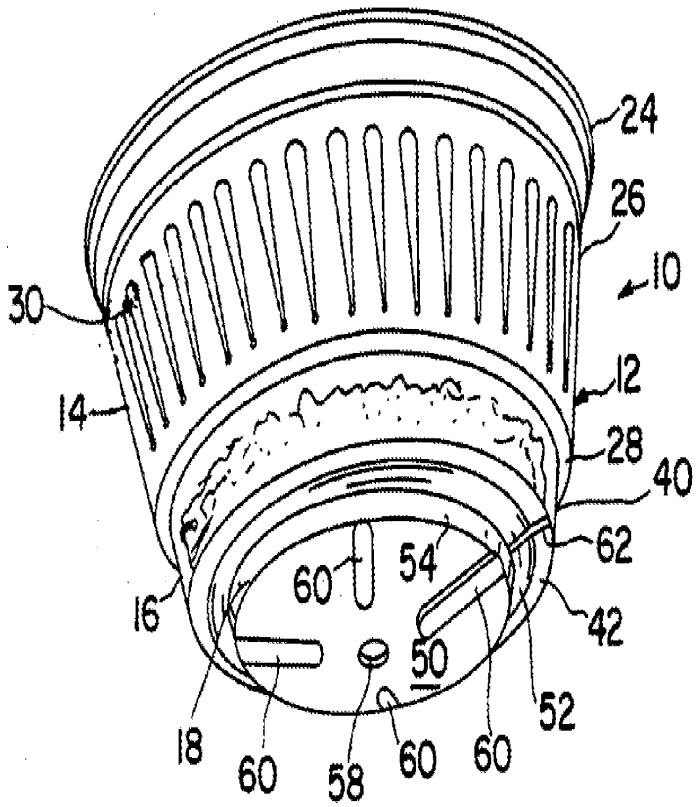
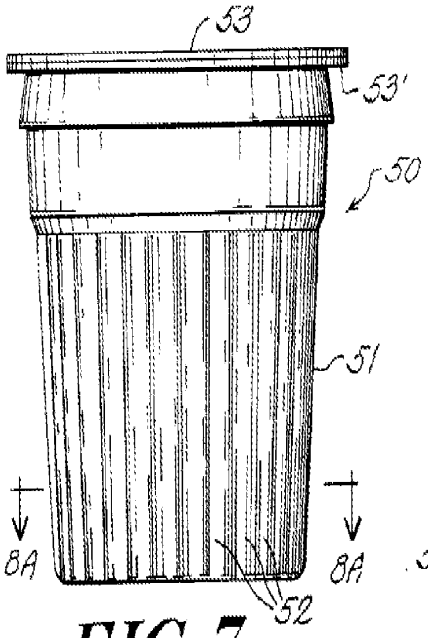
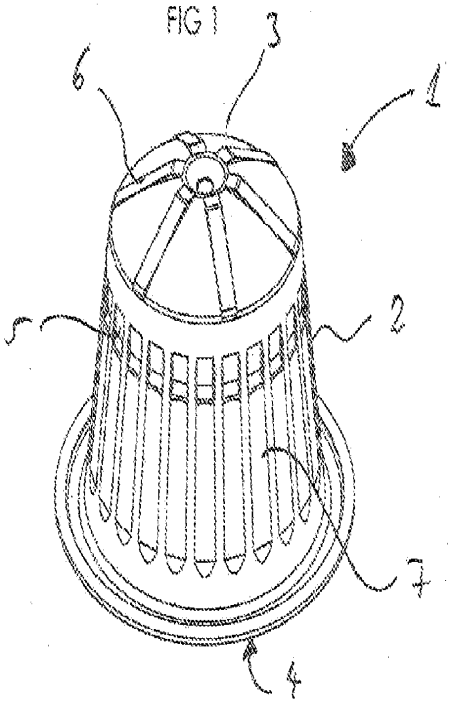
U.S. Patent No. 10,858,177	Disclosure
	FIG. 2g. One or more grooves may be incorporated to create a texture. FIG. 2h shows holes. One or more holes may be used, which holes may be, of various shapes and sizes. The above-noted machine interpretable features; or other machine interpretable features, may 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:  Erickson at 5:9-26: The reservoir 14 of the container 12 is open at the top and includes a rim 24, a depending side wall 26 and a bottom wall 28. The rim 24 extends laterally and outwardly from the upper end of the wall 26 to facilitate pouring of the water or other liquid into the reservoir and movement of the coffee maker 10 without spilling. The wall 26 is cylindrical and is stepped and tapered inwardly and includes vertical ribs 30 for strengthening. The bottom wall 28, in the illustrative embodiment, is in the form of an annular shoulder and includes a relatively large central opening 32. As illustrated, the reservoir 14 of the invention is configured to contain the appropriate amount of water necessary to brew the desired amount of coffee and

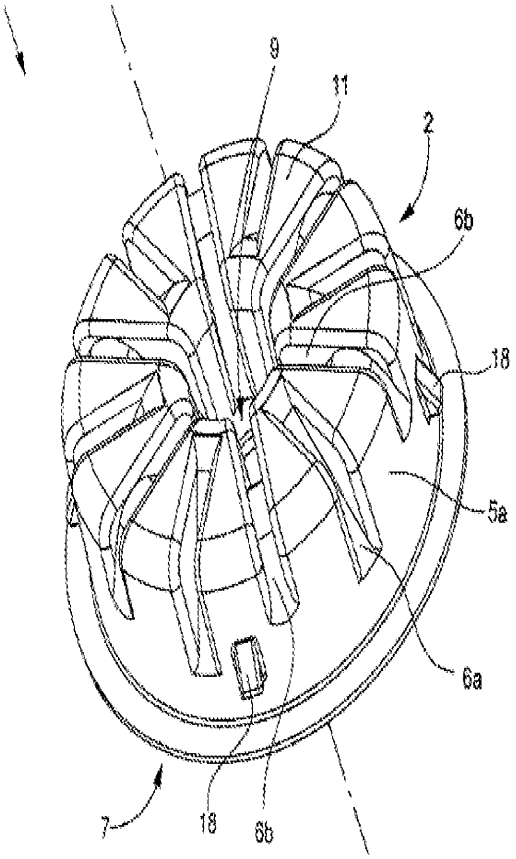
U.S. Patent No. 10,858,177	Disclosure
	to provide the necessary hydrostatic pressure to the partition 20 to cause the partition 20 to allow the flow of water therethrough at the desired brewing temperature. Erickson at Fig. 1:  FIG. 1 Lazaris at [0028]: A typical beverage filter cartridge is depicted ay 50 in FIGS. 7 and 8A. The cartridge includes a cup-shaped base 51 having an inverted frustum-shaped side wall interrupted by surface

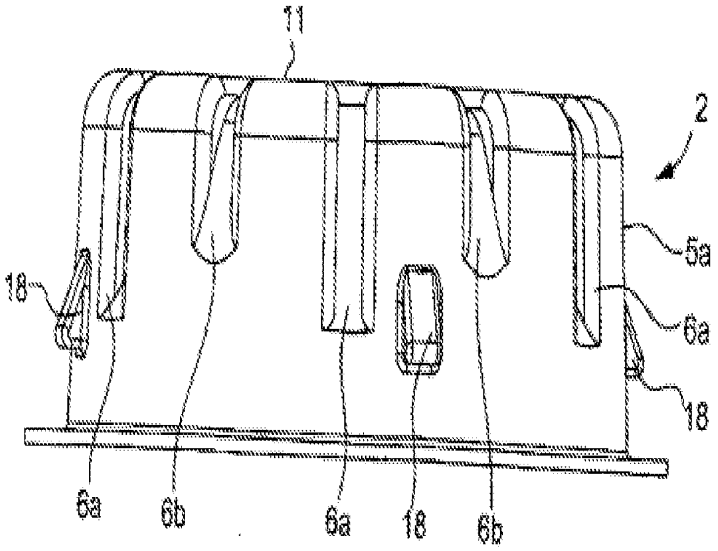
U.S. Patent No. 10,858,177	Disclosure
	irregularities indicated typically at 52 and comprising circumferentially spaced grooves. The cup-shaped base is closed by a lid 53. As herein employed, the term "surface irregularity" is intended to broadly encompass any deviation from a smooth surface than can mechanically interengage with adjacent components or surfaces of the housing 28. Non limiting examples of such surface irregularities may comprise a uniform array of grooves as shown in FIG. 8A, or pairs of oppositely disposed grooves 52 a in the side wall of a cartridge 50 a as shown in FIG. 8B, or a single surface irregularity such as the outwardly projecting rib 54 b in the side wall of cartridge 50 b as shown in FIG. 8C. Lazaris at [0039]: FIG. 6 illustrates an alternative embodiment of a cartridge holder in which the side wall of the housing 28 is provided with internal grooves 300″ configured and arranged to slidably receive and coact in mechanical interengagement with externally projecting ribs 52 c in the side wall of cartridge 50 c Still another embodiment of a cartridge holder is illustrated in FIGS. 9-11. The cartridge 50 d is of the type described in the above-referenced patent application Ser. No. 09/782,660, with generally flat side walls diverging upwardly from a bottom to a top opening closed by a lid 53 a. Oppositely facing side walls are provided with surface irregularities in the form of protruding somewhat triangular-shaped bosses 52 d. Lazaris at [0041]: The recesses 301 in the housing side walls coact with the bosses 52 d in the cartridge side wall to orientate the cartridge within the housing in one of two possible positions. Lazaris at Fig. 7:

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	 FIG. 7 *See also* Lazaris at Fig. 8A. Mariller at [0020]-[0032]: List of numerical references used in the figures: 1. capsule 2. side wall 3. top wall 4. bottom wall 5. cavity 6. top wall stiffening element 7. side wall stiffening element 8. top edge stiffening element 9. internal protrusion 10. beading

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	11. weakened zone 12. piercing element Mariller at [0034]: a) The top part of the capsule is reinforced by an architecture known as an "exposed beams", "reinforcing" or "framework" architecture the purpose of which is to reinforce the capsule in its ability to withstand the pressure of the water and at the time of its perforation. It is also possible to obtain a reinforced structure using folds of material. The rigidity may also be reinforced using an architecture of the "exposed beams" or "framework" type which is concave in relation to the capsule (see FIG. 2). Mariller at [0037]-[0038]: c) On the outside of the capsule, opposite each projecting element or opposite a circumferential rim, a cavity is created which strengthens the lateral parts of the capsule through a framework effect while at the same time saving on material (see cross section) and in particular allows the use of biodegradable material and fine materials of the PET or metal type or any other petroleum-derived material. The lateral reinforcement of the capsule may also be created by folds of the material (see FIGS. 5-6). d) The outer lateral part of the capsule has facets which may extend as far as the vicinity of the bottom part of the capsule or over a certain distance in the heightwise direction. In this alternative form also, it is therefore possible to save on material while at the same time reinforcing the lateral parts of the capsule (see FIGS. 7-8). Mariller at Fig. 1:

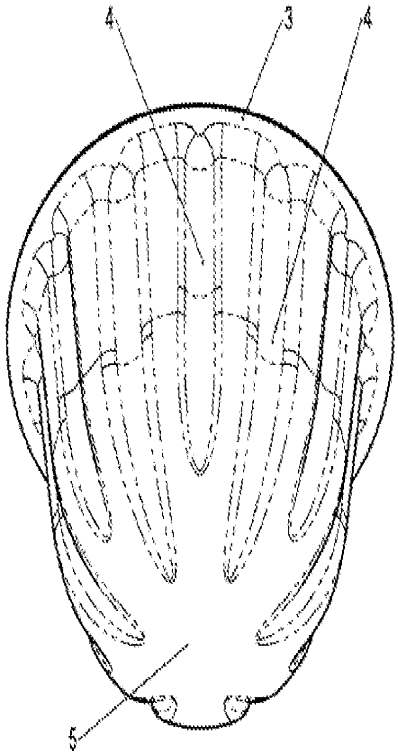
U.S. Patent No. 10,858,177	Disclosure
	 *See also* Mariller at Figs. 2, 7, 8. Mock at [0027]: The packaging according to the invention may be produced with very diverse shapes and in very diverse materials, It may be rigid, for example made of thermoforming plastic or stamping thin metal sheet, for example made of aluminum, and have an outline that is, for example, circular, rectangular or hexagonal. Mock at [0036]: According to another preferred embodiment, the part of the packaging from which the hollow shaft departs is produced with strengthening ribs and/or with ribs for positioning the nozzle, these ribs being formed, for example by thermoforming, as recesses in the end wall and the wall and being orientated toward the hollow shaft.

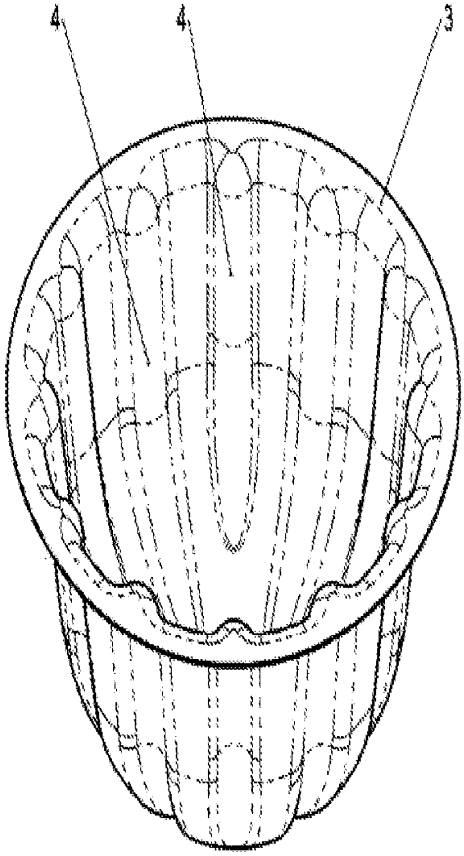
U.S. Patent No. 10,858,177	Disclosure
	Mock at [0077]: As can also be seen in FIGS. 2 and 3, in this first embodiment, the capsule 2 has ribs 6a, 6b extending from the hollow shaft 9 to the periphery. A first series of ribs 6a plays a part in reinforcing the capsule 2, and possibly in partitioning it as will be seen later on. A second series of ribs 6b is designed to prevent the nozzle from rotating in the packaging, as will be explained with reference to FIGS. 6 and 7. . . . Mock at FIGs. 1-2: 

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	 Fig.2 Rapparini at [0007]: The present invention allows overcoming the problems and drawbacks of the systems known in the prior art. In particular, the present invention guarantees stability of the structure of filtering and permeable containers so that they can be easily handled in packaging and/or filling machines even when these machines operate at very high rates. Moreover, the present invention provides containers which are easily employed in automatic machines both for domestic and industrial use. Rapparini at [0009]: The present invention is based on the idea of providing the body of the container with longitudinal stiffening ribs wherein the length of the ribs is variable along the surface of the body. The presence of ribs having different lengths on the body of the container allows the

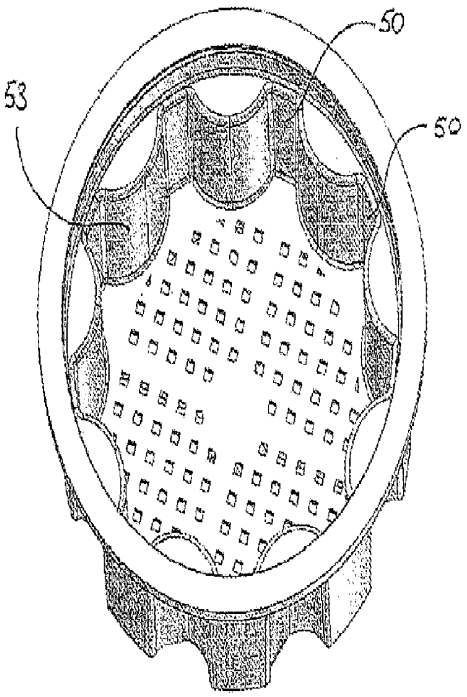
U.S. Patent No. 10,858,177	Disclosure
	optimization of the stability of the container. The modulation of the length of the ribs along the surface of the container allows improving the stability and rigidity of the system. Rapparini at [0010]: According to an embodiment of the present invention, a filtering and permeable container for substances suitable for the preparation of beverages is provided, the container being made by means of thermoforming starting from a flat strip of permeable, filtering and thermoformable material, wherein the body of the container comprises longitudinal stiffening ribs, wherein the length of the ribs is variable along the surface of the body. Rapparini at [0011]: According to a further embodiment of the present invention, a container is provided, wherein long and short ribs are alternated along the surface of the body. The stability of the container is accordingly optimized by providing for example long ribs extending at least partially in the bottom region of the container alternated to short ribs extending only along the side region of the container. Rapparini at [0013]: According to a further embodiment of the present invention, a container is provided, wherein at least along a portion of one or more of the ribs, the width of the ribs decreases toward the bottom of the container, so that said one or more of the ribs have a pointed shape. In this way the stability of the container is further optimized. In particular, the side portion of the body is stiffened by the presence of the stiffening ribs and the bottom portion is minimally altered by the presence of those ribs having a pointed shape pointing toward the bottom of the container. Rapparini at [0014]:

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	According to a further embodiment of the present invention , a container is provided, wherein the stiffening ribs increase the filtering surface of the body. Rapparini at [0019]: According to a further embodiment of the present invention, a container is provided, wherein the container is adapted to be employed in automatic espresso machines. In particular, the container can be adapted to be employed for example for automatic domestic espresso machines or for industrial espresso machines. Rapparini at [0052]: Figures 6 and 6bis schematically display 3D views of the container according to an embodiment of the present invention. The container is provided with longitudinal stiffening ribs 4, and the length L of the stiffening ribs 4 is variable along the surface of the body 2 of the container. In particular, long and short ribs are alternated along the surface of the body 2. The long ribs extends toward the bottom region 5 of the container. In particular, the long ribs occupy a portion of the bottom region 5 of the container. The container has a cup-shaped bottom region 5. The long stiffening ribs occupy, therefore, a portion of the cup-shaped bottom region 5. Each short rib is placed between two long ribs and extends along the lateral region of the container. Accordingly, the stabilization of the structure is optimized and, at the same time, the filtering surface of the container is increased. Rapparini at FIG. 6 bis:

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	 FIG. 6 bis

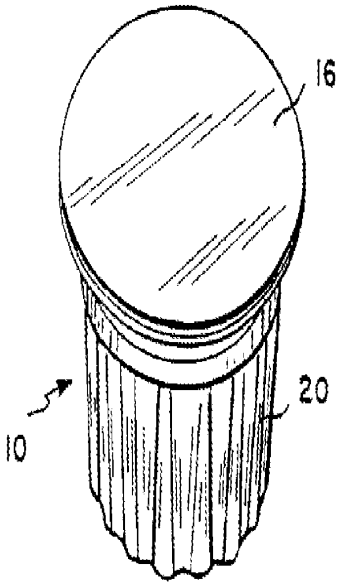
U.S. Patent No. 10,858,177	Disclosure
	Rapparini at FIG. 6:  Rubino at [0009]: The present invention provides several relevant advantages. The main advantage lies in the fact that the internal grooves of the capsule attain optimal flow conditions for the liquid passing through the capsule itself, to the advantage of the quality and repeatability of the end beverage and also of the correct operation of the associated machines, which are not subject to unforeseeably variable flow conditions. Rubino at [0012]:

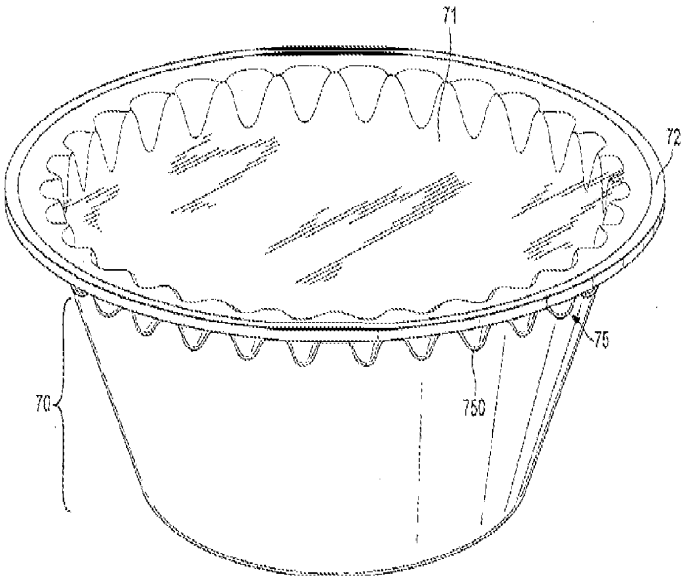
U.S. Patent No. 10,858,177	Disclosure
	The capsule 1 comprises a main body of substantially cylindrical overall geometry, which has just a longitudinal axis of symmetry A. In particular, the main body is comprised of a top face 2 and a bottom face 3 having a substantially circular contour, and of a lateral surface or skirt 4 bearing a plurality of grooves that will be detailed hereinafter. Such top and bottom faces 2 and 3 and lateral skirt 4 define an internal housing 10 of the capsule 1, better seen in Figures 7 and 8, receiving the ground coffee. Rubino at [0018]-[0019]: As mentioned above, in correspondence of its lateral skirt 4 the main body of the capsule 1 has a plurality of concave external grooves 5, identical the one to the other and equally distributed over the entire lateral extension of the skirt 4 itself according to an axial geometry. The grooves 5 develop in a direction substantially parallel to axis A of the capsule 1 and are partitioned by external longitudinal ribs 52. Also the latter are identical the one to the other, equally distributed over the entire lateral extension of the skirt 4, and develop along a direction substantially parallel to the axis A of the capsule 1. As it is better seen in Figure 8, the external ribs 52 are internally hollow, thereby producing in correspondence of the housing 10 a plurality of grooves or internal notches 50 of the capsule itself. Therefore, said internal notches 50 define longitudinal portions of the housing 10 inside which part of the ground coffee is received. The presence and arrangement of the notches 50 allows, as already mentioned above, optimal conveyance of the extraction fluid within the capsule 1, preventing stagnation, allowing to accurately control and foresee the properties of said flow and generally to optimize the extraction process. Rubino at Claim 1: A capsule (1) of the type containing or apt to contain a substantially granular infusion for making beverages such as coffee and the like in an extraction process providing the passing through the capsule itself by an extraction fluid, said capsule (1) comprising a main body (2, 3, 4) defining an internal housing (10) apt to receive said infusion (C), characterized in that said main body (2, 3, 4) has, in correspondence of at least part of the lateral wall (4) of said

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	housing (10), a plurality of internal longitudinal grooves (50) arranged substantially in the direction of the extraction fluid flow and apt to convey such a fluid through the capsule (1) itself. Rubino at Fig. 8:  FIG. 8 *See also* Rubino at Claims 2, 3, 6; Figs. 1-4, 7. Sweeney at Abstract: A beverage filter cartridge includes a cup-shaped outer container with a bottom and a side wall extending upwardly from the bottom wall to a circular rim surrounding an upper

