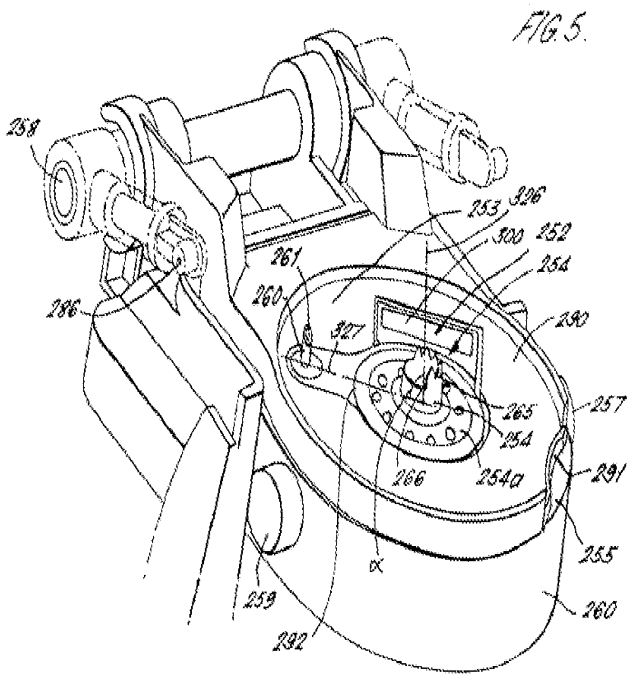
K-FEE SYSTEM GMBH, EX2012, page 414
NESPRESSO USA, INC. v. K-FEE SYSTEM GMBH
IPR2023-00485, U.S. PATENT 11,230,430

U.S. Patent No. 10,858,176	Disclosure
[1.pre] A method of making a coffee beverage comprising:	Panesar discloses, either expressly or inherently, a method for making a coffee beverage. *See, e.g.:* Panesar at p. 1, ll. 4-5: The present invention relates to an insert, a machine and a system for the preparation of beverages. Panesar at p. 1, ll. 20–28: In the domestic market consumers may not wish to use separate machines when preparing beverages from different beverage ingredient containing containers or, indeed, loose beverage ingredients. It is therefore an object of the present 25 invention to provide an insert, a beverage preparation machine and a beverage preparation system which allows consumers to use a variety of containers or loose ingredients in a single beverage preparation machine. Panesar at p. 8, ll. 17–26: <u>Beverage Preparation System</u> A beverage preparation machine 201 of the beverage preparation system of the present invention is shown in Figures la to 9b. The beverage preparation machine 201 generally comprises a housing 210 containing a water tank 220, a water heater 225, a water pump 230, an air compressor 235, a control processor, a user interface 240 and a brew head 250. The brew head 250 in turn generally comprises a holder 251, recognition means 252 and inlet and outlet piercers 253, 254. Panesar at FIG. 8:

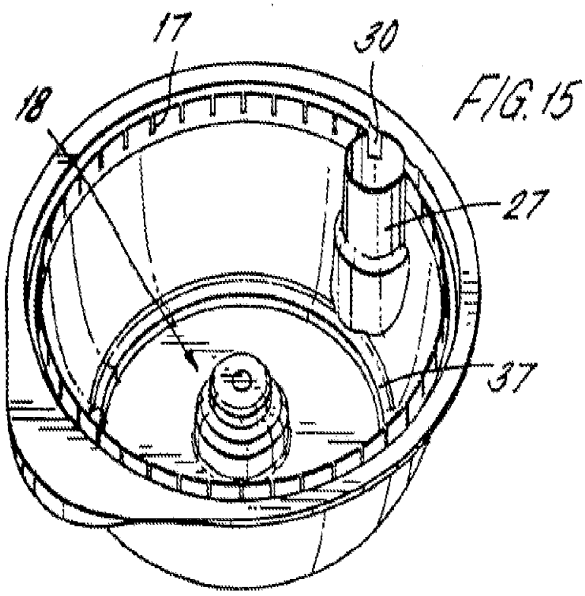
U.S. Patent No. 10,858,176	Disclosure
	 Panesar at p. 9, ll. 8–18: Cartridge for use in the system As shown in Figure 10 to 21, the cartridge 1 generally comprises an outer member 2, an inner member 3 and a laminate 5. The outer member 2, inner member 3 and laminate 5 are assembled to form the cartridge 1 which has an interior 120 for containing one or more beverage ingredients, an inlet 121, an outlet 122 and a beverage flow path linking the inlet 121 to the outlet 122 and which passes through the interior 120. The inlet 121 and outlet 122