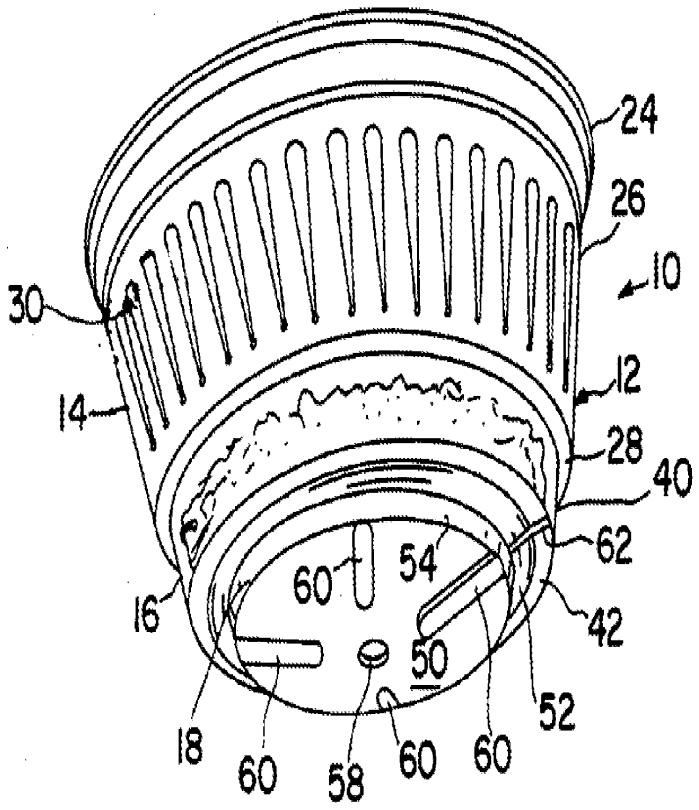
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	opening. The side wall has an upper section extending downwardly from the rim to an intermediate section, and a tapered lower section configured to provide a plurality of circumferentially spaced flutes extending downwardly from the intermediate section to the bottom wall. A filter element subdivides the interior of the container into first and second chambers. A beverage medium is stored in the first chamber. A cover is joined to the side wall at the rim to close the upper opening. The cover is yieldably piercable to accommodate an injection of liquid into the first chamber for combination with the beverage medium to produce a beverage. The filter element is permeable to accommodate a flow of the beverage from the first chamber into the second chamber, and the bottom wall is yieldably piercable to accommodate an outflow of the beverage from the second chamber to the exterior of the cartridge. Sweeney at 2:20-35 In accordance with the present invention, the container side wall is provided with circumferentially spaced flutes which are strategically positioned to enhance resistance to buckling without interfering with or compromising the integrity of the seal between the side wall and the filter component. The location at which the filter component is joined to the interior side wall of the container is lowered to achieve a beneficial increase in beverage medium storage capacity. This location is defined by a tapered circular ledge against which the tapered filter component is reliably sealed. The channels formed between the circumferentially spaced flutes serve to efficiently direct the brewed beverage downwardly towards the pierced container bottom, with an accompanying beneficial increase in turbulence in the head space defined between the filter element and container side wall. Sweeney at 2:47-55 In a third embodiment of the present invention, the circumferentially spaced flutes protrude sufficiently inwardly into the container interior to radially contact the filter element at circumferentially spaced locations. This radial contact beneficially guides the filter element

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	into its centrally located position during assembly of the cartridge components, and, during the processing cycle, provides radial support which resists distortion and possible bursting of the filter element. Sweeney at 3:65-4:8 The lower tapered wall section 20 c is configured to provide a plurality of circumferentially spaced flutes 20 e, the upper ends of which terminate beneath the intermediate section defined by ledge 20 b, and the lower ends of which terminate as indentations in the bottom wall 18. It will be seen from FIG. 8 that the depths "d" of the flutes 20 e gradually increase from a minimum at their upper ends to a maximum at their lower ends. Likewise, as can be seen from FIG. 7, the widths "w" of the flutes also gradually increase from a minimum at their upper ends to a maximum at their lower ends. Sweeney at 5:11-19 In all embodiments, the downwardly diverging and gradually deepening of the flutes serves to promote downward flow of the brewed beverage in chamber B while beneficially encouraging turbulence. The upwardly protruding bosses 18 a, 318 a on the container bottoms of the first and third embodiments provide readily accessible support platforms for the bottoms of the filter elements. Securing the bottoms of the filter elements to the bosses 18 a, 218 a insures that the filter elements will not be punctured by the outlet probe 30. Sweeney at Fig. 1:

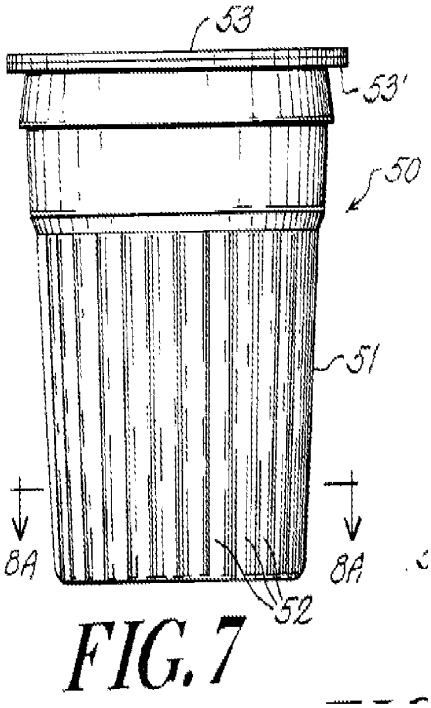
U.S. Patent No. 10,858,177	Disclosure
	 FIG. 1 *See also* Sweeney at Figs. 2, 3, 5, 7, 9-11, and 15. Yoakim at [0161]: In yet another embodiment, the surface of the capsule comprises a toothed structure. Yoakim at [0215]: FIG. 23 illustrates another capsule of the invention. The capsule comprises means for connecting it to the external rotational driving means of the device. For this, capsule has a toothed structure 75 on at least one of its outer surface. The capsule has a body 70 comprising an upper edge 72 which can be closed by an upper membrane 71. The toothed structure comprises a series of teeth which is positioned below the edge or rim 72 of the body of the capsule. The teeth are placed along the whole periphery of the body of the capsule. The body of the capsule can be made of plastic and/or aluminium or aluminium alloy. For example, it can be moulded by injection of plastic or deep drawn in aluminium. For example, the shape of the teeth could be slightly triangular, oval, rectangular or pyramidal. It should be noticed that the

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	teeth could be replaced by other equivalent structures such as series of elements in relief and/or hollow. For example, slits, pins or small needles can be envisaged. Yoakim at [0216]: The device itself that receives the capsule of FIG.23 comprises a toothed surface of complementary shape. FIG. 24 shows a capsule holder 44 adapted to receive the capsule of FIG. 23. The capsule holder has a cavity into which are provided hollow teeth 440. The hollow teeth are arranged to fit the teeth 750 on the outer surface of the capsule. *See, e.g.*, [0216]. Yoakim at FIG. 23:  FIG. 23 WW

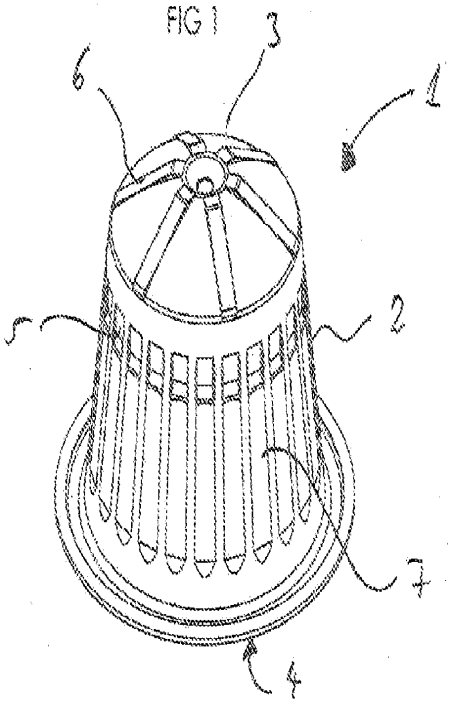
U.S. Patent No. 10,858,177	Disclosure
[1.i] the cavity has radially spaced and vertically oriented drawn ribs.	The below cited art discloses, either expressly or inherently, the cavity has radially spaced and vertically oriented drawn ribs. *See, e.g.*: *See* [1.h]. Erickson at 5:9-26: The reservoir 14 of the container 12 is open at the top and includes a rim 24, a depending side wall 26 and a bottom wall 28. The rim 24 extends laterally and outwardly from the upper end of the wall 26 to facilitate pouring of the water or other liquid into the reservoir and movement of the coffee maker 10 without spilling. The wall 26 is cylindrical and is stepped and tapered inwardly and includes vertical ribs 30 for strengthening. The bottom wall 28, in the illustrative embodiment, is in the form of an annular shoulder and includes a relatively large central opening 32. As illustrated, the reservoir 14 of the invention is configured to contain the appropriate amount of water necessary to brew the desired amount of coffee and to provide the necessary hydrostatic pressure to the partition 20 to cause the partition 20 to allow the flow of water therethrough at the desired brewing temperature. Erickson at Fig. 1:

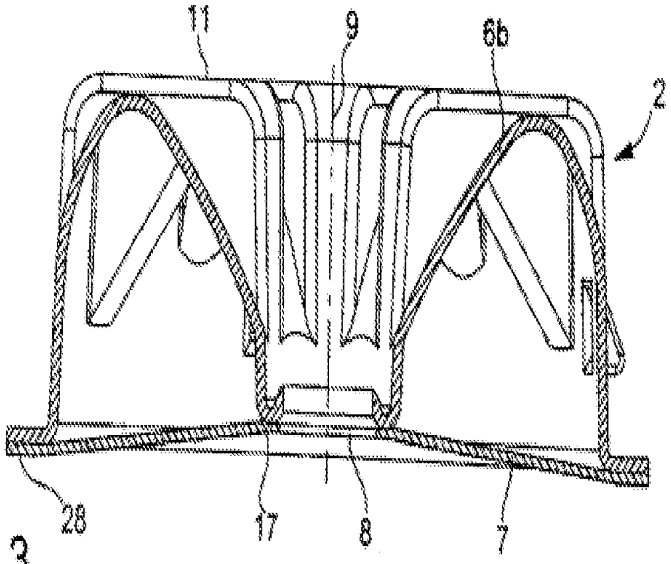
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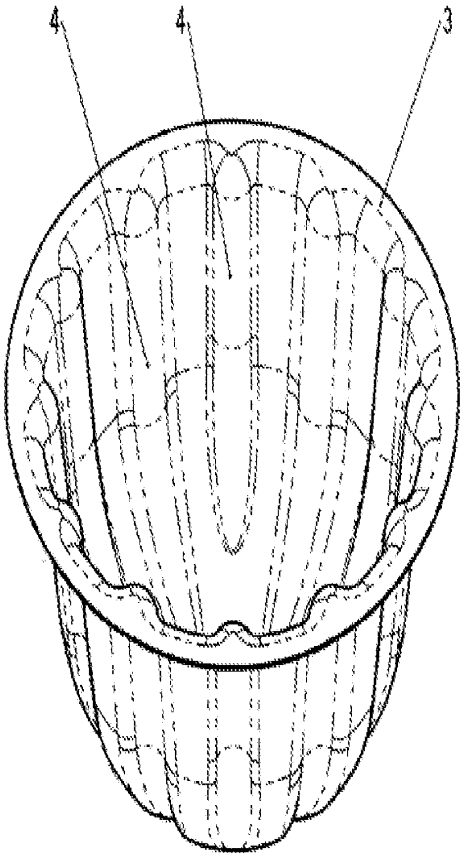
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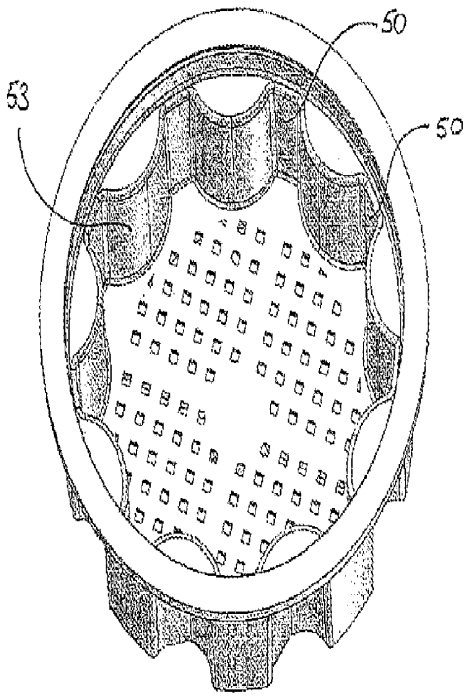
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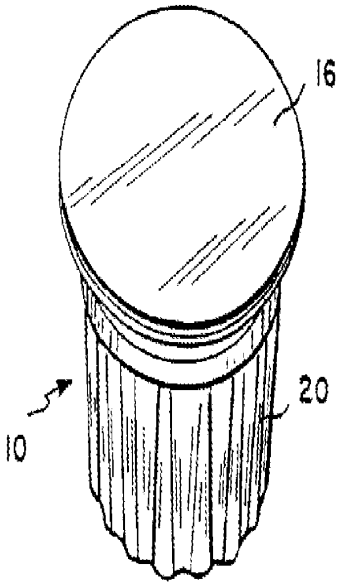
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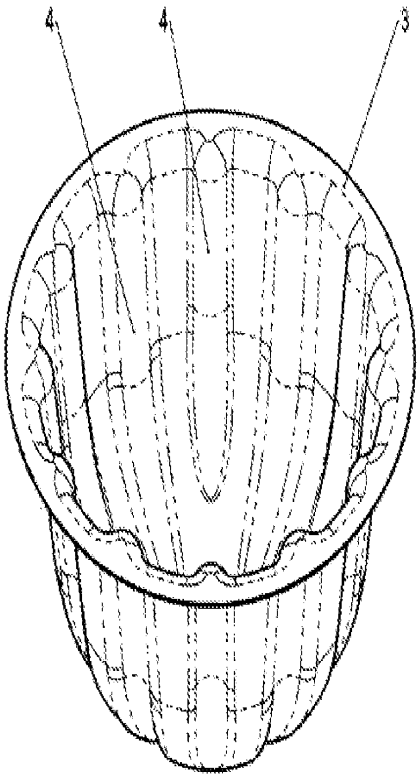
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	2 and a bottom face 3 having a substantially circular contour, and of a lateral surface or skirt 4 bearing a plurality of grooves that will be detailed hereinafter. Such top and bottom faces 2 and 3 and lateral skirt 4 define an internal housing 10 of the capsule 1, better seen in Figures 7 and 8, receiving the ground coffee. Rubino at [0018]-[0019]: As mentioned above, in correspondence of its lateral skirt 4 the main body of the capsule 1 has a plurality of concave external grooves 5, identical the one to the other and equally distributed over the entire lateral extension of the skirt 4 itself according to an axial geometry. The grooves 5 develop in a direction substantially parallel to axis A of the capsule 1 and are partitioned by external longitudinal ribs 52. Also the latter are identical the one to the other, equally distributed over the entire lateral extension of the skirt 4, and develop along a direction substantially parallel to the axis A of the capsule 1. As it is better seen in Figure 8, the external ribs 52 are internally hollow, thereby producing in correspondence of the housing 10 a plurality of grooves or internal notches 50 of the capsule itself. Therefore, said internal notches 50 define longitudinal portions of the housing 10 inside which part of the ground coffee is received. The presence and arrangement of the notches 50 allows, as already mentioned above, optimal conveyance of the extraction fluid within the capsule 1, preventing stagnation, allowing to accurately control and foresee the properties of said flow and generally to optimize the extraction process. Rubino at Claim 1: A capsule (1) of the type containing or apt to contain a substantially granular infusion for making beverages such as coffee and the like in an extraction process providing the passing through the capsule itself by an extraction fluid, said capsule (1) comprising a main body (2, 3, 4) defining an internal housing (10) apt to receive said infusion (C), characterized in that said main body (2, 3, 4) has, in correspondence of at least part of the lateral wall (4) of said housing (10), a plurality of internal longitudinal grooves (50) arranged substantially in the

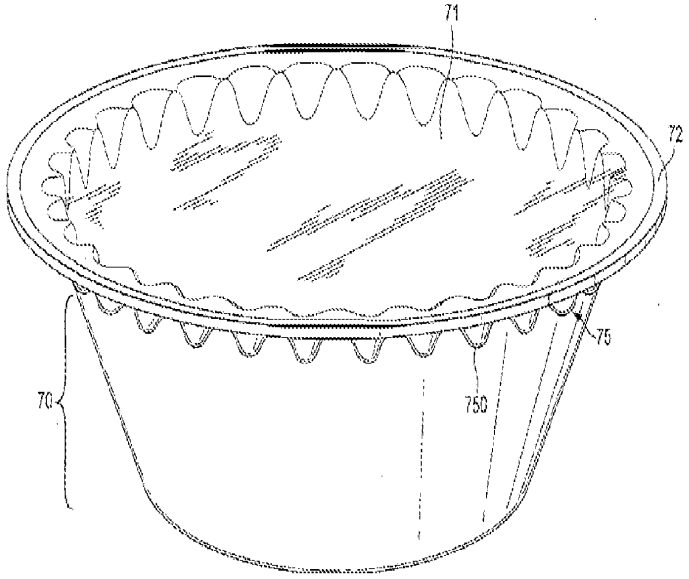
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	direction of the extraction fluid flow and apt to convey such a fluid through the capsule (1) itself. Rubino at Fig. 8:  FIG. 8 *See also* Rubino at Claims 2, 3, 6; Figs. 1-4, 7. **Sweeney - U.S. Patent Number 6,645,537** Sweeney at Abstract:

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	A beverage filter cartridge includes a cup-shaped outer container with a bottom and a side wall extending upwardly from the bottom wall to a circular rim surrounding an upper opening. The side wall has an upper section extending downwardly from the rim to an intermediate section, and a tapered lower section configured to provide a plurality of circumferentially spaced flutes extending downwardly from the intermediate section to the bottom wall. A filter element subdivides the interior of the container into first and second chambers. A beverage medium is stored in the first chamber. A cover is joined to the side wall at the rim to close the upper opening. The cover is yieldably piercable to accommodate an injection of liquid into the first chamber for combination with the beverage medium to produce a beverage. The filter element is permeable to accommodate a flow of the beverage from the first chamber into the second chamber, and the bottom wall is yieldably piercable to accommodate an outflow of the beverage from the second chamber to the exterior of the cartridge. Sweeney at 2:20-35 In accordance with the present invention, the container side wall is provided with circumferentially spaced flutes which are strategically positioned to enhance resistance to buckling without interfering with or compromising the integrity of the seal between the side wall and the filter component. The location at which the filter component is joined to the interior side wall of the container is lowered to achieve a beneficial increase in beverage medium storage capacity. This location is defined by a tapered circular ledge against which the tapered filter component is reliably sealed. The channels formed between the circumferentially spaced flutes serve to efficiently direct the brewed beverage downwardly towards the pierced container bottom, with an accompanying beneficial increase in turbulence in the head space defined between the filter element and container side wall. Sweeney at 2:47-55

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	In a third embodiment of the present invention, the circumferentially spaced flutes protrude sufficiently inwardly into the container interior to radially contact the filter element at circumferentially spaced locations. This radial contact beneficially guides the filter element into its centrally located position during assembly of the cartridge components, and, during the processing cycle, provides radial support which resists distortion and possible bursting of the filter element. Sweeney at 3:65-4:8 The lower tapered wall section 20 c is configured to provide a plurality of circumferentially spaced flutes 20 e, the upper ends of which terminate beneath the intermediate section defined by ledge 20 b, and the lower ends of which terminate as indentations in the bottom wall 18. It will be seen from FIG. 8 that the depths "d" of the flutes 20 e gradually increase from a minimum at their upper ends to a maximum at their lower ends. Likewise, as can be seen from FIG. 7, the widths "w" of the flutes also gradually increase from a minimum at their upper ends to a maximum at their lower ends. Sweeney at 5:11-19 In all embodiments, the downwardly diverging and gradually deepening of the flutes serves to promote downward flow of the brewed beverage in chamber B while beneficially encouraging turbulence. The upwardly protruding bosses 18 a, 318 a on the container bottoms of the first and third embodiments provide readily accessible support platforms for the bottoms of the filter elements. Securing the bottoms of the filter elements to the bosses 18 a, 218 a insures that the filter elements will not be punctured by the outlet probe 30. Sweeney at Fig. 1:

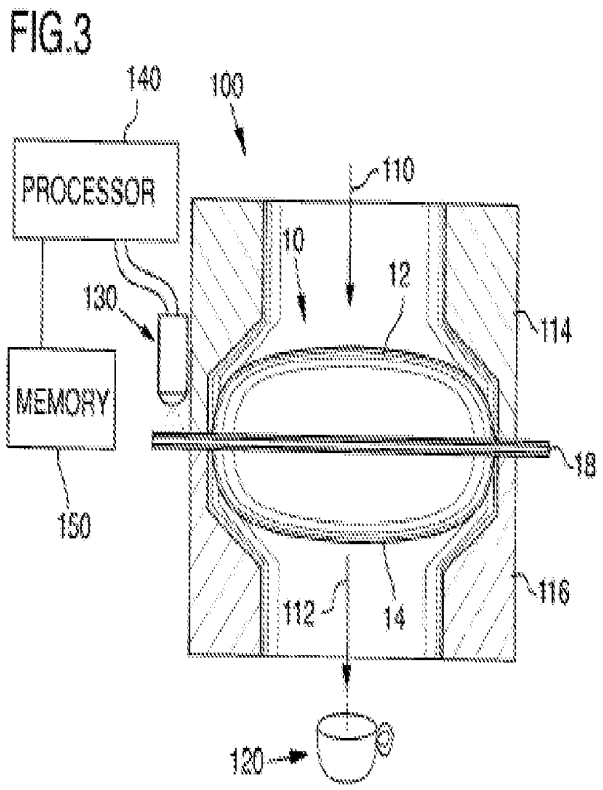
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	 FIG. 1 *See also* Sweeney at Figs. 2, 3, 5, 7, 9-11, and 15. Yoakim at [0161]: In yet another embodiment, the surface of the capsule comprises a toothed structure. Yoakim at [0215]: FIG. 23 illustrates another capsule of the invention. The capsule comprises means for connecting it to the external rotational driving means of the device. For this, capsule has a toothed structure 75 on at least one of its outer surface. The capsule has a body 70 comprising an upper edge 72 which can be closed by an upper membrane 71. The toothed structure comprises a series of teeth which is positioned below the edge or rim 72 of the body of the capsule. The teeth are placed along the whole periphery of the body of the capsule. The body of the capsule can be made of plastic and/or aluminium or aluminium alloy. For example, it can be moulded by injection of plastic or deep drawn in aluminium. For example, the shape of the teeth could be slightly triangular, oval, rectangular or pyramidal. It should be noticed that the

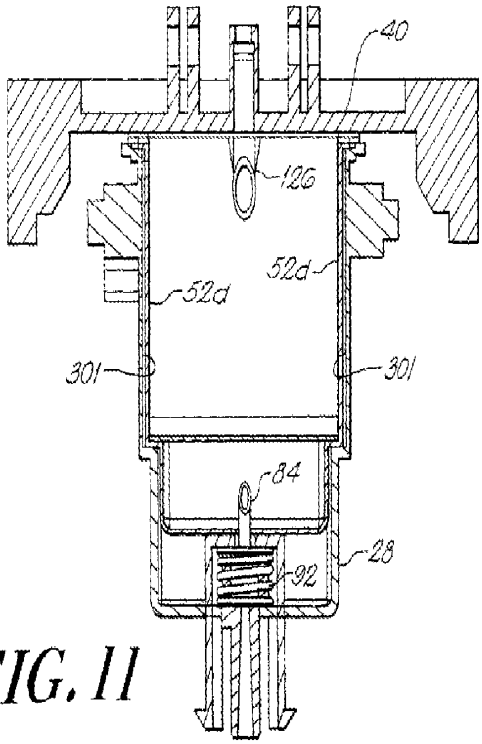
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	teeth could be replaced by other equivalent structures such as series of elements in relief and/or hollow. For example, slits, pins or small needles can be envisaged. Yoakim at [0216]: The device itself that receives the capsule of FIG.23 comprises a toothed surface of complementary shape. FIG. 24 shows a capsule holder 44 adapted to receive the capsule of FIG. 23. The capsule holder has a cavity into which are provided hollow teeth 440. The hollow teeth are arranged to fit the teeth 750 on the outer surface of the capsule. Yoakim at FIG. 6: 

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	Yoakim at FIG. 23:  FIG. 23 *See also* [1.h].
4. The beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule.	The below cited art discloses, either expressly or inherently, the beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule. *See, e.g.*: 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

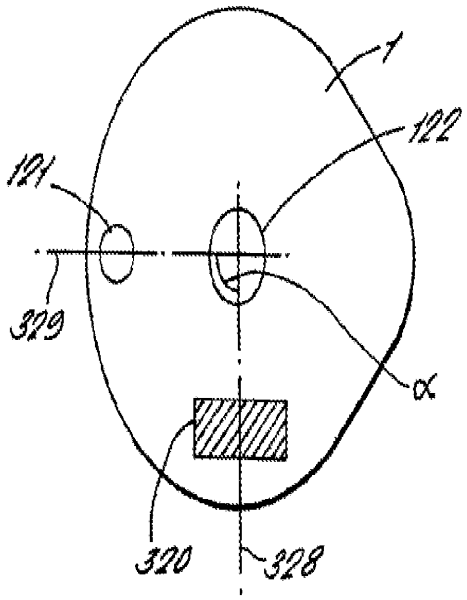
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	operate on the principle of placing a quantity of ground coffee into a filter, and passing hot water through the ground coffee to produce a coffee beverage. Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing 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]:

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	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.

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	Boyd at Fig. 3:  Lazaris at [0010]: The holder of the present invention is designed for use in an apparatus for brewing a beverage by infusing heated liquid with a beverage medium contained in a single serve disposable cartridge. In one embodiment of the present invention, the holder is configured for use within a cartridge having an inverted frustum-shaped side wall specially contoured to provide at least one and preferably a plurality of strategically placed surface irregularities. The cartridge is removably received in a cup-shaped housing having a side wall configured and dimensioned to surround the cartridge side wall. Locating elements are arranged to coact with the one or plural surface irregularities in the cartridge side wall to rotatably immobilize the cartridge within the housing. A lid is mounted for manipulation between an open position

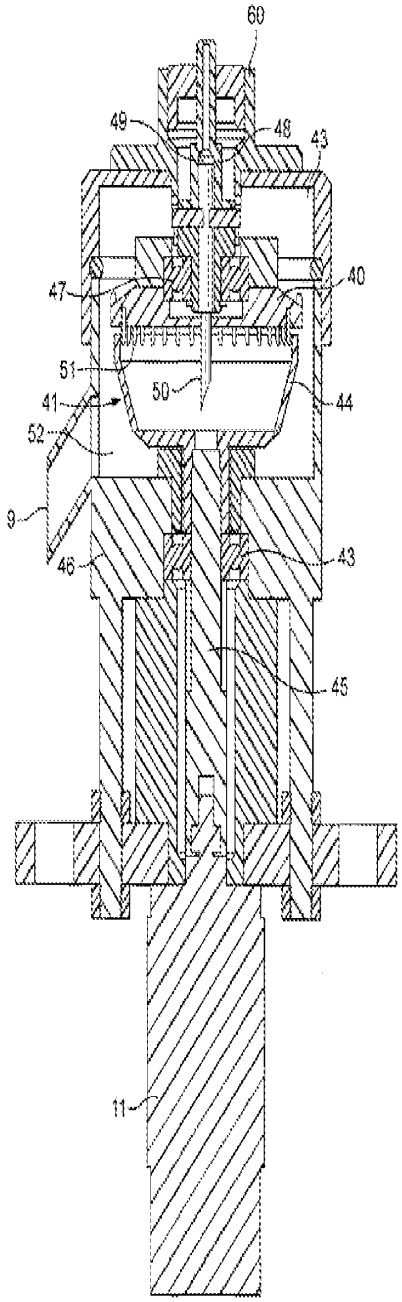
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	accommodating insertion and removal of the cartridge, and a closed position confining the cartridge within the housing. Tubular probes associated with the lid and housing are arranged to pierce the thus confined cartridge to thereby accommodate a through flow of heated liquid for infusion with the beverage medium contained in the cartridge. Lazaris at [0037]: In FIG. 2B, the lid 40 has been lowered, resulting in the cartridge 50 and the cartridge platform 86 being forced downwardly against the action of spring 92. As a result, the cartridge lid and base are pierced respectively by the inlet and outlet probes 126, 84, thus accommodating a flow of heated liquid through the cartridge. The heated liquid infuses a beverage medium (not shown) contained in the cartridge to thereby produce a beverage which exits the cartridge via the outlet probe 84. Lazaris at Fig. 11:  FIG. 11

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	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. 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 FIG. 10:

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	FIG. 10.  Sweeney at Abstract: A beverage filter cartridge includes a cup-shaped outer container with a bottom and a side wall extending upwardly from the bottom wall to a circular rim surrounding an upper opening. The side wall has an upper section extending downwardly from the rim to an intermediate section, and a tapered lower section configured to provide a plurality of circumferentially spaced flutes extending downwardly from the intermediate section to the bottom wall. A filter element subdivides the interior of the container into first and second chambers. A beverage medium is stored in the first chamber. A cover is joined to the side wall at the rim to close the upper opening. The cover is yieldably piercable to accommodate an injection of liquid into the first chamber for combination with the beverage medium to

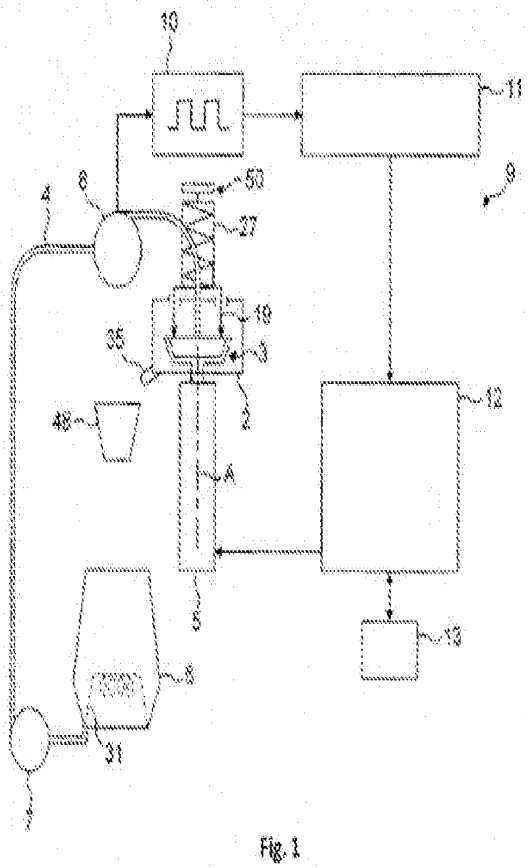
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	produce a beverage. The filter element is permeable to accommodate a flow of the beverage from the first chamber into the second chamber, and the bottom wall is yieldably piercable to accommodate an outflow of the beverage from the second chamber to the exterior of the cartridge. Sweeney at 1:19-32: This beverage filter cartridge is comprised basically of an impermeable yieldably-piercable cup-shaped outer container internally subdivided by a permeable cone-shaped filter into first and second chambers. A granular or powdered dry beverage medium, e.g., roasted ground coffee, is stored in the first chamber, and the container is closed by an impermeable yieldably piercable lid. During a processing cycle, the lid and container bottom are pierced, respectively, by tubular inlet and outlet probes. The inlet probe admits heated liquid under pressure into the first chamber for infusion with the beverage medium, and the resulting brewed beverage passes through the filter into the second chamber from which it exits via the outlet probe for delivery to an underlying cup. Sweeney at 4:20-23: The lid may be cut or blanked from any suitable impermeable heat sealable and yieldably piercable material, such as for example, a metallic/polymer laminate supplied by Winpak Heat Seal Packaging, Inc. of Montreal, Canada. Sweeney at 4:35-42: At the onset of a processing cycle, the lid 16 and container bottom 18 are pierced, respectively, by tubular inlet and outlet probes 28, 30 (see FIG. 3). The inlet probe 28 admits a heated liquid, typically hot water, into chamber A where it infuses and combines with the beverage medium M to produce a beverage. The beverage passes through the filter element 14 into chamber B, from which it exits via outlet probe 30.

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	Yoakim at [0019]: The enclosure is typically thermoformed of a food grade plastic and includes a top wall or lid that includes at least one inlet port defining a passage for receiving a liquid that is to be introduced into the capsule, with the inlet port aligned with the central axis of the capsule, wherein the liquid to be injected into the capsule is water and wherein the extractable or infusible ingredient(s) is ground coffee, soluble coffee, a dairy based powder, a dairy or non-dairy creamer, cocoa, a Sweetener, leaf tea, herbal tea, a culinary powder, a soluble or dispersible nutritional composition, a liquid food concentrate or combinations thereof. Yoakim at [00021]: The liquid introducing means preferably comprises at least one needle for injecting liquid into the capsule at or near its central axis. . . . Yoakim at [0186]: At the inside surface of the injection lid 40 is placed a piercing structure 450 which has the function of piercing the injection side 30 of the capsule. A water injector or lance 50 is provided which traverses the injection side 30 and which comprises an injection conduit for carrying water from the water circuit into the capsule. . . . Yoakim at [0219]-[0220]: The invention also relates to a food liquid preparation device for preparing a food liquid from a food substance contained in a single-use capsule, removably insertable in the device, bypassing water through the substance in the capsule, comprising a water injection head in the capsule and a capsule holder for holding the capsule in the device, characterized in that it comprises: a water injector, as part of the water injection head, arranged for introducing water along a central axis relative to the capsule holder

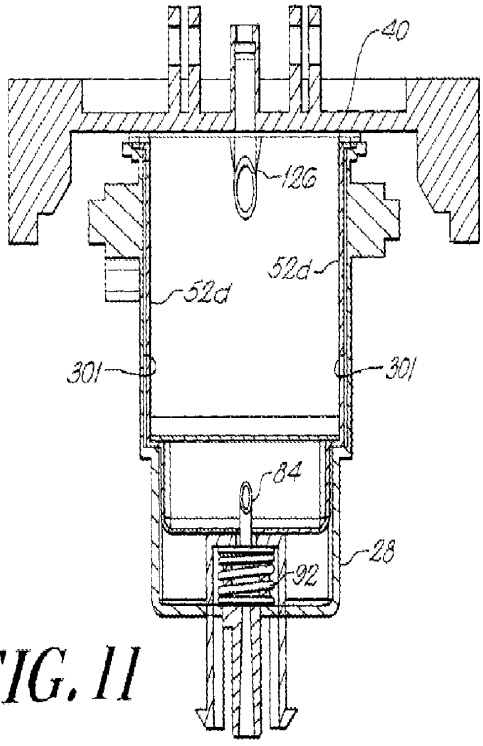
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	Yoakim at FIG. 4:  FIG. 4 *See also e.g.*, Yoakim at FIGS. 35, 54, 55, 61, 62.

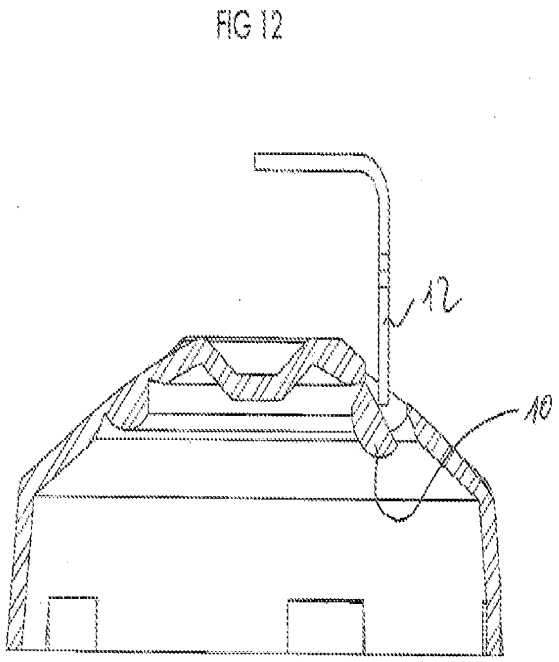
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	See also [1].
5. The beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis.	The below cited art discloses, either expressly or inherently, the beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis. *See, e.g.*: 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

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	by mixing various ingredients. The packet and methodology is not limited to hot beverages and may be used to produce cold beverages. *See also* [4]. Jarisch at [0035]: The centrifugal unit 2 comprises a centrifugal cell 3. The cell 3 may comprise a capsule holder and a capsule received therein. The centrifugal unit is connected to driving means 5 such as a rotary motor. The centrifugal unit comprises a collecting part and an outlet 35. A receptacle 48 can be disposed below the outlet to collect the extracted beverage. The system further comprises liquid supply means such as a water reservoir 6 and a fluid circuit 4. Heating means 31 may also be provided in the reservoir or along the fluid circuit. The liquid supply means may further comprise a pump 7 connected to the reservoir. A flow restriction means 19 is provided to create a restriction to the flow of the centrifuged liquid which leaves the capsule. The system may further comprise a flow meter such as a flow-metering turbine 8 for providing a control of the flow rate of water supplied in the cell 3. The counter 11 can be connected to the flow-metering turbine 8 to enable an analysis of the generated impulse data 10. The analysed data is then transferred to the processor 12. Accordingly, the exact actual flow rate of the liquid within the fluid circuit 4 can be calculated in real-time. A user interface 13 may be provided to allow the user to input information that is transmitted to the control unit 9. Further characteristics of the system can be found in WO2010/026053. Jarisch at FIG. 1 (showing water line inserting into center of capsule perpendicular to flange location)

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	 Fig. 1 Lazaris at [0010]: The holder of the present invention is designed for use in an apparatus for brewing a beverage by infusing heated liquid with a beverage medium contained in a single serve disposable cartridge. In one embodiment of the present invention, the holder is configured for use within a cartridge having an inverted frustum-shaped side wall specially contoured to provide at least one and preferably a plurality of strategically placed surface irregularities. The cartridge is removably received in a cup-shaped housing having a side wall configured and dimensioned to surround the cartridge side wall. Locating elements are arranged to coact with the one or plural surface irregularities in the cartridge side wall to rotatably immobilize the cartridge

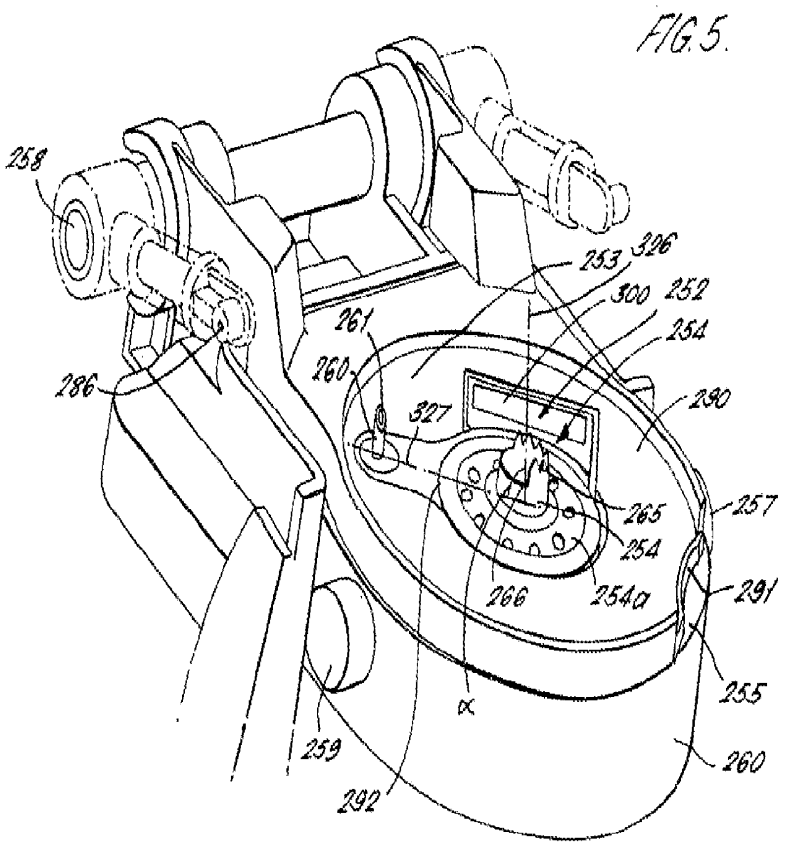
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	within the housing. A lid is mounted for manipulation between an open position accommodating insertion and removal of the cartridge, and a closed position confining the cartridge within the housing. Tubular probes associated with the lid and housing are arranged to pierce the thus confined cartridge to thereby accommodate a through flow of heated liquid for infusion with the beverage medium contained in the cartridge. Lazaris at [0037]: In FIG. 2B, the lid 40 has been lowered, resulting in the cartridge 50 and the cartridge platform 86 being forced downwardly against the action of spring 92. As a result, the cartridge lid and base are pierced respectively by the inlet and outlet probes 126, 84, thus accommodating a flow of heated liquid through the cartridge. The heated liquid infuses a beverage medium (not shown) contained in the cartridge to thereby produce a beverage which exits the cartridge via the outlet probe 84. Lazaris at Fig. 11:

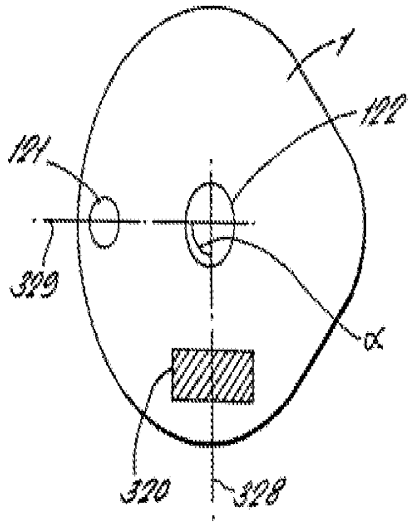
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	 FIG. 11 Mariller at [0020]-[0032]: List of numerical references used in the figures: 1. capsule 2. side wall 3. top wall 4. bottom wall 5. cavity 6. top wall stiffening element 7. side wall stiffening element 8. top edge stiffening element 9. internal protrusion 10. beading 11. weakened zone 12. piercing element

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	Mariller at Fig. 12:  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

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	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. 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

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	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. Panesar at p. 35 at line 32 – p. 33 at line 3:

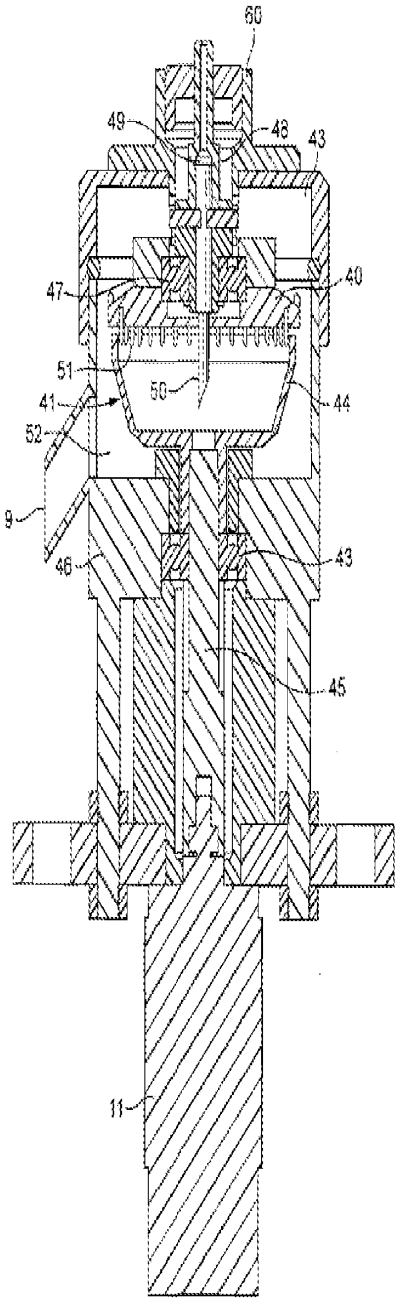
U.S. Patent No. 10,858,177	Disclosure
	During closure the inlet and outlet piercers 253, 254 pierce the laminate 5 of the cartridge 1 to form the cartridge inlet 121 and outlet 122. Panesar at FIG. 5:  Panesar at FIG. 4:

U.S. Patent No. 10,858,177	Disclosure
	FIG. 10  Sweeney at Abstract: A beverage filter cartridge includes a cup-shaped outer container with a bottom and a side wall extending upwardly from the bottom wall to a circular rim surrounding an upper opening. The side wall has an upper section extending downwardly from the rim to an intermediate section, and a tapered lower section configured to provide a plurality of circumferentially spaced flutes extending downwardly from the intermediate section to the bottom wall. A filter element subdivides the interior of the container into first and second chambers. A beverage medium is stored in the first chamber. A cover is joined to the side wall at the rim to close the upper opening. The cover is yieldably piercable to accommodate an injection of liquid into the first chamber for combination with the beverage medium to produce a beverage. The filter element is permeable to accommodate a flow of the beverage from the first chamber into the second chamber, and the bottom wall is yieldably piercable to

U.S. Patent No. 10,858,177	Disclosure
	accommodate an outflow of the beverage from the second chamber to the exterior of the cartridge. Sweeney at 1:19-32: This beverage filter cartridge is comprised basically of an impermeable yieldably-piercable cup-shaped outer container internally subdivided by a permeable cone-shaped filter into first and second chambers. A granular or powdered dry beverage medium, e.g., roasted ground coffee, is stored in the first chamber, and the container is closed by an impermeable yieldably piercable lid. During a processing cycle, the lid and container bottom are pierced, respectively, by tubular inlet and outlet probes. The inlet probe admits heated liquid under pressure into the first chamber for infusion with the beverage medium, and the resulting brewed beverage passes through the filter into the second chamber from which it exits via the outlet probe for delivery to an underlying cup. Sweeney at 4:20-23: The lid may be cut or blanked from any suitable impermeable heat sealable and yieldably piercable material, such as for example, a metallic/polymer laminate supplied by Winpak Heat Seal Packaging, Inc. of Montreal, Canada. Sweeney at 4:35-42: At the onset of a processing cycle, the lid 16 and container bottom 18 are pierced, respectively, by tubular inlet and outlet probes 28, 30 (see FIG. 3). The inlet probe 28 admits a heated liquid, typically hot water, into chamber A where it infuses and combines with the beverage medium M to produce a beverage. The beverage passes through the filter element 14 into chamber B, from which it exits via outlet probe 30.