U.S. Patent No. 10,858,176	Disclosure
	are initially sealed by the laminate 5 and are opened in use by piercing or cutting of the laminate 5. . Panesar at p. 5, ll. 23–32: The insert of the present invention may contain or be loaded with one or more beverage ingredients suitable for 25 the formation of a beverage product. The beverage product may be, for example, one of coffee, tea, chocolate or a dairy-based beverage including milk. The beverage ingredients may be powdered, ground, leaf-based or liquid. The beverage ingredients may be insoluble or soluble. 30 Examples include roast and ground coffee, leaf tea, powdered chocolate and soup, liquid milk-based beverages, carbonated drinks and concentrated fruit juices. *See also* Panesar at Claims 23–31.
[1.a] providing an apparatus including a barcode reader;	Panesar discloses, either expressly or inherently, providing an apparatus including a barcode reader. *See, e.g.:* Panesar at p. 4, ll. 24–29: The beverage preparation machine may comprise a brew head comprising an upwardly directed inlet for supplying water to the brew head, a downwardly directed outlet for outflow of beverage produced by the machine and a barcode or RFID reader having a window in the brew head through which signals may be transmitted . . . Panesar at p. 5, ll. 7–8: Preferably the barcode reader or RFID reader window is located at or near a periphery of the brew head. Panesar at p. 34, ll. 5–26:

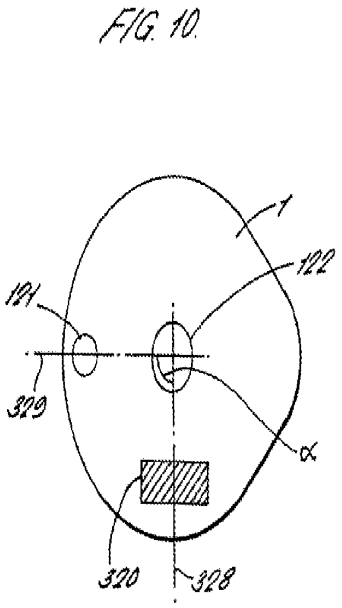
U.S. Patent No. 10,858,176	Disclosure
	The purpose of the recognition means 252 is to allow the machine 201 to recognize the type of beverage cartridge 1 that has been inserted and to adjust one or more operational parameters accordingly. In a typical embodiment, the recognition means 252 comprises an optical barcode reader which reads the printed barcode 320 provided on the laminate 5 of the beverage cartridge 1 as shown in Figure 10 and discussed above. The optical barcode reader comprises one or more LEDs 321 to illuminate the barcode 320, a focusing lens 322 to acquire an image of the barcode, a charge coupled device (CCD) 323 for producing an electrical signal representative of the acquired image and support circuitry for the LEDs and CCD. The space in the lower part for accommodating the barcode reader is limited. A mirror or mirrors 324 may be used to reflect the light from the LEDs 321 to a focusing lens which is not located in the lower part 255. Schematic arrangements are shown in Figures 9a and 9b. The lower part 255 comprises an aperture 326 which is the same size as the barcode 320 on the beverage cartridge 1. The aperture 326 is closed by a window, preferably glass, which can transmit the signals produced by the barcode reader. Panesar at p. 35, ll. 4–6: Alternatively, an RFID reader is provided to read an RFID located on thevcartridge 1. Panesar at Fig. 5:

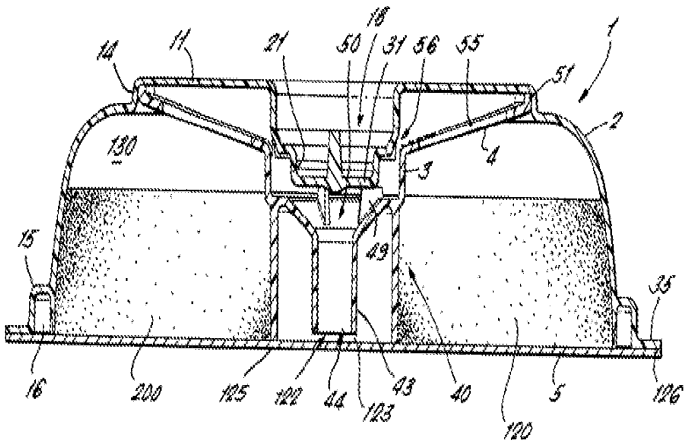
U.S. Patent No. 10,858,176	Disclosure
	 *See also* Panesar at Claims 24, 27, 30.
[1.b] inserting a first portion capsule into the apparatus, the first portion capsule including a first foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity being free of a filter and including a central portion,	Panesar discloses, either expressly or inherently, inserting a first portion capsule into the apparatus, the first portion capsule including a first foil lid sealed to a base element having a cavity within which a powdered coffee material is located, the cavity being free of a filter and including a central portion. *See, e.g.*: Panesar at p. 3 at line 22 – p. 4 at line 2: The insert may be a cartridge. The cartridge may be rigid or semi-rigid. The lower surface may be a laminate. In this case, the inlet and outlet of the cartridge may be portions of the lower surface which are opened for transportation, in use, by piercing the lower surface.

U.S. Patent No. 10,858,176	Disclosure
	Alternatively, the insert may define a receptacle for receiving loose beverage ingredients. Alternatively, the insert may define a receptacle for receiving a container of beverage ingredients, wherein the container comprises filtering means. In one aspect, the container is formed at least in part from filter paper or filtering membrane. For example, the container may be a filter bag. Panesar at p. 35, ll. 24–31: To insert the cartridge 1 the holder 251 is opened as described above to expose the cartridge mount 257. The cartridge 1 is then placed on the cartridge mount 257 received within the recess 290 such that the handle 24 of the cartridge is located in the irregularity 291. The optical or magnetic barcode 320 or RFID of the cartridge 1 is oriented directly above the aperture 326 in the cartridge mount 257. Panesar at p. 9, ll. 8–18: Cartridge for use in the system As shown in Figure 10 to 21, the cartridge 1 generally comprises an outer member 2, an inner member 3 and a laminate 5. The outer member 2, inner member 3 and laminate 5 are assembled to form the cartridge 1 which has an interior 120 for containing one or more beverage ingredients, an inlet 121, an outlet 122 and a beverage flow path linking the inlet 121 to the outlet 122 and which passes through the interior 120. The inlet 121 and outlet 122 are initially sealed by the laminate 5 and are opened in use by piercing or cutting of the laminate 5. Panesar at p. 5, ll. 23–32: The insert of the present invention may contain or be loaded with one or more beverage ingredients suitable for 25 the formation of a beverage product. The beverage product may be, for example, one of coffee, tea, chocolate or a dairy-based beverage including milk. The beverage ingredients may be powdered, ground, leaf-based or liquid. The beverage

U.S. Patent No. 10,858,176	Disclosure
	ingredients may be insoluble or soluble. 30 Examples include roast and ground coffee, leaf tea, powdered chocolate and soup, liquid milk-based beverages, carbonated drinks and concentrated fruit juices. Panesar at Fig. 15:  Panesar at p. 16, ll. 28–32: The laminate 5 is then affixed to the outer member 2 by forming a weld 126 around the periphery of the laminate 5 to join the laminate 5 to the lower surface of the outwardly extending flange 35. Panesar at p. 14 at line 21 – p. 15 at line 2: The laminate 5 is formed from two layers, a first layer of aluminium and a second layer of cast polypropylene. The aluminium layer is between 0.02 and 0.07 mm in thickness. . . . In one embodiment the aluminium layer is 0.06 mm and the polypropylene layer is 0.025 mm

U.S. Patent No. 10,858,176	Disclosure
	thick. This laminate is particularly advantageous as it has a high resistance to curling during assembly. As a result the laminate 5 may be pre-cut to the correct size and shape and subsequently transferred to the assembly station on the production line without undergoing distortion. Consequently, the laminate is particularly well suited to welding. Other laminate materials may be used including PET/Aluminium/PP, PE/EVOH/PP, PET/metallised/PP and Aluminium/PP laminates. Panesar at p. 32, ll. 16-19: This movement also ensures that the great majority of the compressive force applied to the cartridge acts through the central region of the cartridge 1 through the load-bearing inner member 3. Panesar at p. 9, ll. 9–22: [T]he cartridge 1 generally comprises an outer membrane 2, an inner member 3 and a laminate 5. . . . Other components may optionally be included in the cartridge 1, such as a filter 4 . . . Panesar at p. 41 at line 30 – p. 42 at line 1: The quantity of beverage ingredients loaded into the brewing volume of the insert 400 may be loose or may be contained in a container such as a flexible filter bag made of filter paper. Panesar at p. 42, ll. 18–23: The insert 400 has been described particularly for use with beverage ingredients contained in containers such as 20 filter bags. As indicated, the beverage ingredients may alternatively be in a loose form. In this case, a separate filter may be provided in the insert 400 to prevent discharge of beverage ingredient residue. *Panesar* at Claim 10.