U.S. Patent No. 10,858,177	Disclosure
	Yoakim at [0019]: The enclosure is typically thermoformed of a food grade plastic and includes a top wall or lid that includes at least one inlet port defining a passage for receiving a liquid that is to be introduced into the capsule, with the inlet port aligned with the central axis of the capsule, wherein the liquid to be injected into the capsule is water and wherein the extractable or infusible ingredient(s) is ground coffee, soluble coffee, a dairy based powder, a dairy or non-dairy creamer, cocoa, a Sweetener, leaf tea, herbal tea, a culinary powder, a soluble or dispersible nutritional composition, a liquid food concentrate or combinations thereof. Yoakim at [00021]: The liquid introducing means preferably comprises at least one needle for injecting liquid into the capsule at or near its central axis. . . . Yoakim at [0186]: At the inside surface of the injection lid 40 is placed a piercing structure 450 which has the function of piercing the injection side 30 of the capsule. A water injector or lance 50 is provided which traverses the injection side 30 and which comprises an injection conduit for carrying water from the water circuit into the capsule. . . . Yoakim at [0219]-[0220]: The invention also relates to a food liquid preparation device for preparing a food liquid from a food substance contained in a single-use capsule, removably insertable in the device, bypassing water through the substance in the capsule, comprising a water injection head in the capsule and a capsule holder for holding the capsule in the device, characterized in that it

U.S. Patent No. 10,858,177	Disclosure
	comprises: a water injector, as part of the water injection head, arranged for introducing water along a central axis relative to the capsule holder Yoakim at FIG. 4:

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

U.S. Patent No. 10,858,177	Disclosure
	See also e.g., Yoakim at FIGS. 35, 54, 55, 61, 62. *See also* [1], [4].

Appendix C – Obviousness Chart for U.S. Patent No. 10,870,531

U.S. Patent No. 10,870,531	Disclosure
[1.pre] A method of using a portion capsule for producing a beverage, the method comprising:	The below cited art discloses, either expressly or inherently, a method of using a portion capsule for producing a beverage. *See, e.g.*: 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 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:

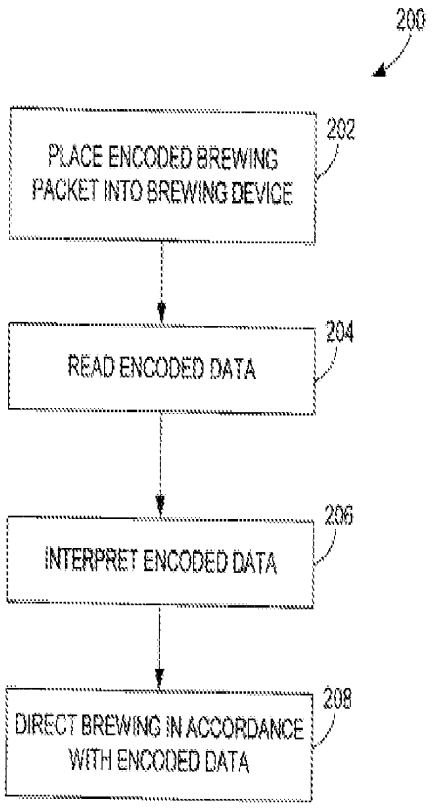


FIG. 4

See also Boyd at Claims 1-25.

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:

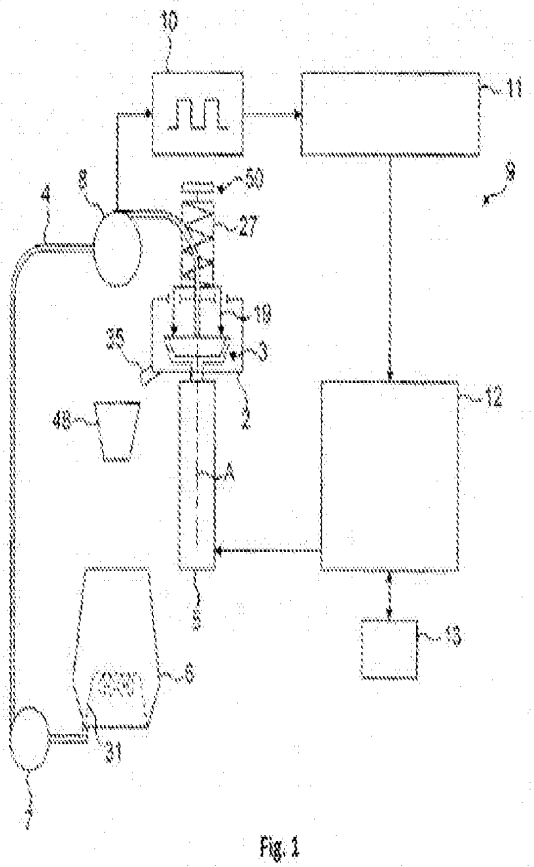


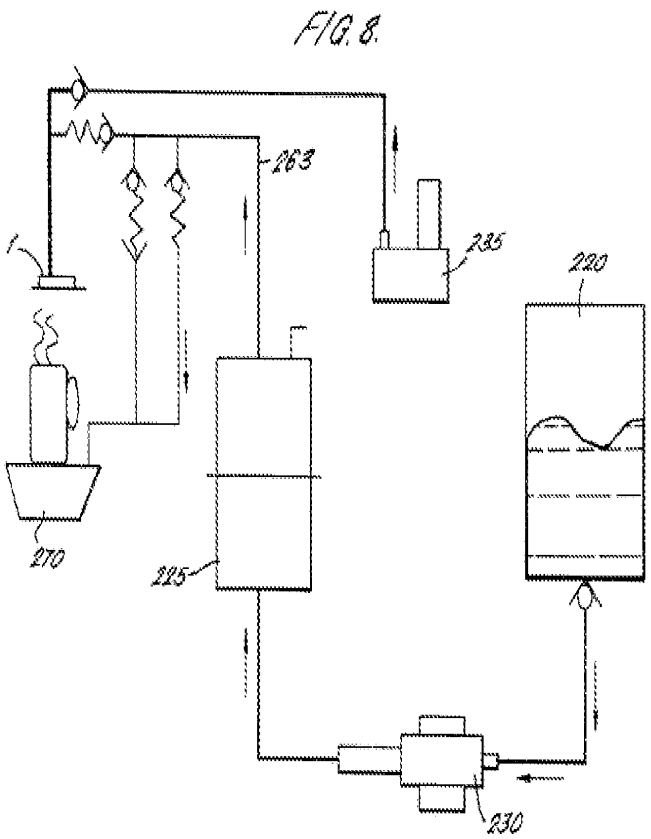
Fig. 1

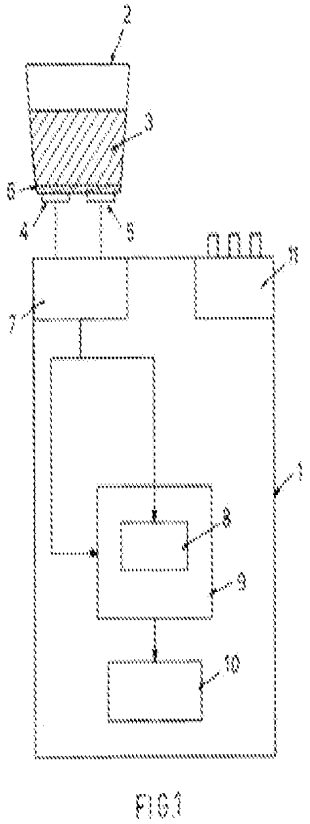
Lazaris at Abstract:

A brewer operates during a brew cycle to brew a beverage by infusing heated liquid with a dry beverage medium contained in a single serve disposable cartridge. During the brew cycle, the cartridge is contained in a cup-shaped housing closed by a lid. Rotation of the cartridge within the housing is resisted by locating surfaces arranged to interengage with at least one surface irregularity in the cartridge sidewall. Inlet and outlet probes pierce the cartridge and serve, respectively, to admit the heated liquid and to remove the served beverage.

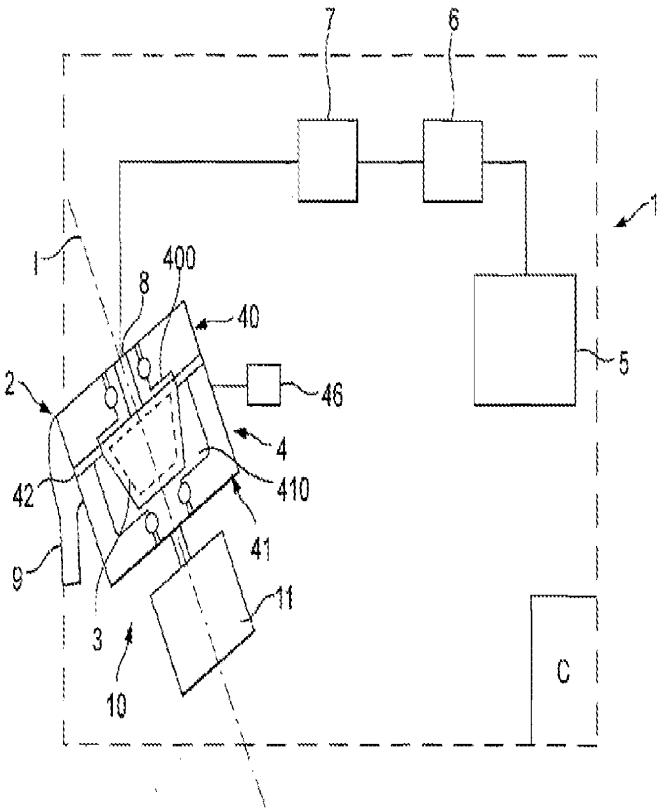
Panesar at p. 1, ll. 4-5:

	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; FIG. 8. <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:

	 Panesar at Claims 23–31. Rossi at Fig. 1:

	 FIG.1 Rossi at 1: The present invention relates to a system of an edible- product making machine and a load element, and a process for controlling the operation of the edible-product making machine . Edible-product making machines of the type being fed with a single use load element having a brewable or water soluble aromatic substance for preparation of said edible product are often used for the preparation of coffee, tea, or other beverages, as well as for soups. The load element generally comprises a capsule containing coffee powder, instant coffee granules, tea leaves, freeze-dried soup granules or other substances designed to be put in contact with water within machine. The load element is usually sealed, and the element is inserted into the machine, without the user being in contact with the substance therein. Inside the machine, the load element is generally pierced to allow water to pass through it, or the contents of the load element are emptied out into a different container for the preparation of the edible product.

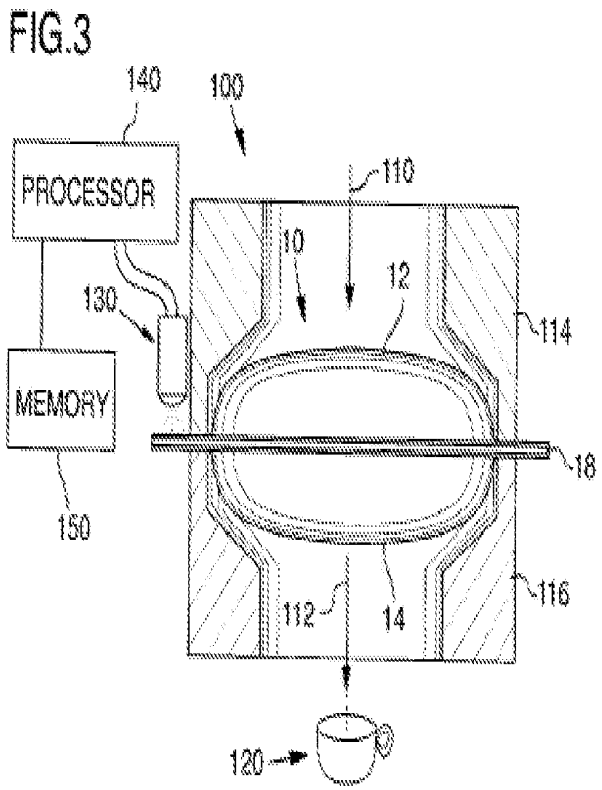
	The contents of the load element are brewed or dissolved in the water in order to make the edible product. *See also* Rossi at 3-6. Yoakim at [0002]: The present invention relates to a capsule, device, system, and method for preparing a beverage or food liquid from a food substance which is brewed or extracted by using centrifugal forces exerted on a capsule which contains the substance. Yoakim at [0139]-[0144]: The invention also concerns a system for preparing a beverage or food liquid from a food substance contained in a filtering receptacle by passing water through the substance using centrifugal forces . . . wherein the system further comprises referencing means for positioning and referencing the capsule in a removable manner in the device and in operational relationship with the water feed means and along an axis of rotation along the driving means. Yoakim at [0180]: The system 1 of the invention is illustrated in FIG. 1 in the more general sense. The system comprises a device 2 and a capsule 3. The device has a brewing module 4 into which the capsule can be inserted for being brewed and is removed after use for being discarded (e.g., for waste or recycling). The module is in fluid communication with a water reservoir 5 containing fresh or, alternatively heated water. A fluid transport means such as a low pressure pump 6 can be provided in the water circuit to transport water from the reservoir to the module. A water heater 7 is further provided to heat water to the desired temperature. It can be noted that water could be heated in the reservoir itself and water could be transported from the reservoir by effect of vaporization. Water can be fed into the module 4 at low or substantially no pressure. For example, a pressure between 0 and 2 bars above atmospheric pressure can be envisaged at the inlet 8 of the module.

	See, e.g., FIG. 1:  FIG. 1 w
[1.a] providing an apparatus including a barcode reader,	The below cited art 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. 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 [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:  Boyd at Fig. 4:

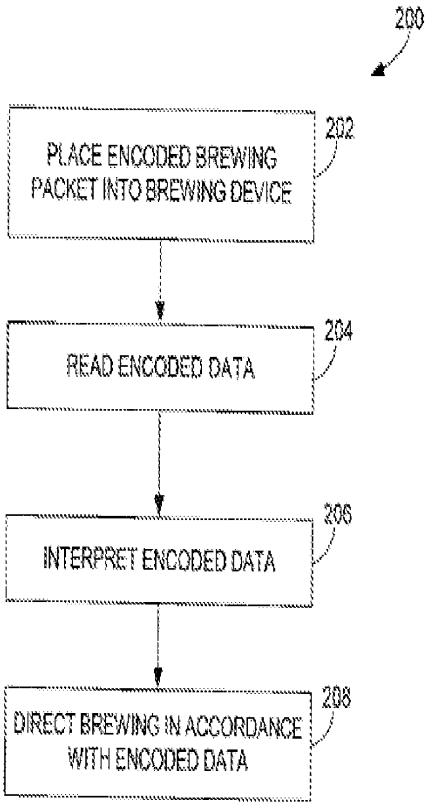


FIG. 4

Jarisch at [0023]:

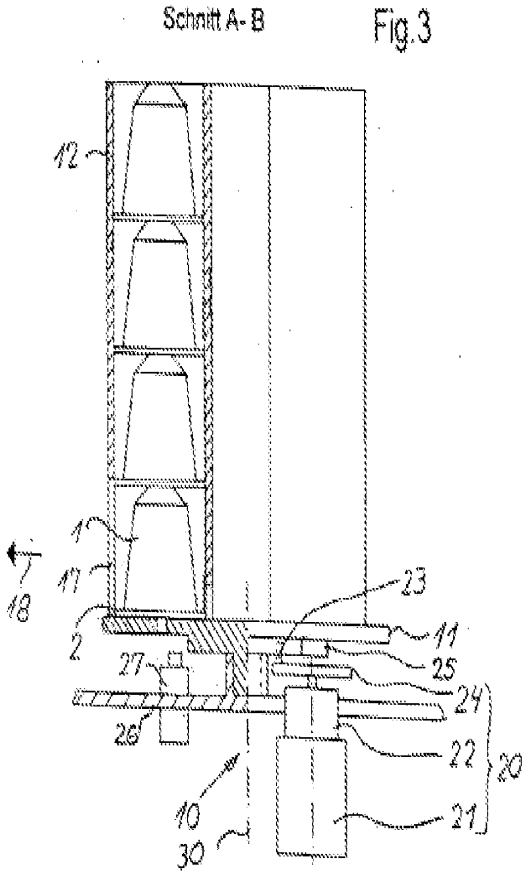
The invention further relates to a system for preparing a beverage from a capsule as aforementioned and further comprising a beverage preparation device; wherein the device comprises capsule holding means for holding the capsule and rotational drive means for driving the holding means and capsule in rotation along said axis of rotation and reading means arranged for reading the code when the capsule is rotated along said axis.

Jarisch at [0024]:

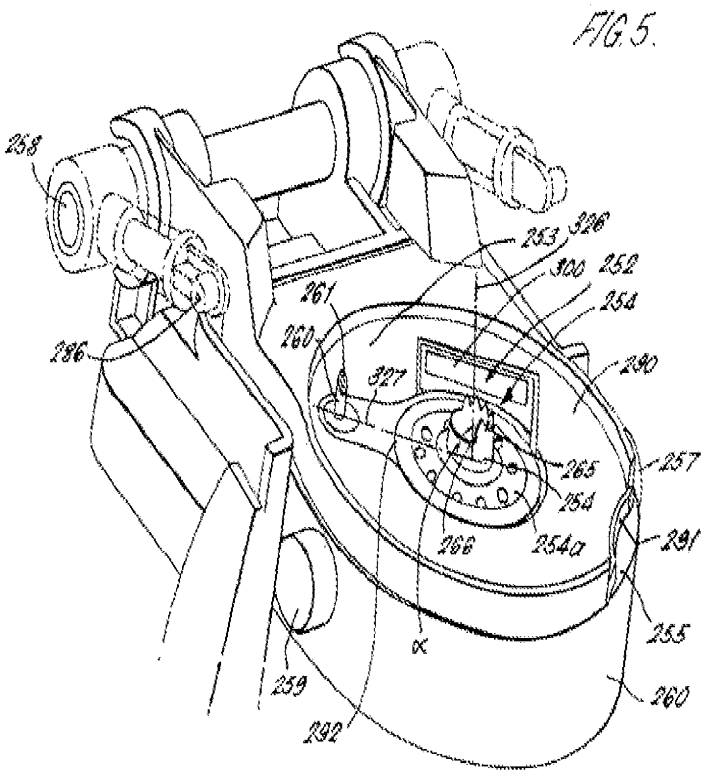
	In particular, the reading means may comprise a light emitter and a light sensor. In an alternative, the reading means comprises an inductive sensor. The optical reading means or inductive sensor may be arranged to detect a code on the rim of the capsule. Jarisch at [0071]-[0073]: The reader may consist 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. Lazaris at [0042]: It is contemplated that the housings may be mounted such that they do not pivot to automatically eject the cartridges at the end of the brewing cycle, thus requiring users to manually remove the used cartridges. The holder may also employ multiple inlet probes to increase liquid distribution within the cartridge. The inlet probes also may have different heights to improve saturation of the beverage medium within the cartridge. It is also contemplated that the brewer may include a control system for automatically determining the type of cartridge (e.g., the beverage medium within the cartridge) and adjust the brewing cycle accordingly. This may include providing machine readable data such as bar codes, data matrixes, dielectric encoding, etc, on a portion of the cartridge exterior accessible to a corresponding reader in the brewer.

	Mahlich at [0008]: It is thus the task of the present invention to equip the actual single-serving units to be selected with suitable machine readable identification whereby complicated voluminous double mirror scanners are not required for reading the identification code and whereby the accurate alignment of the single-serving pouch with regard to the scanner or its reading unit does not matter. In particular, the difficult process of aligning a rotation-symmetrical single-serving unit, whereby the shape of the capsule is mainly frustoconical and the pouch is mainly lozenge-shaped, is thus eliminated. Mahlich at [0010]: According to the invention, direct scanning or immediate reading of the identification on the single-serving unit, particularly of the single-serving capsule itself and not of any part of the storage magazine adjacent to the capsule, guarantees that the selected type of coffee is correctly identified with the single-serving unit and is actually being brewed after removal of the single-serving unit from the storage magazine. The identification can be read easily and accurately via an uncomplicated and compact reading head able to read in a linear manner, provided that the reading head is able to register the rotation-symmetrical identification. However, the rotational or angular position of the rotation-symmetrical identification with regard to the reading head that reads in a linear manner is not important, whereby the alignment of the single-serving unit with regard to the reading head is greatly simplified. In addition, the rotation-symmetrical identification is suitable for testing via a simple procedure according to claim 12. Mahlich at [0014]-[0016]: Apart from coffee type identification, the identification on any single-serving unit may also contain producer identification, whereby the latter in conjunction with an adapted evaluation system for controlling the espresso machine can block operation of the espresso machine if the producer identification on the single-serving unit does not correspond to the machine's preprogrammed producer identification.

	As mentioned above, an uncomplicated system for the registration of the machine readable identification on a single-serving unit according to the invention may consist of a registration device with at least one reading head able to read in a linear manner. The reading head comprises a reading sensor consisting of a transmitter scanning a luminous spot on the identification or part thereof, and of a decoder receiver. The latter may be equipped with a controlling device whereby the setting, particularly that of a magazine unit, can be controlled in order to convey the single-serving units containing the desired coffee type into the dispensing position. According to claim 7 the linear reading head is located in a compact and secure position below the magazine tubes of the magazine unit. The reading head is directed upwards towards the plane where the bases of the single-serving capsules are positioned within the magazine tubes, in such a way that the rotation-symmetrical identification on the base of the respective lowest single-serving capsule can be read. Mahlich at [0037] The support frame 26 also carries a reading head 27 mainly consisting of a scan transmitter and an encoder receiver. Reading head 27 is pointing from below towards the turntable 11 in such a way that it is able to register and scan the single-serving capsules stacked with their base facing downwards inside the magazine tubes 12 to 16 when the magazine tubes are moved across the reading head 27. For this purpose at least part of turntable 11 is transparent to the scanning of the ID code: windows 29 located below the magazine tubes 12 to 16 are designed as slits and are each arranged at equal radial distance to a main axis 30 of turntable 11, cf. FIG. 3. The ID codes 3 on the bases 2 of the single-serving capsules can be registered across their greatest radius r_1 and r_2 through these slits, according to FIG. la. In this case ID code 3 is being registered on entering and on leaving the reading station when the base 2 of the capsule, equipped with the ID code, passes on its circular path across reading head 27 arranged in front of dispensing station 18 in the direction of rotation 28 of the turntable. It is thus guaranteed, via comparison of the two registered ID codes as well as via data processing, that only one single-serving

	capsule 1 containing the desired coffee type is conveyed to the dispensing station 18, once the desired coffee type has been selected, for example by means of a control panel or a knob. Mahlich at Fig. 3:  *See also* Mahlich at Claims 1-12. 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 . . .

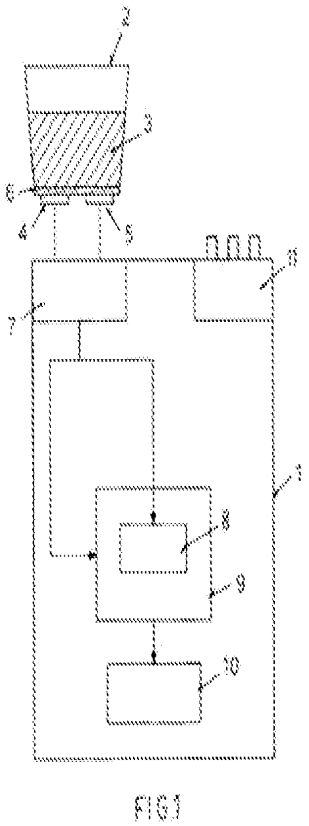
	Panesar at p. 5, ll. 7–8: Preferably the barcode reader or RFID reader window is located at or near a periphery of the brew head. Panesar at p. 34, ll. 5–26: The purpose of the recognition means 252 is to allow the machine 201 to recognize the type of beverage cartridge 1 that has been inserted and to 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 the cartridge 1. Panesar at FIG. 5:



Panesar at Claims 24, 27, 30.

Rossi at Abstract:

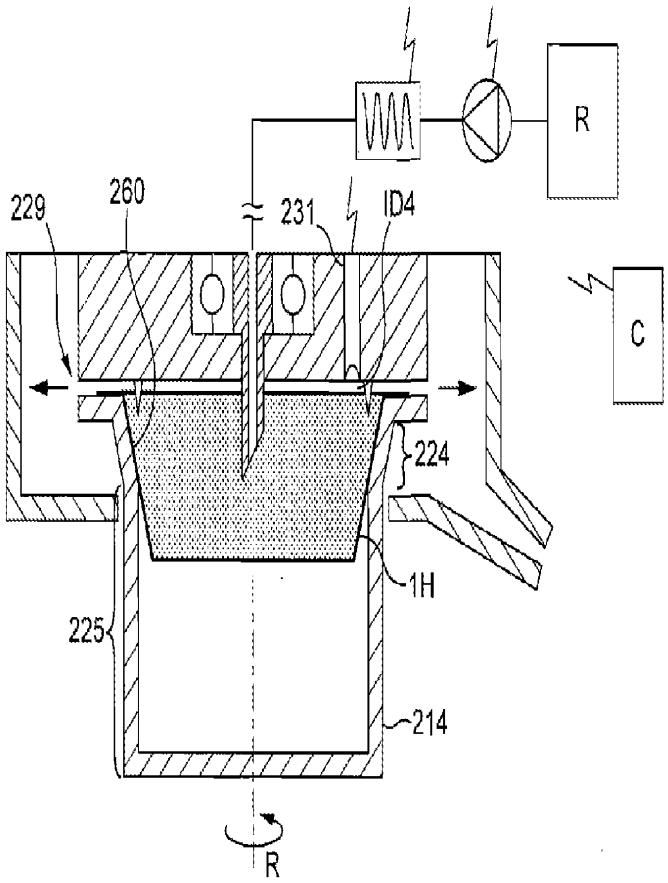
The process for controlling the operation of an edible-product making machine (1) of the type being fed with a single use load element (2) having a brewable or water soluble aromatic substance (3) for preparation of the edible product, comprises a first step of recognition wherein the edible-product making machine (1) recognises an identifying element (4) on the load element (2) allowing the edible-product making machine (1) to take further steps only if it also recognises on the load element (2) a validation element (5) to be validated, a second step of validation of the validation element (5), and a third step of activation wherein the edible-product making machine (1) automatically activates a cycle of production of the edible product only after having recognised on the load element (2) the identifying element (4) in combination with the validation element (5) as validated.

	Rossi at Fig. 1:  FIG 1 Rossi at 4: The technical task, as well as these and other objects, are achieved according to the present invention by a process for controlling the operation of an edible-product making machine of the type being fed with a single use load element having a brewable or water soluble aromatic substance for preparation of said edible product, characterised in that it comprises a first step of recognition wherein said edible-product making machine recognises an identifying element on said load element allowing said edible-product making machine to take further steps only if it also recognises on said load element a validation element to be validated, a second step of validation of said validation element, and a third step of activation wherein said edible-product making machine automatically activates a cycle of production of said edible product

	only after having recognised on said load element said identifying element in combination with said validation element as validated. Rossi at 6: The process of the present invention comprises a first step of the edible-product making machine recognising an identifying element on the load element. This can optionally be through an infra red (IR) wave communication channel, a radio frequency (RF) wave communication channel, or an optical wave communication channel. The user may hold the identifying element on the load element up against recognition means located externally on the edible-product making machine. Rossi at 9: The load element of the system comprises an identifying element for its recognition and a validation element for its validation. These are preferably in the form of barcodes, antennae, or paints having optically measurable properties. The machine comprises means for recognising the load element and the validation element, such as at least one infra red barcode reader, radio frequency wave transmitter and receiver, or optical sensor. These are preferably located externally on a lateral wall of the capsule, externally on the protective packaging of the capsule, or externally on the protective sheet on the outlet base of the capsule. Rossi at 10: Figure 1 shows a schematic view of one embodiment of the system of the present invention. With reference to the above figure, the system comprises an edible-product making machine 1 and a single use load element in the form of a capsule 2. The load element contains a brewable or water soluble aromatic substance 3 for preparation of an edible product. The capsule 2 comprises an identifying element in the form of a barcode 4 and a validation element also in the form of a barcode 5, both located externally on a protective sheet 6 of the outlet base of the capsule. The machine 1 comprises recognising means in the form of an infrared barcode reader 7. This is connected to checking means 8 stored within a control unit 9 of the machine. The checking means allow the machine activation means 10 to be engaged

	only if the barcode reader 7 recognises the identification barcode 4 and the validation barcode 5. The machine 1 further comprises validation means in the form of a mechanical tool 11 having a plurality of tips for destroying the validation barcode 5, for example by ripping, cutting, scratching or piercing, such that the barcode reader 7 cannot recognise it as an unvalidated validation barcode. If, after the positive signal from the checking means 8 from the first recognition of the identification and validation barcodes 4,5, the barcode reader 7 performs a second recognition of the identification barcode 4 combined with the validated validation barcode 5, the activation means 10, connected to the barcode reader 7 through the control unit 9, automatically activate a cycle of production of the edible product. Rossi at Claim 15. Yoakim at [0025]: The device is useful for preparing beverages from a plurality of different capsules, in which case it further comprises identification means for identifying the different capsules, and control means capable of operating the device in centrifugation for any of the different capsules according to predetermined liquid food preparation parameters including the flow rate and the volume of liquid to be injected into the capsule, with the identification means comprising capsule recognition means which are recognized by sensing means connected to the control means of the device to control the preparation parameters accordingly. Yoakim at [0192]: Therefore, as much as two, three, four or even more different flow rates and/or speed ranges can be provided in function of the types of coffee to be delivered. Therefore, depending on the types of beverage to be brewed, the control unit can be programmed to adjust the optical centrifugal conditions. For instance, the control unit may be associated to a capsule recognition system enabling to recognize the types of capsules, i.e., espresso, lungo, cappuccino, long coffee (e.g., 180-400 ml), latte, tea, etc., and to adjust the speed and/or other brewing parameters (e.g., water temperature) according the capsule which is inserted in the device. A recognition system uses a code on the capsule and recognized by the device, such as a color, a barcode, an RFID, a magnetic code, ferromagnetic micro-wires or labels, shapes and combinations thereof.

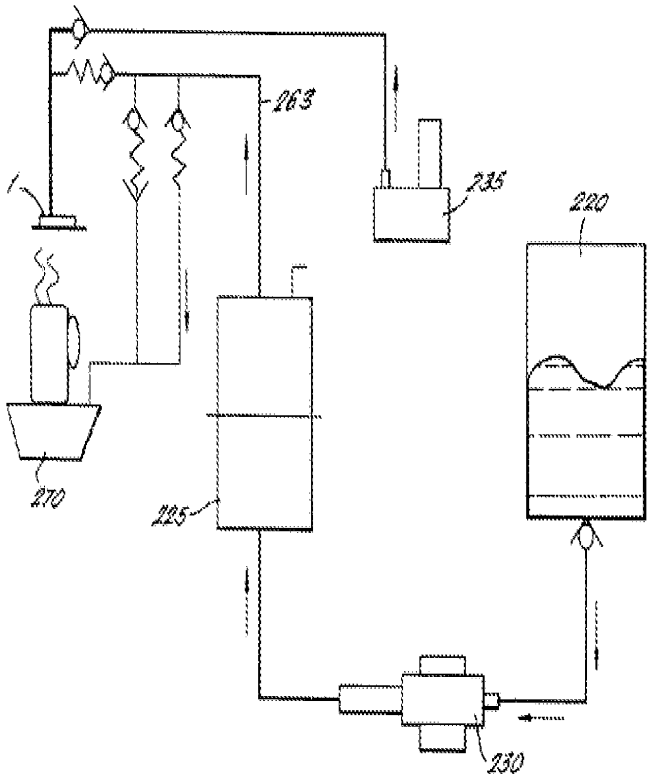
	Yoakim at [0477]: The capsule system further comprises an identification means associated to the different capsules in the set for identifying each capsule and adjusting brewing parameters accordingly. The adjustable parameters can be the rotational speed, the back-pressure at the outlet of the capsule, and/or the volume of liquid fed in the capsule. The identification means participates to deliver a wider range of beverages having differentiated characteristics (volume, taste, strength, crema, colour, etc.). The identification means are associated to control means placed in the centrifugal brewing device which controls the adjustment of the said parameters, by controlling the rotational motor driving the capsule holder or/and the pump supplying liquid in the capsule. Yoakim at [0494]-[0496]: The identification means can be sensed by sensing means connected to the control means for an active control of the parameters or can be passive identification means, e.g., selective flow restriction means. In particular, the identification means comprises capsule recognition means which are recognized by the sensing means connected to the control means of the brewing device which controls the brewing parameters accordingly. The recognition means can be differentiable by a visual code such as a barcode, a colour, a sign, a logo, etc., or by a radio-frequency (RFID), a magnetic element or by an identifiable shape. Yoakim at [0525]: In an alternative illustrated in FIGS. 61 and 62, the identification means are directly associated to the different capsules. In this case, the identification means ID4 and ID5 are capsule recognition means attached to or embedded in the capsules. The recognition means can be any mechanical, optical, magnetic, or radio-frequency recognition means capable of delivering information to the brewing device, via a sensing device 231, as to which type of capsule is inserted in the device. For example, the recognition means is a barcode, a colour code, a RFID tag, a magnetically sensitive element, or a mechanical key or shape.

	Yoakim at FIG. 61:  FIG. 61
[1.b] the apparatus including a pump adapted to supply heated water;	The below cited art discloses, either expressly or inherently, the apparatus including a pump adapted to supply heated water. *See, e.g.*: Boyd at [0003]: Automated coffee machines have long been used for brewing coffee, both in large-scale commercial settings and in smaller business and home settings. These machines typically

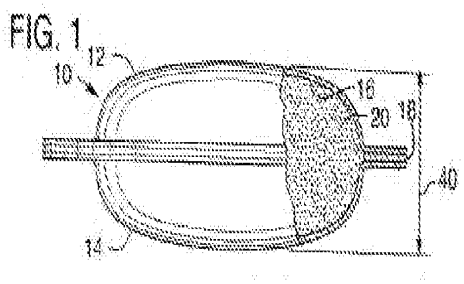
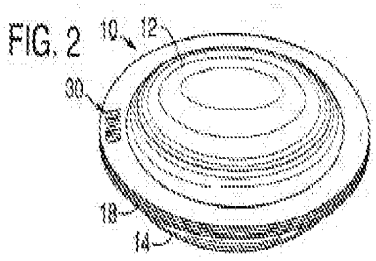
	operate on the principle of placing a quantity of ground coffee into a filter, and passing hot water through the ground coffee to produce a coffee beverage. Boyd at [0006]: A brewing packet is provided for use in the preparation of hot or cold beverages. The brewing packet envelops a brewing ingredient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

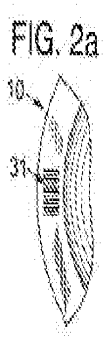
	present invention considers application of the relevant principles to machines which employ coffee packets for use in brewing multiple cups, which employ coffee packets of various size and shape, which employ various filter media and which contain coffee of various varieties, roasts, and grinds. Furthermore, 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. Jarisch at [0035]: The centrifugal unit 2 comprises a centrifugal cell 3. The cell 3 may comprise a capsule holder and a capsule received therein. The centrifugal unit is connected to driving means 5 such as a rotary motor. The centrifugal unit comprises a collecting part and an outlet 35. A receptacle 48 can be disposed below the outlet to collect the extracted beverage. The system further comprises liquid supply means such as a water reservoir 6 and a fluid circuit 4. Heating means 31 may also be provided in the reservoir or along the fluid circuit. The liquid supply means may further comprise a pump 7 connected to the reservoir. A flow restriction means 19 is provided to create a restriction to the flow of the centrifuged liquid which leaves the capsule. The system may further comprise a flow meter such as a flow-metering turbine 8 for providing a control of the flow rate of water supplied in the cell 3. The counter 11 can be connected to the flow-metering turbine 8 to enable an analysis of the generated impulse data 10. The analysed data is then transferred to the processor 12. Accordingly, the exact actual flow rate of the liquid within the fluid circuit 4 can be calculated in real-time. A user interface 13 may be provided to allow the user to input information that is transmitted to the control unit 9. Further characteristics of the system can be found in WO2010/026053.

	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 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. Panesar at p. 24, ll. 10–14: 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. Panesar at p. 25, ll. 8–29: 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.

	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. 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 FIG. 8: FIG. 8. 

	Yoakim at [0180]: The module is in fluid communication with a water reservoir 5 containing fresh or, alternatively heated water. A fluid transport means such as a low pressure pump 6 can be provided in the water circuit to transport water from the reservoir to the module. A water heater 7 is further provided to heat water to the desired temperature. It can be noted that water could be heated in the reservoir itself and water could be transported from the reservoir by effect of vaporization. Water can be fed into the module 4 at low or substantially no pressure. For example, a pressure between 0 and 2 bars above atmospheric pressure can be envisaged at the inlet 8 of the module.
[1.c] inserting the portion capsule into the apparatus, the portion capsule including a foil lid sealed to a base element having a cavity in which a beverage raw material is provided,	The below cited art discloses, either expressly or inherently, inserting the portion capsule into the apparatus, the portion capsule including a foil lid sealed to a base element having a cavity in which a beverage raw material is provided. *See, e.g.*: Boyd at [0006]: A brewing packet is provided for use in the preparation of hot or cold beverages. The brewing packet envelops a brewing ingredient chosen according to the tastes of a beverage drinker. The packet includes a machine interpretable feature that contains encoded data capable of being read by a beverage producing device. Furthermore, the data on the packet may be capable of directing the beverage producing device to employ a specific brewing operation suited for the particular brewing packet. This allows for producing the optimal beverage from the brewing ingredient. The packet may be utilized with a variety of brewing ingredients to 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: 

	Boyd at Fig. 2a:  Boyd at Claims 1-25. 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* Jarisch at FIG. 4:

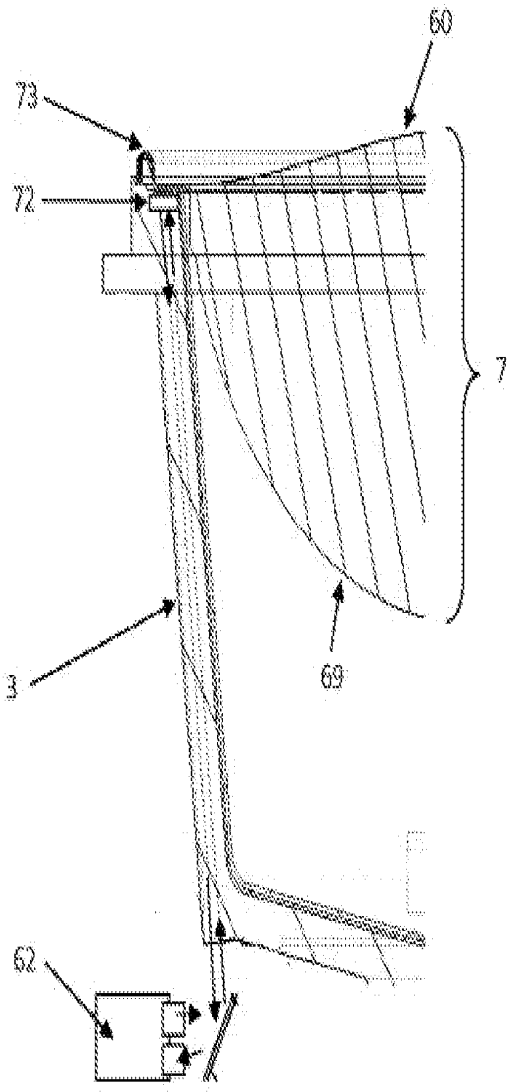
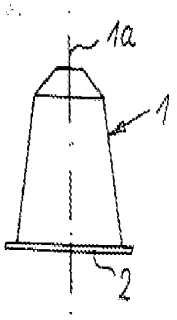
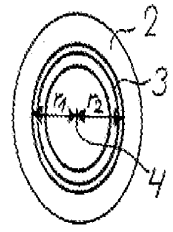


Fig. 4

See also Jarisch at FIGS 5-7.

Mahlich at Abstract:

A machine readable identification on a single-serving unit containing coffee powder for espresso machines, designed so that it can be read easily and accurately, is structured in a rotation-symmetrical manner and is applied to an essentially level surface of the single-serving unit, whereby the single-serving unit preferably consists of a single-serving capsule

	(1) having an essentially circular base (2) where-upon the identification is applied in a coaxial manner. Mahlich at [0030]-[0032]: FIGS. 1, la and 3 show a single-serving capsule 1 of an essentially frustoconical design arranged in a rotation-symmetrical manner around a symmetrical axis la. Mahlich at Fig 1: Fig.1  Mahlich at Fig. 1a: Fig.1a  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. 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. 38, ll. 15–21: Insert for use in the system As described above, the machine 201 of the present invention may also be used with other inserts not necessarily of a cartridge form. An example of another suitable form of insert will now be described. The insert 400 comprises an upper part 401 and a lower part 402. 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 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. 16, ll. 28-31: 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. 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. Panesar at p. 9, ll. 24–29: The cartridge 1 is particularly designed for use in dispensing filtered products such as roast and ground coffee or leaf tea. However, the cartridge 1 may be used with other products such as chocolate, coffee, tea, sweeteners, cordials, flavourings, alcoholic beverages, flavoured milk, fruit juices, squashes, sauces and desserts.

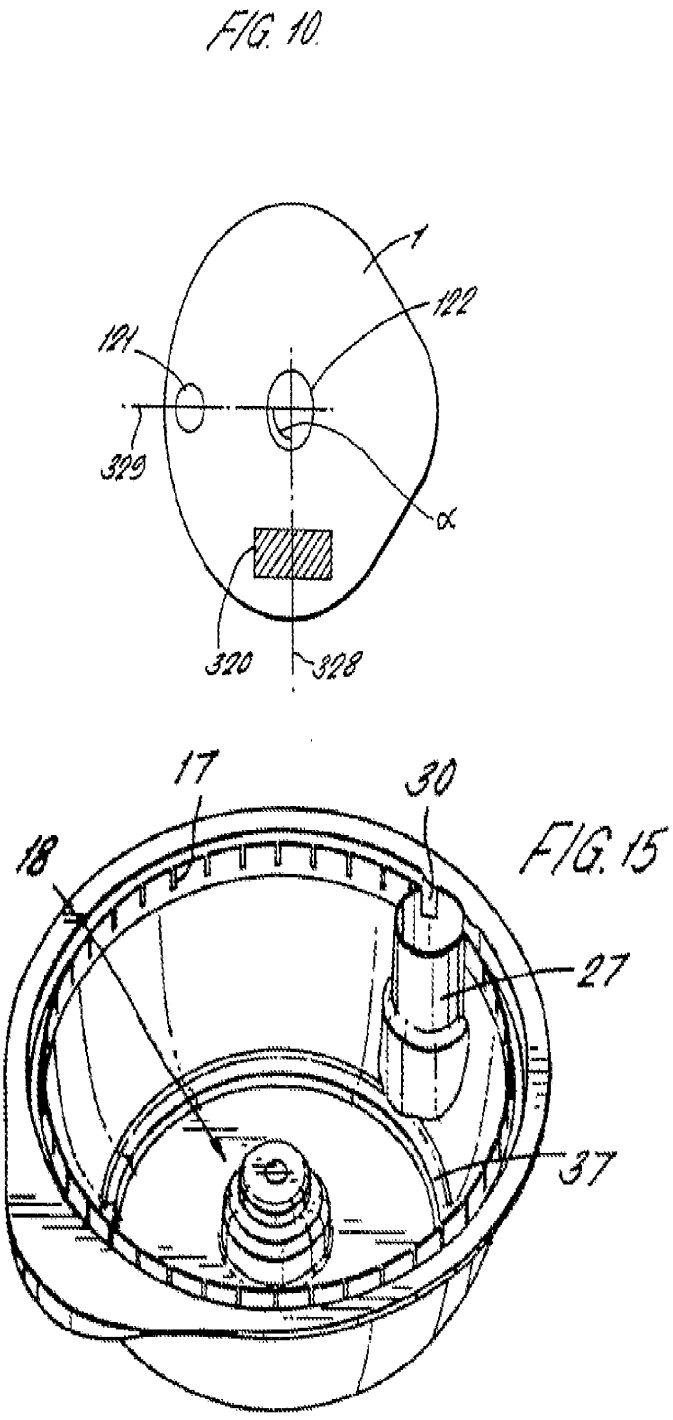
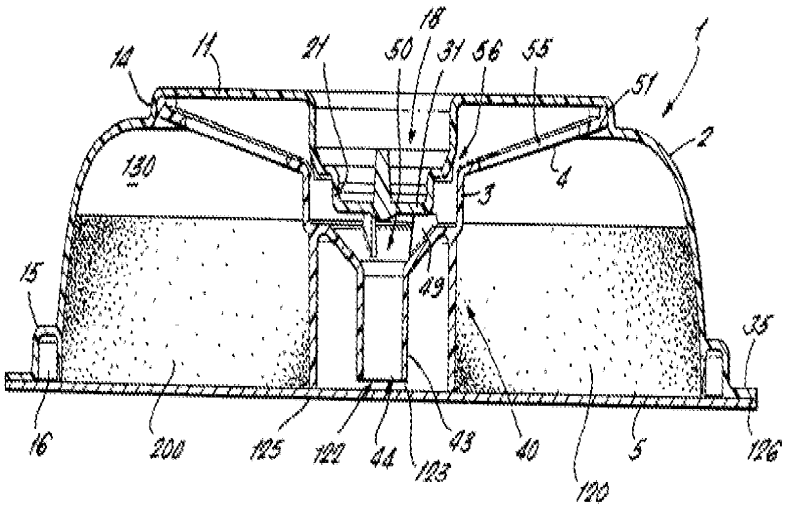
	Panesar at FIGs. 10, 15, 21: 

FIG. 21.