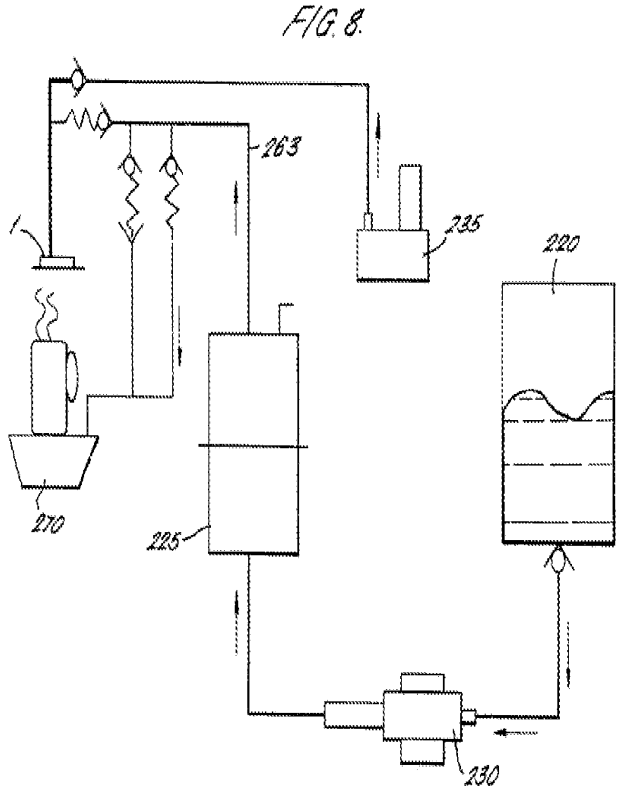
U.S. Patent No. 10,858,176	Disclosure
	Panesar at FIGs. 10 and 21: 

U.S. Patent No. 10,858,176	Disclosure
	FIG. 21. 
[1.c] and a plurality of ribs that are radially spaced, vertically oriented, and configured to extend toward the central portion of the cavity,	*See* [1.h], [1.i].
[1.d] the base element including a circumferential flange having a top side to which the first foil lid is sealed and an opposing bottom side	Panesar discloses, either expressly or inherently, inserting a first portion capsule into the apparatus, the first portion capsule including a first foil lid sealed to a base element having a

U.S. Patent No. 10,858,176	Disclosure
with a first barcode located on the bottom side,	cavity within which a powdered coffee material is located, the cavity being free of a filter and including a central portion. *See, e.g.*: Panesar at p. 12, ll. 1–7: A lower end of the outwardly extending shoulder 33 is provided with an outwardly extending flange 35 which extends perpendicularly to the major axis X. Typically the flange 35 has a width of between 2 and 4 mm. A portion of the flange 35 is enlarged to form a handle 24 by which the outer member 2 may be held. The handle 24 is provided with an upturned rim 25 to improve grip. Panesar at p. 16, ll. 28–32: The laminate 5 is then affixed to the outer member 2 by forming a weld 126 around the periphery of the laminate 5 to join the laminate 5 to the lower surface of the outwardly extending flange 35. *See also* Panesar at FIGs. 10, 15, 21. Panesar at p. 2, ll. 19–28: [T]he lower surface of the insert further comprises a barcode or RFID which, in use, is readable by a barcode or RFID reader of the beverage preparation machine for controlling operation of the beverage preparation machine, wherein the barcode or RFID is located on the lower surface of the insert such that a line joining the outlet of the insert to a centre of the barcode and a line joining the outlet of the insert to the inlet of the insert [are] separated by a minimum angular separation of greater than 70 degrees. Panesar at p. 2 at line 29 – p. 3 at line 12: Advantageously, it has been found that this minimum angular separation of the barcode or RFID from the inlet improves the accuracy of the reading of the barcode or RFID by the recognition means of the machine. Firstly, the separation results in any distortion of the inlet