Sweeney at 1:19-25:

This beverage filter cartridge is comprised basically of an impermeable yieldably-piercable cup-shaped outer container internally subdivided by a permeable cone-shaped filter into first and second chambers. A granular or powdered dry beverage medium, e.g., roasted ground coffee, is stored in the first chamber, and the container is closed by an impermeable yieldably piercable lid.

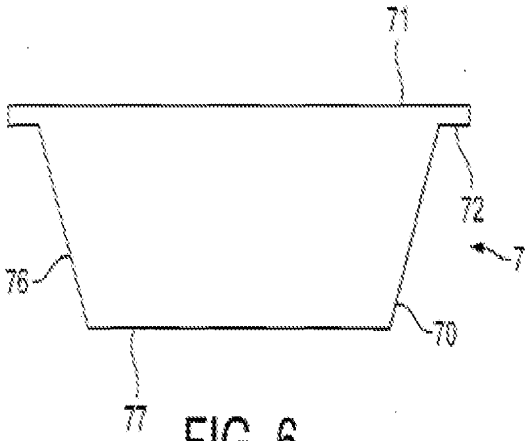
Sweeney at 4:20-23:

The lid may be cut or blanked from any suitable impermeable heat sealable and yieldably piercable material, such as for example, a metallic/polymer laminate supplied by Winpak Heat Seal Packaging, Inc. of Montreal, Canada.

Yoakim at [0125]:

The food substance in the capsule can be ground coffee powder, soluble coffee, tea, chocolate, whitener, flavours, and combinations thereof.

	Yoakim at [0128]: The capsule can comprise a sealing lid. The sealing lid can comprise a flexible membrane. The membrane can comprise gas barrier and support layers made of polymers, aluminium, and/or aluminium alloys. Yoakim at [0129]: The capsule can also comprise a cup-shaped body onto which the sealing lid is sealed. The cup-shaped body may also comprise gas barrier materials, such as metal, e.g., thin aluminium and/or plastic. Yoakim at [0180]: The system 1 of the invention is illustrated in FIG. 1 in the more general sense. The system comprises a device 2 and a capsule 3. The device has a brewing module 4 into which the capsule can be inserted for being brewed and is removed after use for being discarded (e.g., for waste or recycling Yoakim at [0197]: FIGS. 6 and 7 illustrate a capsule that can suit the device according to the different embodiments of FIGS. 2 to 5. In FIG. 6, the capsule 7 comprises a cup-shaped body 70 with upwardly oriented sidewall 76 and a bottom wall 77. The sidewall forms a portion of cone which promotes the collection of the brewed liquid internally. The body terminates by an upper edge 72 raising outwards onto which is sealed a lid 71. The lid may be a flexible pierceable membrane of several microns in aluminium and/or plastic. The lid can be welded on the upper edges 72 of the body. It can be pointed out that the membrane and body preferably comprise gas barrier layers such as aluminium and/or EVOH. Yoakim at [0198]:

	The capsule contains a substance chosen among the list consisting of ground coffee, soluble coffee, tea, a whitener such as dairy or non-dairy ingredient(s), herbal tea, nutritional substance, culinary ingredients and a mixture thereof. Yoakim at [0219]: The invention also relates to a food liquid preparation device for preparing a food liquid from a food substance contained in a single-use capsule, removably insertable in the device *See, e.g.*, FIGS. 6-7:  FIG. 6

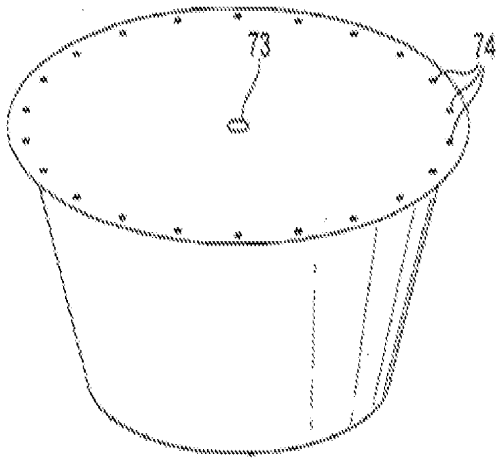


FIG. 7

Yoakim at [0414]:

As shown in FIGS. 26 and 27, a preferred capsule 101 of the invention generally comprises a dished body 102 onto which is sealed a sealing foil 103. The sealing foil 103 is sealed onto a peripheral rim 104 of the body at a sealing annular portion 105. The rim 104 can extend outwards forming a small annular portion, e.g., of about 2-5mm. The dished body comprises a bottom wall 106 and a side wall 107 which preferably widens in direction of the large open end of the body opposed to the bottom wall. The dished body is preferably rigid or semi-rigid. It can be formed of a food grade plastics, e.g., polypropylene, with a gas barrier layer such as EVOH and the like or aluminium alloy or a complex of plastic and aluminium alloy. The sealing foil 103 can be made of a thinner material such as a plastic laminate also including a barrier layer or aluminium alloy or a combination of plastic and aluminium alloy. The sealing foil is usually of a thickness between 30 and 250 microns, for example. The sealing foil membrane can be pierced for creating the water inlet and the beverage outlet(s) as will be described later in the description.

See, e.g., FIGS. 26 and 27:

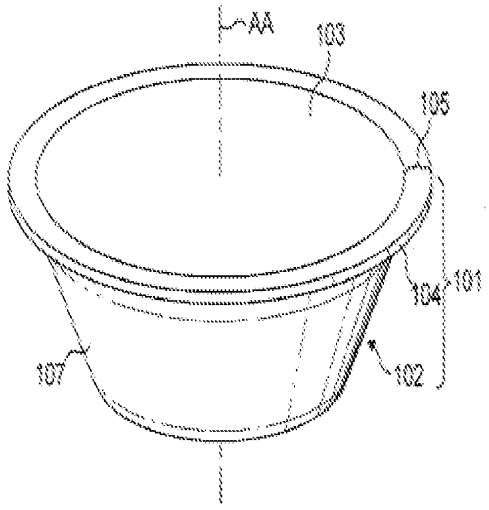


FIG. 26

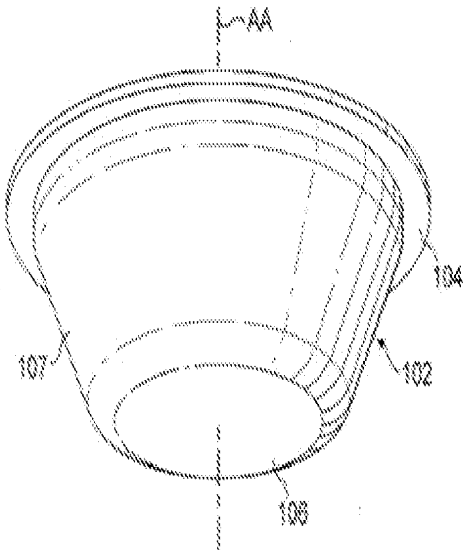
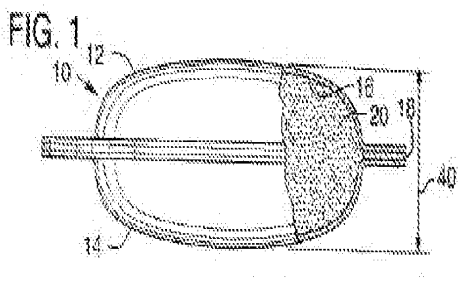
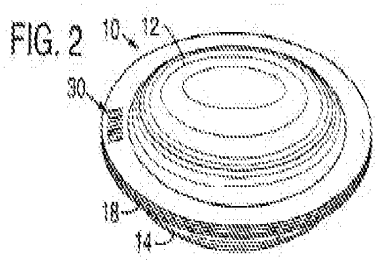
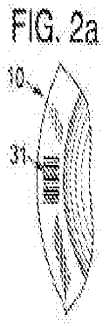


FIG. 27

Yoakim at [0461]:

FIGS. 45 to 50 are other variants of capsules according to the invention. For example, the capsule of FIG. 45 has a cylindrical side wall 700, an upper wall 701 and a lower wall 702

	both sealed or connected to the sidewall 700. The capsule is gastight by choosing materials for the walls, e.g., aluminium and/or suitable plastics, which have gas barrier properties. The upper walls and lower walls can be flexible or rigid depending on said materials. For example, wall 701 can be a flexible sealing membrane welded on upper rim 703 of the body 705 forming the sidewall 700 and lower wall 702. The side wall 700 may comprise outlets 704, 706 for release of the liquid when centrifuged in the beverage preparation device around central axis AA of the capsule. Optionally, the capsule may comprise a filter part 708 delimiting the cavity 709 for the substance and a collecting recess 710 peripherally placed relative to the central cavity.
[1.d] the base element comprising a flange, the flange having a top side to which the foil lid is sealed.	The below cited art discloses, either expressly or inherently, the base element comprising a flange, the flange having a top side to which the foil lid is sealed. *See, e.g.*: Boyd at [0027]: As indicated above, opposing filter portions 12 and 14 are secured together about their respective perimeters to form cavity 16. In the depicted embodiment, the filter portions are secured to an orbicular gasket 18. The gasket is deformable to allow for an optimum seal. In an alternative embodiment, the packet may be integrally formed from a continuous filter in which no gasket is required. Although the depicted packet is circular, it will be appreciated that the cavity may take virtually any shape capable of containing coffee grounds. The size and bed depth 40 of the packet is determined by the quantity of coffee grounds, the density of coffee grounds, and the desired coffee beverage taste. Boyd at Fig. 1: 

	Boyd at Fig. 2:  Boyd at Fig. 2a:  Boyd at Claim 3. 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:

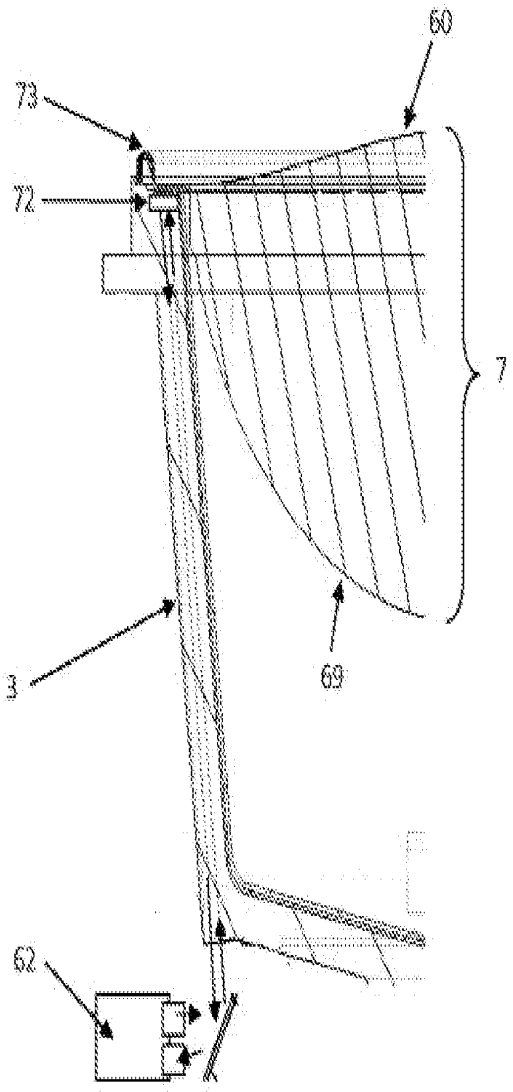


Fig. 4

See also Jarisch at FIGS 5-7.

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

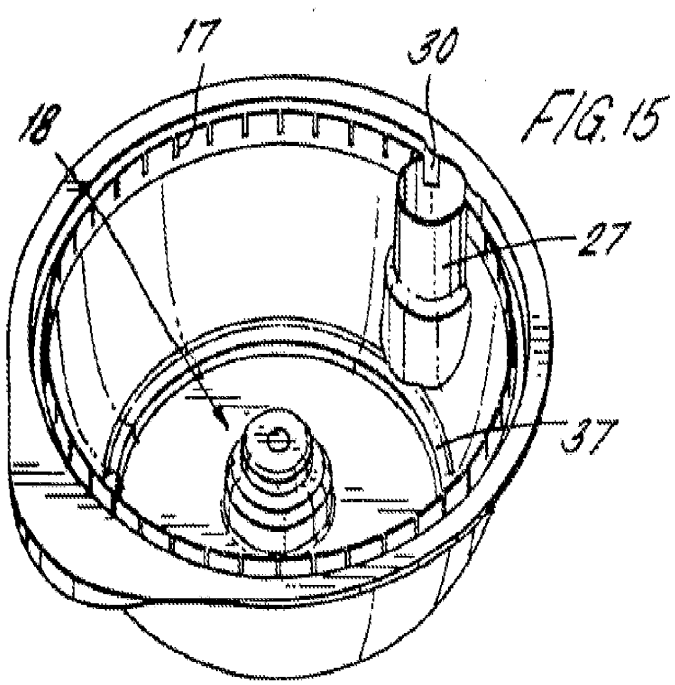
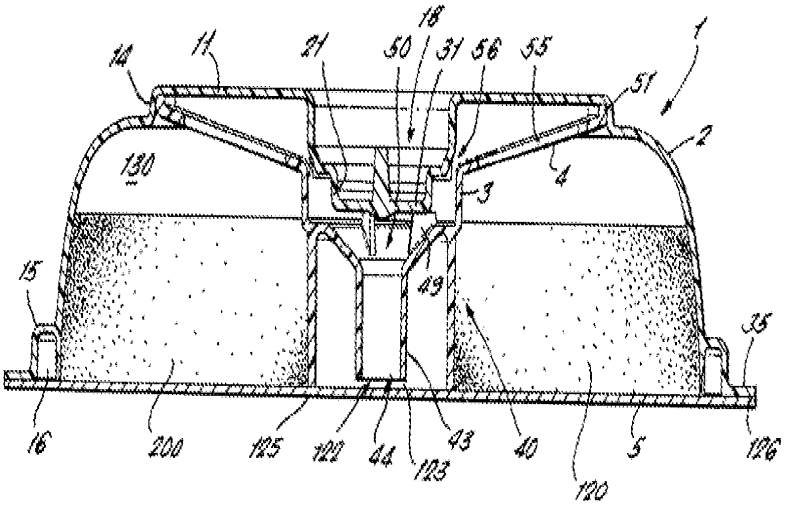
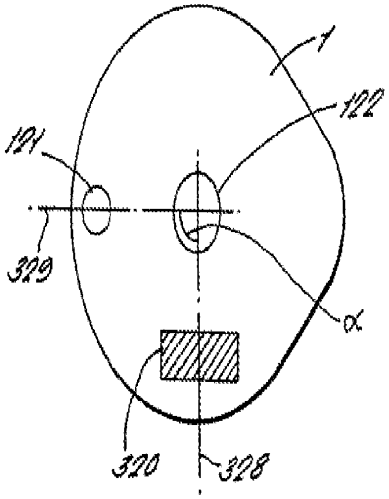
	which the outer member 2 may be held. The handle 24 is provided with an upturned rim 25 to improve grip. Panesar at p. 16, ll. 28–32: The laminate 5 is then affixed to the outer member 2 by forming a weld 126 around the periphery of the laminate 5 to join the laminate 5 to the lower surface of the outwardly extending flange 35. Panesar at FIGs. 10, 15, 21: 

	FIG. 21  FIG. 10  	Yoakim at [0129]: The capsule can also comprise a cup-shaped body onto

	which the sealing lid is sealed. The cup-shaped body may also comprise gas barrier materials, such as metal, e.g., thin aluminium and/or plastic. Yoakim at [0197]: FIGS. 6 and 7 illustrate a capsule that can suit the device according to the different embodiments of FIGS. 2 to 5. In FIG. 6, the capsule 7 comprises a cup-shaped body 70 with upwardly oriented sidewall 76 and a bottom wall 77. The sidewall forms a portion of cone which promotes the collection of the brewed liquid internally. The body terminates by an upper edge 72 raising outwards onto which is sealed a lid 71. The lid may be a flexible pierceable membrane of several microns in aluminium and/or plastic. The lid can be welded on the upper edges 72 of the body. It can be pointed out that the membrane and body preferably comprise gas barrier layers such as aluminium and/or EVOH. *See, e.g.*, FIGS. 6-7:

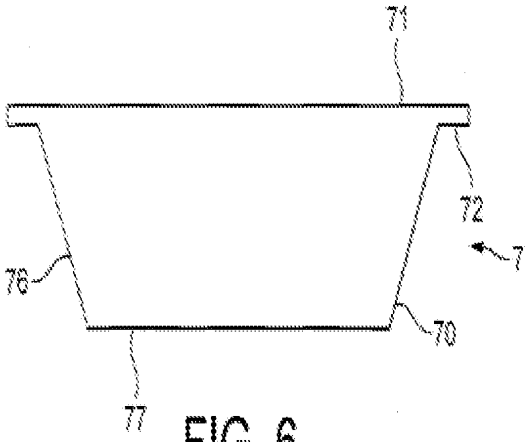


FIG. 6

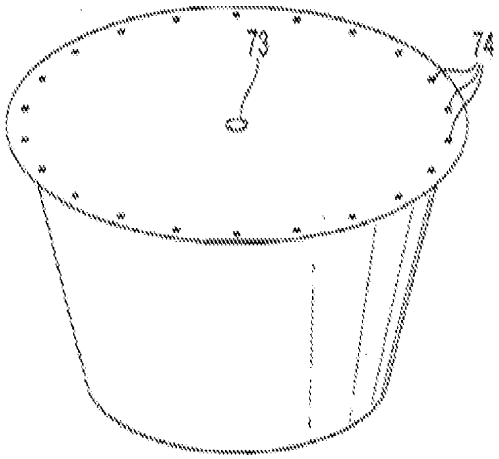
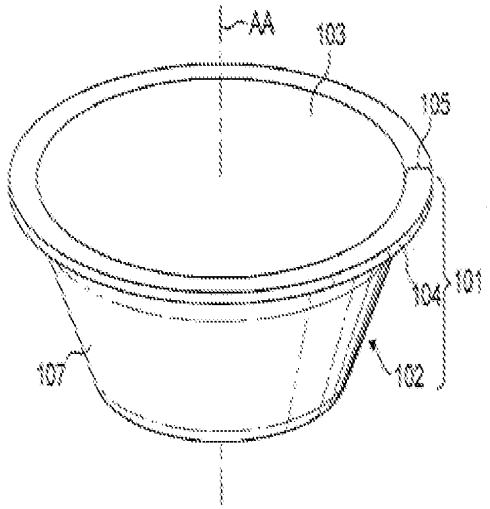
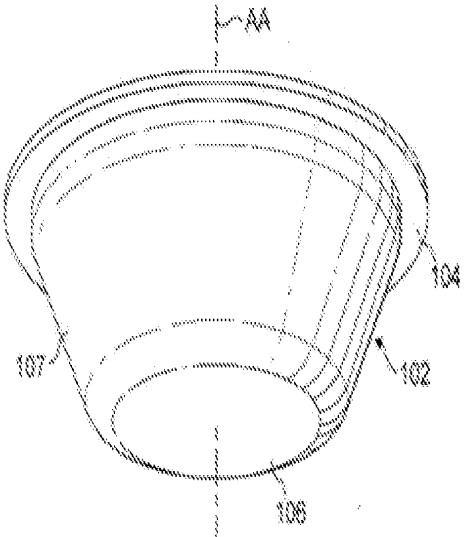


FIG. 7

Yoakim at [0414]:

As shown in FIGS. 26 and 27, a preferred capsule 101 of the invention generally comprises a dished body 102 onto which is sealed a sealing foil 103. The sealing foil 103 is sealed onto a peripheral rim 104 of the body at a sealing annular portion 105. The rim 104 can extend outwards forming a small annular portion, e.g., of about 2-5mm. The dished body comprises a bottom wall 106 and a side wall 107 which preferably widens in direction of the large open end

	of the body opposed to the bottom wall. The dished body is preferably rigid or semi-rigid. It can be formed of a food grade plastics, e.g., polypropylene, with a gas barrier layer such as EVOH and the like or aluminium alloy or a complex of plastic and aluminium alloy. The sealing foil 103 can be made of a thinner material such as a plastic laminate also including a barrier layer or aluminium alloy or a combination of plastic and aluminium alloy. The sealing foil is usually of a thickness between 30 and 250 microns, for example. The sealing foil membrane can be pierced for creating the water inlet and the beverage outlet(s) as will be described later in the description. *See, e.g.*, FIGS. 26 and 27:  FIG. 26

	 FIG. 27
[1.e] and an opposing bottom side with a barcode located on the bottom side,	The below cited art discloses, either expressly or inherently, an opposing bottom side with a barcode located on the bottom side. *See, e.g.*: Aker at Abstract: A method of associating a barcode with a product that has a product body with a round ending section. The method includes positioning the barcode repetitively along a circle sharing a common center with an outer-ring of the round ending section. A method of reading such a barcode on such a product includes positioning at least a portion of the round ending section of the product within a field of view of a barcode reader such that a complete barcode can be construed from a portion of a first instance of the barcode and a portion of the second distance of the barcode. Aker at [0003]: Generally, if a product is somewhat cylindrically symmetric and has some of its information coded with barcodes, when such product is to be handled by certain handling-machine, it may

	be desirable for a barcode reader in the handling-machine to find the barcode on such product repeatedly and reliably. Aker at [0004]: In one aspect, the invention is directed to a product. The product includes a product body with a round ending section, and a barcode repetitively positioned along a circle sharing a common center with an outer-ring of the round ending section. Aker at [0006]: In another aspect, the invention is directed to a method of associating a barcode with a product that has a product body with a round ending section. The method includes positioning the barcode repetitively along a circle sharing a common center with an outer-ring of the round ending section of the product body. Aker at [0017]: FIG. 2A-FIG. 2B illustrate a product with a product body 40 that is somewhat cylindrically symmetric and some information of the product is coded with barcodes in accordance with some embodiments. In FIG. 2A, the product body 40 is generally in the shape of a conic cylinder. The product body 40 is terminated with a round ending section 45. FIG. 2B is a top view of the product body 40. In FIG. 2B, a barcode is repetitively positioned along an out-ring 46 of the round ending section 45. Multiple instances of the same barcode, 50A-50H, are printed on the surface of the round ending section 45. In other implementations, the barcode can be repetitively positioned along a circle sharing a common center with an outer-ring of the round ending section, and the diameter of such circle can be smaller than the diameter of the outer-ring. In general, the product body 40 can be in the shape of a conic cylinder as shown in FIG. 3A, in the shape of a cylinder as shown in FIG. 3B, or in any other shape that is somewhat cylindrically symmetric as shown in FIG. 3C. Aker at Fig. 1B:

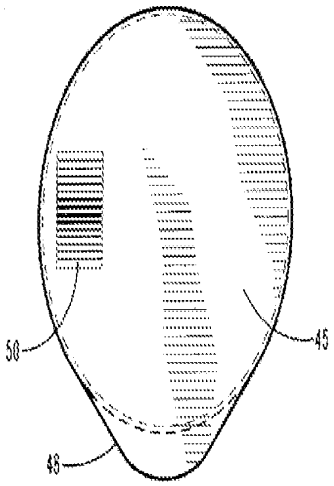


FIG. 1B

See also Aker at [0018]-[0022]; *id.* at Figs. 1A, 2A, 2B, 4A, 4B, 4C, 5A, 5B.