U.S. Patent No. 10,858,176	Disclosure
	area having a minimal affect [sic] on the region of the barcode or RFID. Secondly, it has been found that there may be a small degree of leakage of fluid from the inlet area during dispensation since dispensation occurs at pressure. This fluid may spread, in particular due to capillary effect between the insert and a brew to partial obfuscation of the resulting in a greater chance head of the machine, leading barcode or RFID by the fluid of the barcode or RFID being misread. With the barcode or RFID separated by an angle of greater than 70 degrees it has been found that this problem does not occur. Panesar at p. 3, ll. 18–20: The barcode or RFID is preferably located at or near a periphery of the lower surface. Panesar at p. 18, ll. 24–31: [T]he cartridge 1 is provided on the laminate with a barcode 320 as shown in Figure 10. The barcode 320 is formed from a plurality of bars of contrasting colour. Preferably the bar are black on a white background to maximise the contrast. The barcode 320 is not required to conform to a published standard but a standard format for barcodes, such as EAN-13, UPC-A, or Interleaf 2 of 5 may be used. Panesar at p. 20, ll. 10–13: Preferably, the barcode 320 is also located near a periphery of the laminate 5 so as to separate the barcode 320 from the outlet 122 so as to avoid distortion of the barcode 320 on piercing of the outlet 122. Panesar at p. 35, ll. 24–31: To insert the cartridge 1 the holder 251 is opened as described above to expose the cartridge mount 257. The cartridge 1 is then placed on the cartridge mount 257 received within the recess 290 such that the handle 24 of the cartridge is located in the irregularity 291. The

U.S. Patent No. 10,858,176	Disclosure
	optical or magnetic barcode 320 or RFID of the cartridge 1 is oriented directly above the aperture 326 in the cartridge mount 257.
[1.e] the base element of the first portion capsule includes an outside surface having a plurality of vertically oriented grooves;	
[1.f] reading the first barcode with the barcode reader; controlling a production process of a first coffee beverage based upon the reading of the first barcode;	Panesar discloses, either expressly or inherently, reading the first barcode with the barcode reader; controlling a production process of a first coffee beverage based upon the reading of the first barcode. *See, e.g.*: Panesar at p. 23, ll. 23–32: The water pump 230 is operatively connected between the water tank 220 and the water heater 225 as shown schematically in Figure 8 and is controlled by the control processor. The pump provides a maximum flow rate of 900 ml/min of water at a maximum pressure of 2.5 bar. Preferably, in normal use, the pressure will be limited to 2 bar. The flow rate of

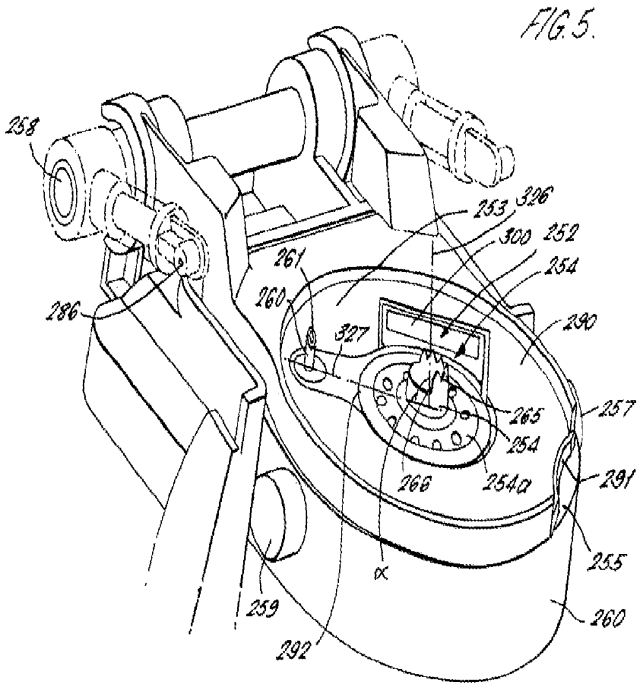
U.S. Patent No. 10,858,176	Disclosure
	water through the machine 201 can be controlled by the control processor to be a percentage of the maximum flow rate of the pump by cycle chopping the electrical supply to the pump. *Panesar* at FIG. 8:  The control processor of the beverage preparation machine 201 comprises a processing module and a memory. The control processor is operatively connected to, and controls operation of, the water heater 225, water pump 230, air compressor 235 and user interface 240.

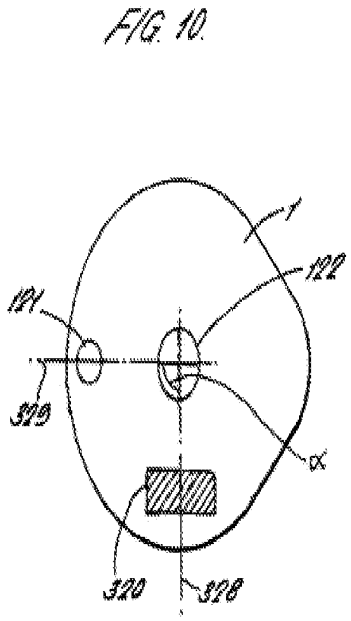
U.S. Patent No. 10,858,176	Disclosure
	The memory of the control processor includes one or more variables for one or more operational parameters for the beverage preparation machine 201. The operational parameters are the temperature of the water passed through the beverage cartridge 1 during the operating stage, the speed of charging the beverage cartridge 1, the presence or otherwise of a soak step, the total dispensed volume of the beverage, the flow rate of the water during the discharge stage, and the flow rate and period of the purge stage. Panesar at p. 25, ll. 8–29: The variables for the operational parameters are stored in the memory. The cartridge 1 comprises a code provided on or in the cartridge 1 representing the operational parameters required for optimal dispensation of the beverage in that cartridge 1 The code is in binary format and comprises a plurality of data bits corresponding to the variables stored in the control processor memory. Panesar at p. 34, ll. 5–12: The purpose of the recognition means 252 is to allow the machine 201 to recognise the type of beverage cartridge 1 that has been inserted and to adjust one or more operational parameters accordingly. In a typical embodiment, the recognition means 252 comprises an optical barcode reader which reads the printed barcode 320 provided on the laminate 5 of the beverage cartridge 1 as shown in Figure 10 and discussed above. Panesar at p. 34, line 28 – p. 35, line 4: The software can recognize whether the read of the barcode contained errors, although the occurrence of these is minimized as described above by specific location of the barcode 320 relative to the inlet. The barcode 320 may be rescanned a number of times before an error message is presented to the consumer. If the machine 201 is unable to read the barcode the consumer is able to use the beverage cartridge 1 to dispense a beverage using a manual mode of operation.

U.S. Patent No. 10,858,176	Disclosure
	Cartridge recognition is performed by the optical recognition means 252 as described above assuming that the outputs from the cartridge sensor and lock sensor are satisfactory. Once the barcode 320 or RFID has been decoded the operational parameters of the machine 201 are adjusted by the control processor. The discharge cycle is then automatically commenced. The discharge cycle has four main stages, not all of which are used for all beverage types: (i) Pre-wet (ii) Pause (iii) Brew/Mixing (iv) Purge Panesar at p. 36, ll. 15–31: In the pre-wet stage the cartridge 1 is charged with water from the water storage tank 220 by means of the water pump 230. The charging with water causes the beverage ingredients 200 in the filtration chamber 130 to be wetted. Panesar at p. 37, ll. 17–24: In the brew/mixing stage water is passed through the cartridge 1 in order to produce the beverage from the beverage ingredients 200. The temperature of the water is determined by the control processor which sends instructions to the water heater 225 to heat the water passing from the water tank 220 to the brew head 250. Water enters the lower part 255 of the holder 251 through the conduit 262 via the inlet valve and the inlet piercer 253 into the inlet chamber 25 126 of the beverage cartridge 1. Panesar at p. 24, ll. 10–14:

U.S. Patent No. 10,858,176	Disclosure
	The water heater 225 is located in the interior of the housing 210. The heater 225 has a power rating of 1550 W and is able to heat water received from the water pump 230 from a starting temperature of approximately 20 °C to an operating temperature of around 85 °C in under 1 minute.
[1.g] piercing the first foil lid with a mandrel of the apparatus in a region that is offset from a central axis of the first portion capsule;	Panesar discloses, either expressly or inherently, piercing the first foil lid with a mandrel of the apparatus in a region that is offset from a central axis of the first portion capsule. *See, e.g.*: Panesar at p. 3, ll. 22–26: The insert may be a cartridge. . . . The lower surface may be a laminate. In this case, the inlet and outlet of the cartridge may be portions of the lower surface which are opened for transportation, in use, by piercing the lower surface. Panesar at p. 8, ll. 20–26: The beverage preparation machine 201 generally comprises a housing 210 containing a water tank 220, a water heater 225, a water pump 230, an air compressor 235, a control processor, a user interface 240 and a brew head 250. The brew head 250 in turn generally comprises a 25 holder 251, recognition means 252 and inlet and outlet piercers 253, 254. Panesar at p. 9, ll. 9–18: [T]he cartridge 1 generally comprises an outer membrane 2, an inner member 3 and a laminate 5. The outer member 2, inner member 3 and laminate 5 are assembled to form the cartridge 1 which has an interior 120 for containing one or more beverage ingredients, an inlet 121, an outlet 122 and a beverage flow 15 path linking the inlet 121 to the outlet 122 and which passes through the interior 120. The inlet 121 and outlet 122 are initially sealed by the laminate 5 and are opened in use by piercing or cutting of the laminate 5.