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.

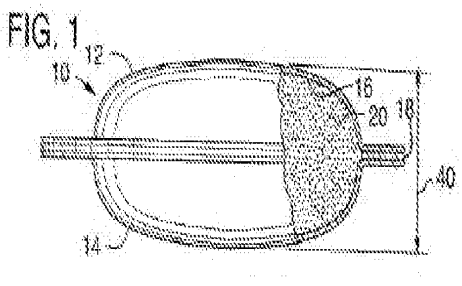
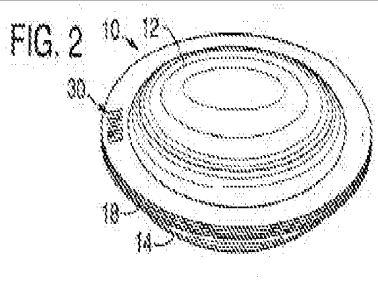
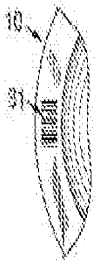
	Boyd at [0034]: Referring now to FIG. 4, a method of operation for the present invention is illustrated at 200. At 202, a brewing packet encoded with packet-characteristic data is placed into a brewing device. At 204, the packet-characteristic data is read by a sensor. At 206, the packet-characteristic 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:

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

Boyd at Fig. 4:

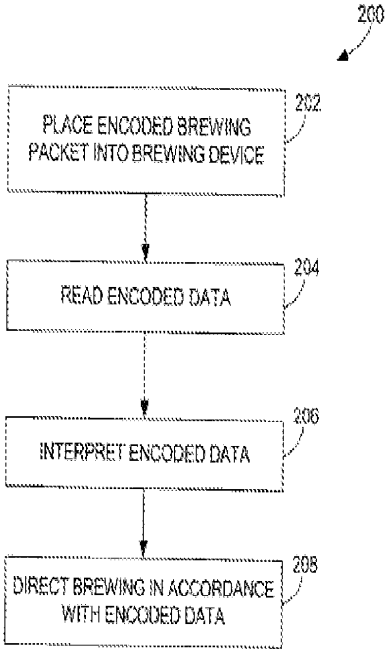


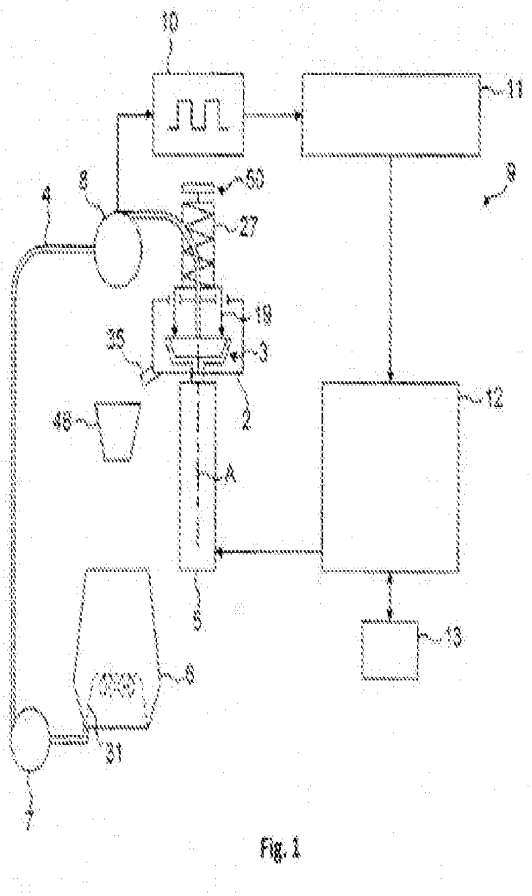
FIG. 4

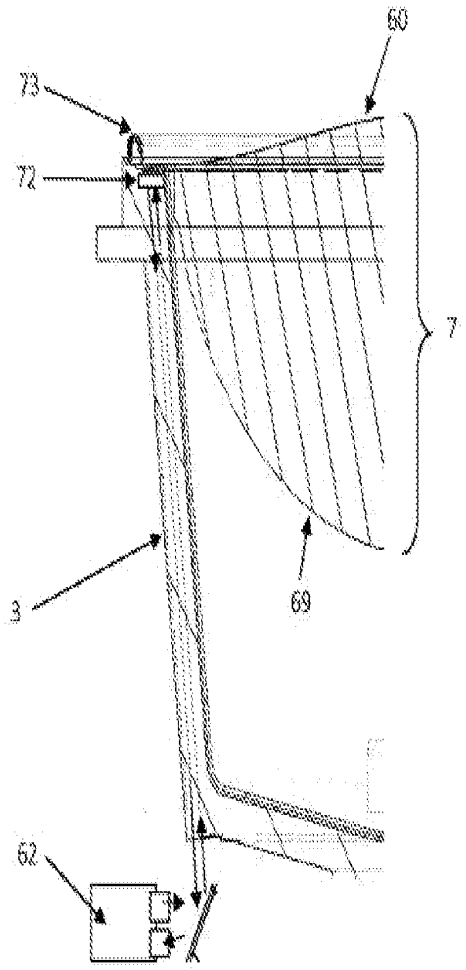
Boyd at Claims 1-25.

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]: 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]: 2) Optical reading on rim bottom side of capsule (figures 4 to 7):

	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. *See* Jarisch at FIG. 1:  Fig. 1 Jarisch at FIG. 4:

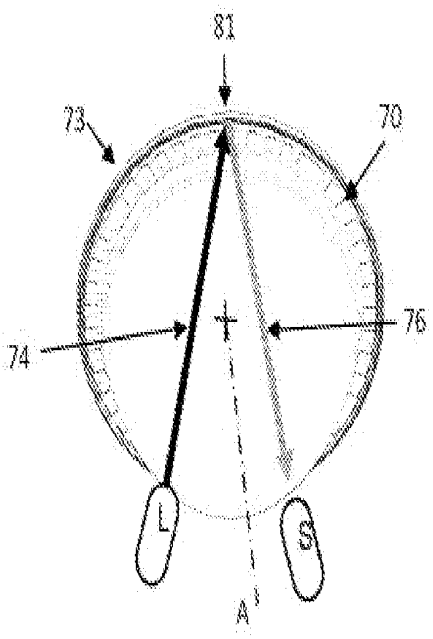


Jarisch at [0022]:

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.

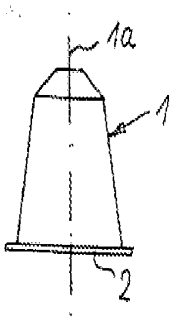
Jarisch at [0042]-[0048]:

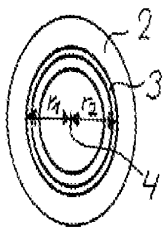
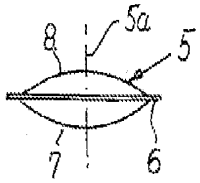
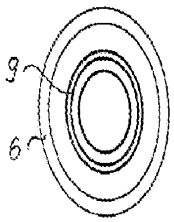
	Onto the capsule foil 60, a plurality of bits forming the code 61 is applied along a circular or arc-shaped path. Preferably, the code is placed on a flat portion of the lid and close to the peripheral edge of the capsule. The code is preferably placed the lid that is supported by the flange-like rim 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 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. Mahlich at Abstract: A machine readable identification on a single-serving unit containing coffee powder for espresso machines, designed so that it can be read easily and accurately, is structured in a rotation-symmetrical manner and is applied to an essentially level surface of the single-serving unit, whereby the single-serving unit preferably consists of a single-serving capsule (1) having an essentially circular base (2) where-upon the identification is applied in a coaxial manner. Mahlich at [0001]-[0002]:

	The invention concerns machine readable identification on a single-serving unit containing coffee powder for espresso machines. Another aspect of the invention concerns a system particularly suitable for the registration of machine readable identification. Mahlich at [0005]: The single-serving capsules consist mostly of a deep-drawn plastic or aluminium foil and their advantage, when compared to pouches, lies in the fact that they have an air-tight seal and that certain manufacturers fill them with a protective gas containing the coffee aroma as well. Such pre-proportioned single-serving units are available for approximately 10 different coffee fillings. Due to this variety the consumer is able to stock smaller amounts of different types of coffee. In addition, the use of these single-serving units in conjunction with the special brewing heads of those espresso machines equipped to process such single-serving units results in a reliably constant optimum brew. Mahlich at [0006]: Such espresso machines, already known from EP 1 046 366 Al, for example, are provided with a storage magazine storing assorted single-serving units having different contents that are conveyed from the storage magazine into the brewing head during the course of an automatic brewing process. The storage magazine consists of car-touches, also termed magazine tubes, arranged on a turntable, wherein the individual single-serving units are stacked. In order to keep the different types of coffee separate and to select different coffee types, each magazine tube is stocked with only one type of coffee. At the start of the brewing process the selected magazine tube is rotated with the turntable into the dispensing position so that the desired type of coffee can be obtained. For this purpose the single-serving unit at the bottom of the stack inside the magazine tube is conveyed to a brewing chamber of the brewing head. Preferably each magazine tube is provided with a window so that the consumer is able to recognize the desired type of coffee, for example by means of a certain colour that is assigned to a certain type of coffee. It is also possible to equip the single-serving units with a certain identification code able to be registered by a reading device, so that the contents of the single-serving units can be recognized electronically. However, this method has thus far not

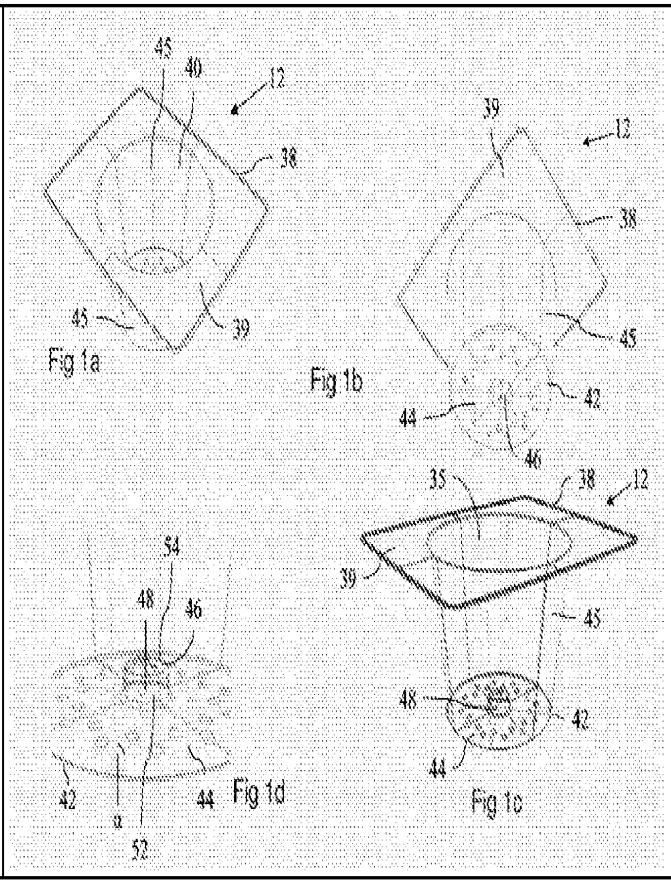
	been used for presently-known espresso machines. This may be due to the fact that the usual bar code structured in a linear manner to be read by a simple linear reading device must either be positioned correctly with regard to the position of the reading device, which is somewhat difficult in view of the inherent rotation-symmetric design of single-serving capsules and pouches due the technology of their manufacture, or that an expensive and voluminous double mirror scanner is required as the reading device. Mahlich at [0012]-[0014]: In particular, according to claim 3 such rotation-symmetrical identification may be an ID code consisting of concentric circles, whereby the usual linear reading heads can be used. If the ID code is a multi-digit binary code, just four concentric circles are sufficient to reliably identify a great variety of coffee types. If the single-serving unit consists of a capsule with a mainly circular base, according to claim 4, the identification as defined above is applied to the base in a coaxial manner. If the single-serving unit consists of an essentially lozenge-shaped pouch with an upper and a lower surface, the identification is applied to each surface in a coaxial manner. Therefore it does not matter, with regard to the machine reading of the identification, whether the upper or the lower surface of a pouch is facing downwards when the pouches are inserted into the storage magazine. Apart from coffee type identification, the identification on any single-serving unit may also contain producer identification, whereby the latter in conjunction with an adapted evaluation system for controlling the espresso machine can block operation of the espresso machine if the producer identification on the single-serving unit does not correspond to the machine's preprogrammed producer identification. Mahlich at [0030]-[0032]: FIGS. 1, la and 3 show a single-serving capsule 1 of an essentially frustoconical design arranged in a rotation-symmetrical manner around a symmetrical axis la.

	An ID code 3 consisting of concentric circles is shown on the base 2 of the single-serving capsule 1, whereby the symmetrical axis la of the single-serving capsule passes through the centre point 4 of the circles. FIGS. 2 and 2a show a pouch 5 containing one serving of pre-pressed coffee powder whereby the pouch, with the exception of its edge 6, is essentially lozenge-shaped. The pouch 5 with its edge 6 are arranged in a rotation-symmetrical manner around a symmetrical axis 5a. The lower surface 7 as well as the upper surface 8 of pouch 5 is provided with an ID code 9 consisting of concentric circles and extending in a rotation-symmetrical manner around the symmetrical axis 5a. Mahlich at Fig 1: Fig.1 

	Mahlich at Fig. 1a: Fig.1a  Mahlich at Fig. 2: Fig.2  Mahlich at Fig. 2a: Fig.2a 

	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 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 optical or magnetic barcode 320 or RFID of the cartridge 1 is oriented directly above the aperture 326 in the cartridge mount 257. Van Belleghem at Figures 1a-d, 3, 8, 10A-C:


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Fig 1a
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Fig 1b
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Fig 1c
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52
Fig 1d

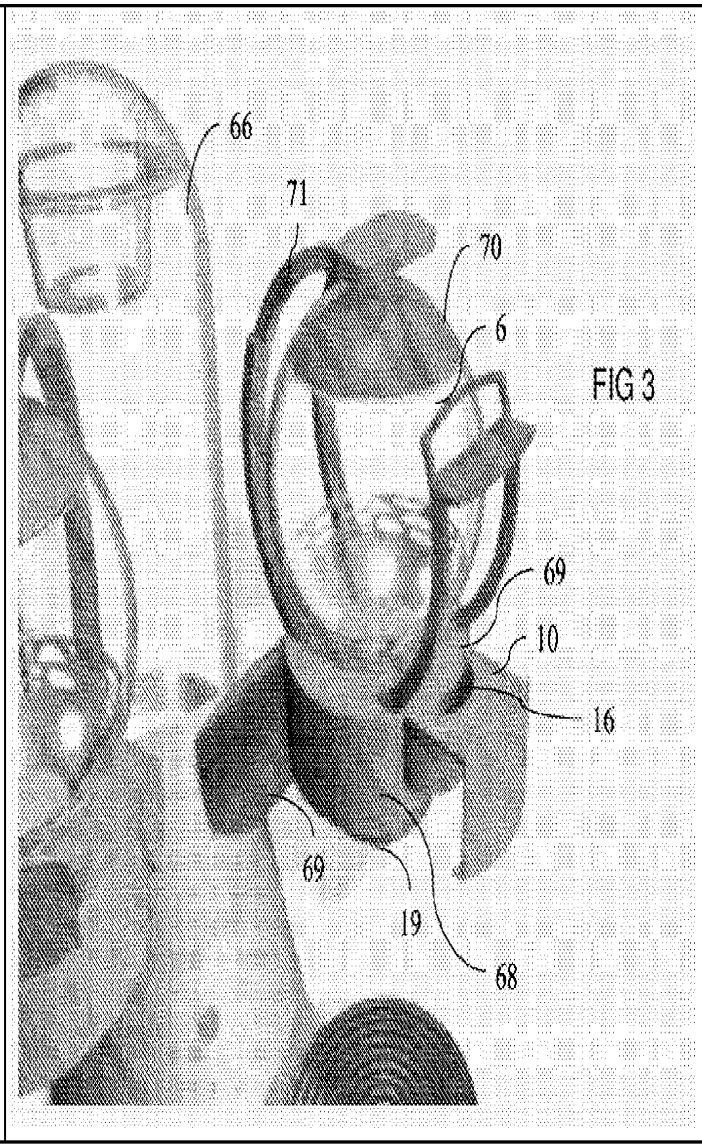


FIG 3

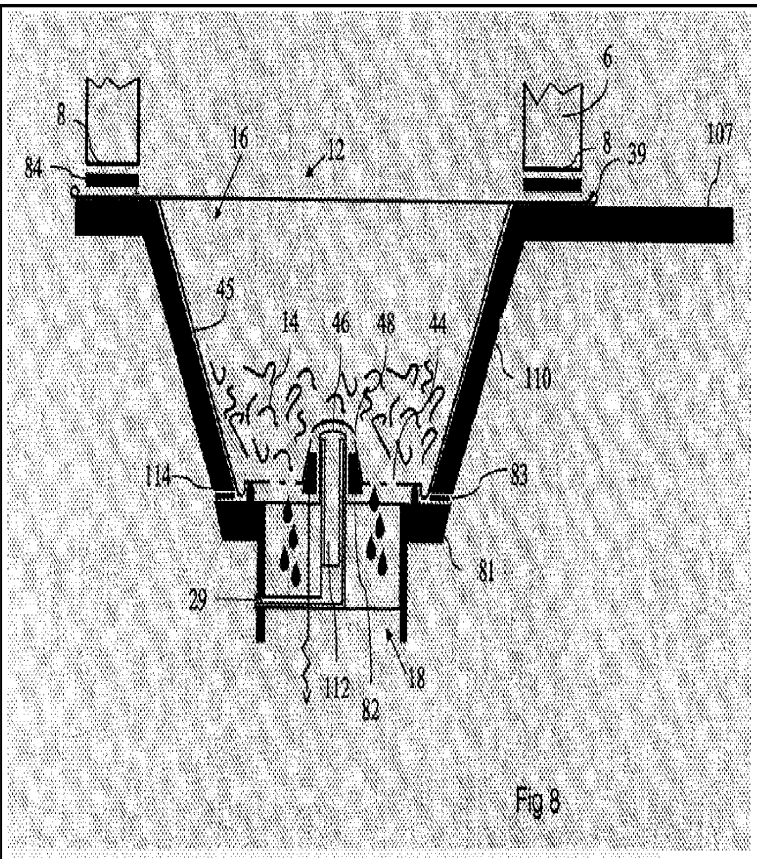

6
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12
8
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14
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18

Fig 8

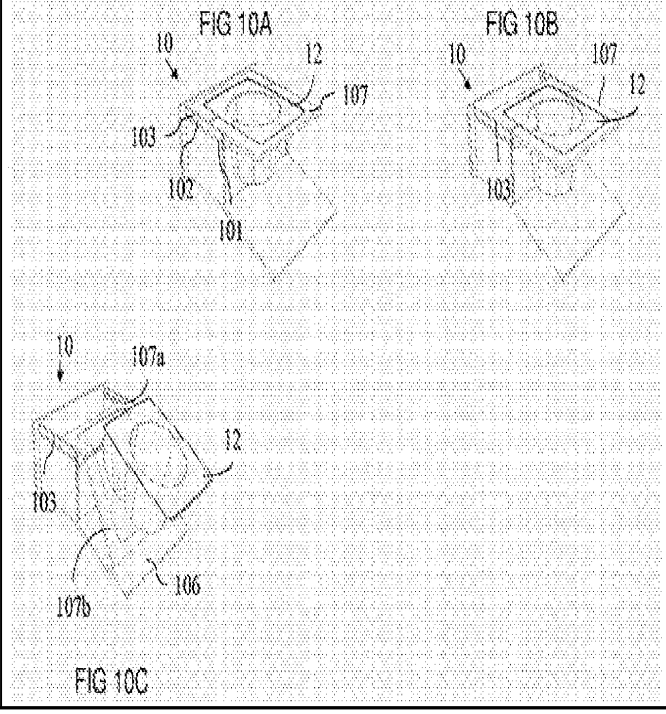

FIG 10A
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12
107
103
102
101
FIG 10B
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107
12
103
10
107a
12
103
106
107b

FIG 10C

	Van Belleghem at [0032]: According to one embodiment, the cartridge includes automatic readable means adapted to be read or detect by a detecting or reading means. The readable means may comprise and/or inform on preparation parameters for indicating how to infuse the infusible substance of the cartridge at best. Van Belleghem at [0033]: Advantageously, the preparation parameters may consist of the infusion temperature and/or the infusion duration and/or when the gas injection takes place, how long it lasts, etc. Van Belleghem at [0046]: The cartridge 12 may comprise marks or any automatic readable means comprising or indicating infusion parameters. The marks or readable means may be located either on the outside surface of the side walls 45 or on the lip 39 or on the sheet 50. Van Belleghem at [0055]: Referring now to figure 3, the platform 68 comprises a receptacle 10 for receiving a cartridge 12 containing infusible substances 14. In this particular embodiment, the receptacle 10 consists of a drawer. The drawer 10 is operable between at least a first position and a second position. The drawer 10 slides from a closed position in the platform 68 to an opened position out of the platform 68. The drawer comprises a cavity 16 into which a cartridge 12 (not represented) containing infusible substances may be inserted. The drawer 10 may slide either automatically or manually. When the drawer 10 is closed in the platform 68, the cavity 16 of the drawer 10 communicates with the bottom opening 8 of the infusion container 6, so that the infusion container 6 and the cavity 16 form an infusion chamber. Van Belleghem at [0080]:

	Once the drawer 10 is closed within the platform 68 and once the top sheet 50 of the cartridge 12 has been cut out, the tray 107 is raised up away from the side panels 104a, 104b. The lip 39 of the cartridge 12 located in the recess 109 of the tray 107 is brought into contact with the bottom opening 8 of the infusion container 6. A gasket 84 disposed on the edge of the bottom opening 8 ensures a hermetic connection between the infusion container 6 and the lip 39. The cartridge 12 is firmly maintained blocked within the cavity 16. Van Belleghem at [0081]: The dimensions of the opening 8 of the infusion container 6 are equal or larger than those of the section of the cavity 16 on the tray 107 to surround the opening 35 of the cartridge 12. The dimensions of the opening 8 of the infusion container 6 are smaller than those of the section of the recess 109 of the tray 107. Yoakim at [0477]: The capsule system further comprises an identification means associated to the different capsules in the set for identifying each capsule and adjusting brewing parameters accordingly. Yoakim at [0496]: The recognition means can be differentiable by a visual code such as a barcode, a colour, a sign, a logo, etc., or by a radio-frequency code (RFID), a magnetic element or by an identifiable shape.
[1.f] the base element has a wall region with an electrically conductive section	The below cited art discloses, either expressly or inherently, the base element has a wall region with an electrically conductive section. *See, e.g.*: Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are