U.S. Patent No. 10,858,176	Disclosure
	Panesar at p. 17, ll. 25–29: To use the cartridge 1 it is first inserted into the beverage preparation machine and the inlet 121 and outlet 122 are opened by piercing members of the beverage preparation machine which perforate and fold back the laminate 5. Panesar at p. 29 at line 3 – p. 30 at line 29: The lower part 255 comprises the inlet and outlet piercers 253, 254 and the head 300 of the cartridge recognition means 252. The inlet piercer 253 comprises a hollow needle-like tube 260 having a sharpened end 261 for perforating the laminate 5 of the beverage cartridge 1 in use. The inlet piercer 253 is in fluid communication with a water conduit 262 as shown in Figure 7 which passes through the lower part 255 and is connected to an outlet conduit 263 of the water heater 225. The outlet piercer 254 is similar in type to the outlet piercer described in the applicant's European patents EP 0 389 141 and EP 0 334 572 and comprises an open ended cylinder 264 of circular or D-shaped cross-section having dimensions larger than the discharge spout 43. An arcuate portion 265 of the upper end of the outlet piercer 254 is serrated to pierce and eventually cut the laminate of the beverage cartridge 1. The remainder of the upper end is cut back longitudinally of the cylinder at least to the base of the teeth 266 of the serrated portion to fold or pull the cut laminate 5 away from the outlet aperture before the beverage is dispensed there through. The outlet piercer 254 pierces the laminate 5 externally of the discharge spout 43 and when the cartridge mount 257 is in the closed position, rests in the annulus between the discharge spout 43 and the outer wall 42 of the discharge funnel 40. The outlet piercer 254 folds back the cut laminate 105 into the annulus. Thereby both the outlet piercer 254 and the cut laminate 105 are held out of the way of the discharged beverage. The outlet piercer 254 is surrounded by a ledge 254a which is raised relative to its surroundings by 0.5mm. Advantageously, the outlet piercer 254 is removable from the lower part 255 to enable it to be thoroughly cleaned, for example, in a dishwasher. The removable outlet piercer 254 is received in a recess 267 in the lower part 255 where it is seated. The inlet piercer 253 and/or the outlet piercer 254 may be made of a metal, such as stainless steel, or from a plastics material.

U.S. Patent No. 10,858,176	Disclosure
	Panesar at p. 35 at line 32 – p. 33 at line 3: During closure the inlet and outlet piercers 253, 254 pierce the laminate 5 of the cartridge 1 to form the cartridge inlet 121 and outlet 122. *Panesar* at FIG. 5: 

U.S. Patent No. 10,858,176	Disclosure
	Panesar at FIG. 10: 
[1.h] sealing the first foil lid against a seal of the apparatus;	Panesar discloses, either expressly or inherently, unloading the first portion capsule from the apparatus. *See, e.g.*: Panesar at p. 28 at line 22 – p. 29 at line 2: When the holder 251 is in the closed position, the viewing window 312 bears against the beverage cartridge 1 biasing it against the lower part 256. In one arrangement, the rim 311 of the viewing window contacts and bears against the flange 35 of the beverage cartridge. At the same time the window 312 contacts the closed top 11 of the cartridge 1. In an alternative arrangement, only the viewing window 312 contacts the closed top 11 of the cartridge 1, and there is no bearing contact between the rim 311 and the flange 35. The pressure exerted by the rim 311 on the flange 35 and/or by the window 312 on the closed top 11 ensures a fluid tight seal between the cartridge 1 and the holder 251.

U.S. Patent No. 10,858,176	Disclosure
	Panesar at p. 31 at line 19 – p. 32 at line 8: During this last stage of rotation the cartridge 1 is compressed between the cartridge mount 257 and the viewing window 312. As a result, the viewing window 312 is moved axially relative to the circular body 310 of the upper part 256 against the bias of the wave spring or helical springs. This movement allows for a take up of tolerances in the beverage cartridge 1 and beverage preparation machine and ensures that the amount of compressive force applied to the cartridge is kept within an acceptable range. The clamping force of the mechanism as moderated by the action of the wave spring or helical springs ensures a clamping pressure on the cartridge. For the arrangement where bearing pressure is applied to both the flange 35 and the closed top 11 of the cartridge 1, it has been found that a pressure of between 130 and 280N is required. Preferably the force is approximately 200N. A force less than about 130N does not provide an adequate seal, whilst a force greater than about 280N leads to plastic failure of the components of the cartridge 1. For the arrangement where bearing pressure is applied only to the closed top 11 of the cartridge 1 it has been found that a pressure of between 50N and 280N is required. Panesar at p. 32, ll. 19–30: In the closed position the cartridge 1 may thus be clamped around the flange 35 by means of the rim 311 of the viewing window 312 and is always firmly clamped between the closed top 11 of the cartridge and the outer tube 42 of the inner member 3 by contact with the viewing window 312 and the ledge 254a. These clamping forces help prevent failure of the cartridge 1 during pressurisation and also ensure that the inner member 3 and outer member 2 are fully seated relative to one another and thus that all internal passageways and apertures remain at their intended dimensions even during internal pressurisation. Panesar at p. 36, ll. 5–10: When closed the holder 251 grips the cartridge 1 around the rim 35 between the cartridge mount 257 and the upper part 256 and/or between the window 311 and the top 11 of the

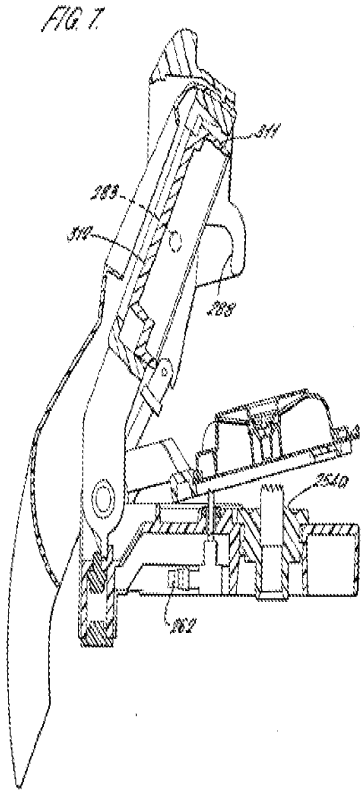
U.S. Patent No. 10,858,176	Disclosure
	cartridge 1 to form a fluid tight seal of sufficient integrity to withstand the pressures developed during the dispense cycle. Panesar at Fig. 7: 

Exhibit A-6 – Invalidity of U.S. Patent No. 10,858,176 in view of Panesar

U.S. Patent No. 10,858,176	Disclosure
[1.i] introducing heated water into the first portion capsule through a water inlet of the apparatus that is arranged along the central axis of the portion capsule to form the first coffee beverage;	Panesar discloses, either expressly or inherently, introducing heated water into the first portion capsule through a water inlet of the apparatus that is arranged along the central axis of the portion capsule to form the first coffee beverage. *See, e.g.*: Panesar at p. 17 at line 29 – p. 18 at line 5: An aqueous medium, typically water, under pressure enters the cartridge 1 through the inlet 121 into the inlet chamber 26 at a pressure of between 0.1-2.0 bar. From there the water is directed to flow through the slots 30 and round the manifold 16 and into the filtration chamber 130 of the cartridge 1 through the plurality of slots 17. The water is forced radially inwardly through the filtration chamber 130 and mixes with the beverage ingredients 200 contained therein. Panesar at p. 23, ll. 23–32: The water pump 230 is operatively connected between the water tank 220 and the water heater 225 as shown schematically in Figure 8 and is controlled by the control processor. The pump provides a maximum flow rate of 900 ml/min of water at a maximum pressure of 2.5 bar. Preferably, in normal use, the pressure will be limited to 2 bar. The flow rate of water through the machine 201 can be controlled by the control processor to be a percentage of the maximum flow rate of the pump by cycle chopping the electrical supply to the pump.