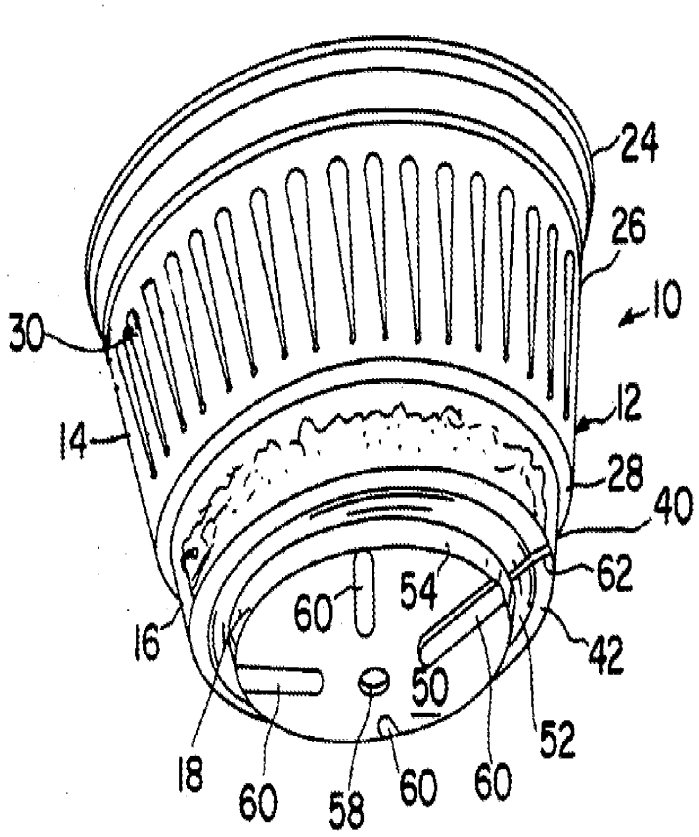
	received through a funnel into a brewing chamber where water is passed through the filter capsule to produce an espresso beverage. The subject matter of each of these patents is incorporated herein by this reference. The invention also may be practiced in connection with espresso machines such as those disclosed in U.S. Pat. Nos. 4,253,385, 4,254,694, 4,353,293, 4,429,623, 4,484, 515, 4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference. While the aforementioned machines generally are described for use in connection with espresso packets which contain a single serving of espresso, it will be appreciated that the present invention considers application of the relevant principles to machines which employ coffee packets for use in brewing multiple cups, which employ coffee packets of various size and shape, which employ various filter media and which contain coffee of various varieties, roasts, and grinds. Furthermore, the packet and methodology described herein may also produce other types of beverages such as tea, cider, and/or any beverage which is produced by mixing various ingredients. The packet and methodology is not limited to hot beverages and may be used to produce cold beverages. Boyd at [0026]: Typically, the filter takes the form of opposing, water-permeable paper sheets, as indicated, but the filter may be formed of stainless steel, or some other filter material configured to define a cavity for containment of coffee grounds while water and brewed coffee beverage pass therethrough. It is desirable, however, that the filter impart no undesirable taste characteristics to the resulting coffee beverage. 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. 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. Mahlich at [0005]: The single-serving capsules consist mostly of a deep-drawn plastic or aluminium foil and their advantage, when compared to pouches, lies in the fact that they have an air-tight seal and that certain manufacturers fill them with a protective gas containing the coffee aroma as well. Such pre-proportioned single-serving units are available for approximately 10 different coffee fillings. Due to this variety the consumer is able to stock smaller amounts of different types of coffee. In addition, the use of these single-serving units in conjunction with the special brewing heads of those espresso machines equipped to process such single-serving units results in a reliably constant optimum brew. Mock at [0026]: "The **packaging comprises a side wall, an end wall** and a closure element comprising a welded seal." Mock at [0027]: "The packaging according to the invention may be produced with very diverse shapes and in very diverse materials. It may be rigid, for example made of thermoforming plastic or

	stamping thin metal sheet, for example made of aluminum, and have an outline that is, for example, circular, rectangular or hexagonal." Panesar at p. 9, ll. 8–23: 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. The beverage flow path is defined by spatial inter-relationships between the outer member 2, inner member 3 and laminate 5 as discussed below. Other components may optionally be included in the cartridge 1, such as a filter 4, as will be described further below. Panesar at p. 14, ll. 21–32: 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. The cast polypropylene layer is between 0.025 and 0.065 mm in thickness. In one embodiment the aluminium layer is 0.06 mm and the polypropylene layer is 0.025 mm 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 5 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. Roll laminate stock may be used instead of die cut stock. The cartridge 1 may be closed by a rigid or semi-rigid lid instead of a flexible laminate. *See also* Panesar at FIGs. 10-21.

	Yoakim at [0129]: The capsule can also comprise a cup-shaped body onto which the sealing lid is sealed. The cup-shaped body may also comprise gas barrier materials, such as metal, e.g., thin aluminium and/or plastic. Yoakim at [0215]: The body of the capsule can be made of plastic and/or aluminium or aluminium alloy. For example, it can be moulded by injection of plastic or deep drawn in aluminium. Yoakim at [0461]: FIGS. 45 to 50 are other variants of capsules according to the invention. For example, the capsule of FIG. 45 has a cylindrical side wall 700, an upper wall 701 and a lower wall 702 both sealed or connected to the sidewall 700. The capsule is gastight by choosing materials for the walls, e.g., aluminium and/or suitable plastics, which have gas barrier properties. *See also, e.g.,* Yoakim at [0414].
[1.g] and radially spaced and vertically oriented grooves,	The below cited art discloses, either expressly or inherently, radially spaced and vertically oriented grooves. *See, e.g.*: Boyd at [0015]: FIG. 2 g is a fragmentary view of an alternative embodiment packet, illustrating encoded data in the form of grooves. Boyd at [0029]: Examples of alternative embodiments are depicted in FIGS. 2 b through 2 h. In FIG. 2b the feature is geometric shape 32. The shape may be raised or lowered and may, or may not incorporate color, or some other machine-interpretably characteristic. FIG. 2c shows text string 33. The text string may consist of alpha-numeric characters and may be of various

	lengths including a single character. FIG. 2d shows glyph 34. The glyph may be any symbolic figure including a symbol used as a trademark. A digital watermark 35 is depicted in FIG. 2e. FIG. 2f shows notches 36. The notches may be localized to a particular area of the packet or may span its entire perimeter in singular or repetitive fashion. Grooves 37 are depicted in FIG. 2g. One or more grooves may be incorporated to create a texture. FIG. 2h shows holes. One or more holes may be used, which holes may be, of various shapes and sizes. The above-noted machine interpretable features; or other machine interpretable features, may similarly may be employed in combination or alone, such features being selected for their ability to store brewing directives and packet and/or ingredient-characteristic data, and for their cost of manufacture, aesthetic appearance, and ability to carry machine interpretal features which are capable of being successfully detected, read, and interpreted. Boyd at Fig. 2g:  Erickson at 5:9-26: The reservoir 14 of the container 12 is open at the top and includes a rim 24, a depending side wall 26 and a bottom wall 28. The rim 24 extends laterally and outwardly from the upper end of the wall 26 to facilitate pouring of the water or other liquid into the reservoir and movement of the coffee maker 10 without spilling. The wall 26 is cylindrical and is stepped and tapered inwardly and includes vertical ribs 30 for strengthening. The bottom wall 28, in the illustrative embodiment, is in the form of an annular shoulder and includes a relatively large central opening 32. As illustrated, the reservoir 14 of the invention is configured to contain the appropriate amount of water necessary to brew the desired amount of coffee and

	to provide the necessary hydrostatic pressure to the partition 20 to cause the partition 20 to allow the flow of water therethrough at the desired brewing temperature. Erickson at Fig. 1:  FIG. 1 Lazaris at [0028]: A typical beverage filter cartridge is depicted ay 50 in FIGS. 7 and 8A. The cartridge includes a cup-shaped base 51 having an inverted frustum-shaped side wall interrupted by surface irregularities indicated typically at 52 and comprising circumferentially spaced grooves. The cup-shaped base is closed by a lid 53. As herein employed, the term "surface irregularity" is intended to broadly encompass any deviation from a smooth surface than can mechanically interengage with adjacent components or surfaces of the housing 28. Non limiting examples

	of such surface irregularities may comprise a uniform array of grooves as shown in FIG. 8A, or pairs of oppositely disposed grooves 52 a in the side wall of a cartridge 50 a as shown in FIG. 8B, or a single surface irregularity such as the outwardly projecting rib 54 b in the side wall of cartridge 50 b as shown in FIG. 8C. Lazaris at [0039]: FIG. 6 illustrates an alternative embodiment of a cartridge holder in which the side wall of the housing 28 is provided with internal grooves 300″ configured and arranged to slidably receive and coact in mechanical interengagement with externally projecting ribs 52 c in the side wall of cartridge 50 c Still another embodiment of a cartridge holder is illustrated in FIGS. 9-11. The cartridge 50 d is of the type described in the above-referenced patent application Ser. No. 09/782,660, with generally flat side walls diverging upwardly from a bottom to a top opening closed by a lid 53 a. Oppositely facing side walls are provided with surface irregularities in the form of protruding somewhat triangular-shaped bosses 52 d. Lazaris at [0041]: The recesses 301 in the housing side walls coact with the bosses 52 d in the cartridge side wall to orientate the cartridge within the housing in one of two possible positions. Lazaris at Fig. 7:

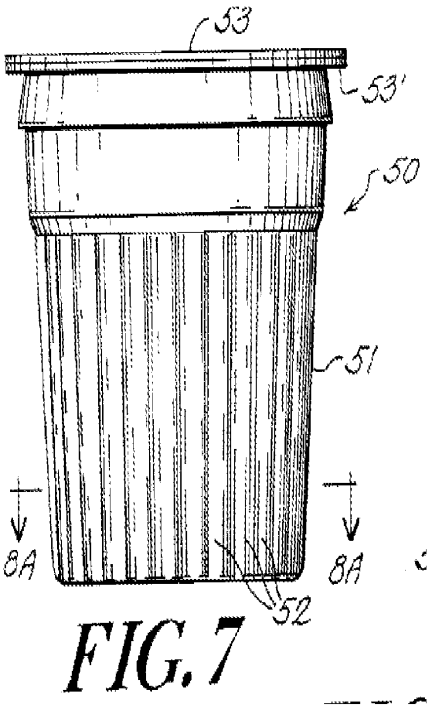


FIG. 7

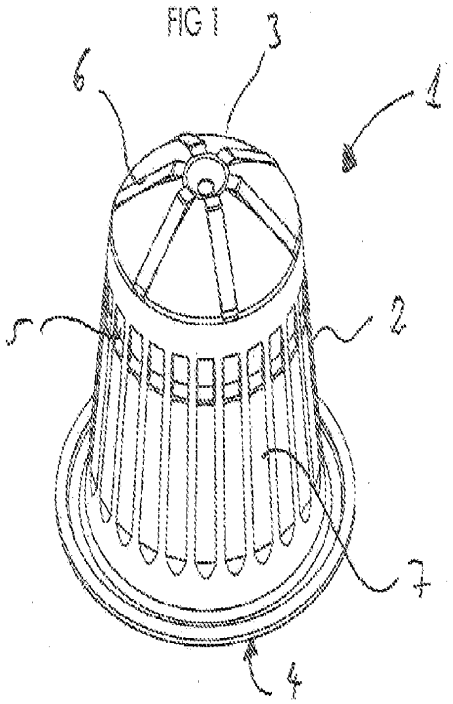
See also Lazaris at Fig. 8A.

Mariller at [0020]-[0032]:

List of numerical references used in the figures:

1. capsule
2. side wall
3. top wall
4. bottom wall
5. cavity
6. top wall stiffening element
7. side wall stiffening element
8. top edge stiffening element
9. internal protrusion
10. beading
11. weakened zone
12. piercing element

	Mariller at [0034]: a) The top part of the capsule is reinforced by an architecture known as an "exposed beams", "reinforcing" or "framework" architecture the purpose of which is to reinforce the capsule in its ability to withstand the pressure of the water and at the time of its perforation. It is also possible to obtain a reinforced structure using folds of material. The rigidity may also be reinforced using an architecture of the "exposed beams" or "framework" type which is concave in relation to the capsule (see FIG. 2). Mariller at [0037]-[0038]: c) On the outside of the capsule, opposite each projecting element or opposite a circumferential rim, a cavity is created which strengthens the lateral parts of the capsule through a framework effect while at the same time saving on material (see cross section) and in particular allows the use of biodegradable material and fine materials of the PET or metal type or any other petroleum-derived material. The lateral reinforcement of the capsule may also be created by folds of the material (see FIGS. 5-6). d) The outer lateral part of the capsule has facets which may extend as far as the vicinity of the bottom part of the capsule or over a certain distance in the heightwise direction. In this alternative form also, it is therefore possible to save on material while at the same time reinforcing the lateral parts of the capsule (see FIGS. 7-8). Mariller at Fig. 1:



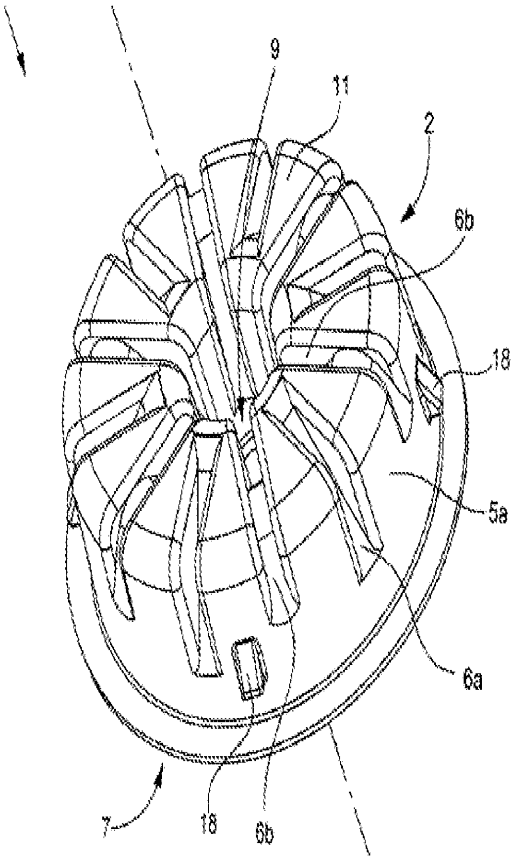
See also Mariller at Figs. 2, 7, 8.

Mock at [0027]:

The packaging according to the invention may be produced with very diverse shapes and in very diverse materials, It may be rigid, for example made of thermoforming plastic or stamping thin metal sheet, for example made of aluminum, and have an outline that is, for example, circular, rectangular or hexagonal.

Mock at [0036]:

According to another preferred embodiment, the part of the packaging from which the hollow shaft departs is produced with strengthening ribs and/or with ribs for positioning the nozzle, these ribs being formed, for example by thermoforming, as recesses in the end wall and the wall and being orientated toward the hollow shaft.

	Mock at [0077]: As can also be seen in FIGS. 2 and 3, in this first embodiment, the capsule 2 has ribs 6a, 6b extending from the hollow shaft 9 to the periphery. A first series of ribs 6a plays a part in reinforcing the capsule 2, and possibly in partitioning it as will be seen later on. A second series of ribs 6b is designed to prevent the nozzle from rotating in the packaging, as will be explained with reference to FIGS. 6 and 7. . . . Mock at FIGs. 1-2: 

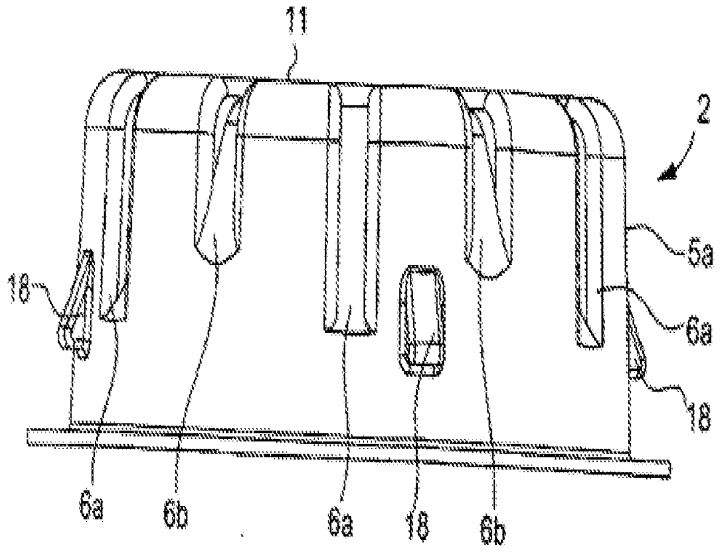


Fig.2

Rapparini at [0007]:

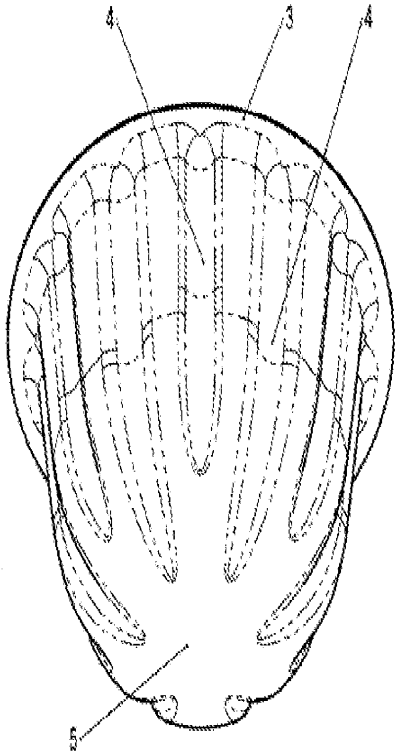
The present invention allows overcoming the problems and drawbacks of the systems known in the prior art. In particular, the present invention guarantees stability of the structure of filtering and permeable containers so that they can be easily handled in packaging and/or filling machines even when these machines operate at very high rates. Moreover, the present invention provides containers which are easily employed in automatic machines both for domestic and industrial use.

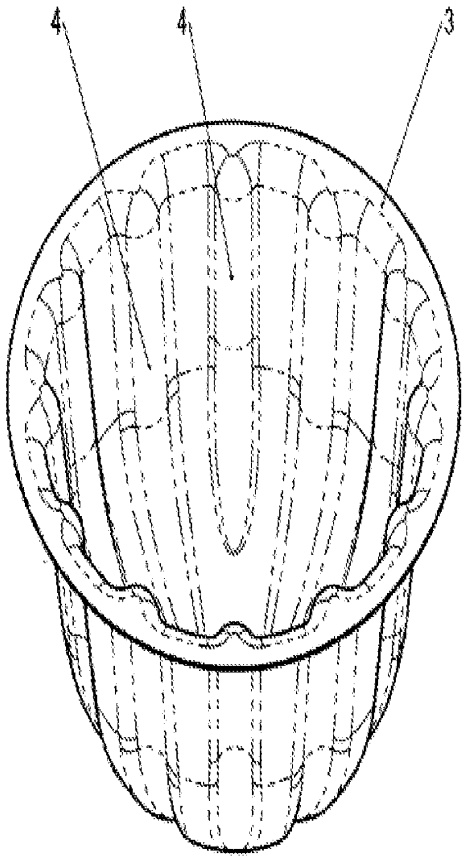
Rapparini at [0009]:

The present invention is based on the idea of providing the body of the container with longitudinal stiffening ribs wherein the length of the ribs is variable along the surface of the body. The presence of ribs having different lengths on the body of the container allows the optimization of the stability of the container. The modulation of the length of the ribs along the surface of the container allows improving the stability and rigidity of the system.

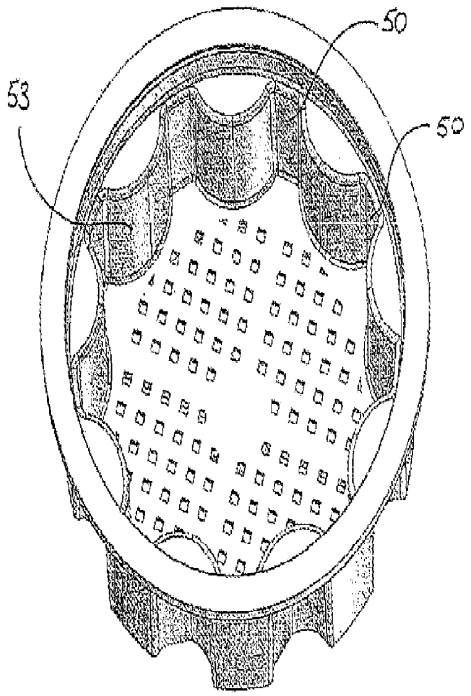
	Rapparini at [0010]: According to an embodiment of the present invention, a filtering and permeable container for substances suitable for the preparation of beverages is provided, the container being made by means of thermoforming starting from a flat strip of permeable, filtering and thermoformable material, wherein the body of the container comprises longitudinal stiffening ribs, wherein the length of the ribs is variable along the surface of the body. Rapparini at [0011]: According to a further embodiment of the present invention, a container is provided, wherein long and short ribs are alternated along the surface of the body. The stability of the container is accordingly optimized by providing for example long ribs extending at least partially in the bottom region of the container alternated to short ribs extending only along the side region of the container. Rapparini at [0013]: According to a further embodiment of the present invention, a container is provided, wherein at least along a portion of one or more of the ribs, the width of the ribs decreases toward the bottom of the container, so that said one or more of the ribs have a pointed shape. In this way the stability of the container is further optimized. In particular, the side portion of the body is stiffened by the presence of the stiffening ribs and the bottom portion is minimally altered by the presence of those ribs having a pointed shape pointing toward the bottom of the container. Rapparini at [0014]: According to a further embodiment of the present invention , a container is provided, wherein the stiffening ribs increase the filtering surface of the body. Rapparini at [0019]:

	According to a further embodiment of the present invention, a container is provided, wherein the container is adapted to be employed in automatic espresso machines. In particular, the container can be adapted to be employed for example for automatic domestic espresso machines or for industrial espresso machines. Rapparini at [0052]: Figures 6 and 6bis schematically display 3D views of the container according to an embodiment of the present invention. The container is provided with longitudinal stiffening ribs 4, and the length L of the stiffening ribs 4 is variable along the surface of the body 2 of the container. In particular, long and short ribs are alternated along the surface of the body 2. The long ribs extends toward the bottom region 5 of the container. In particular, the long ribs occupy a portion of the bottom region 5 of the container. The container has a cup-shaped bottom region 5. The long stiffening ribs occupy, therefore, a portion of the cup-shaped bottom region 5. Each short rib is placed between two long ribs and extends along the lateral region of the container. Accordingly, the stabilization of the structure is optimized and, at the same time, the filtering surface of the container is increased. Rapparini at FIG. 6 bis:

	 FIG. 6 bis

	Rapparini at FIG. 6:  Rubino at [0009]: The present invention provides several relevant advantages. The main advantage lies in the fact that the internal grooves of the capsule attain optimal flow conditions for the liquid passing through the capsule itself, to the advantage of the quality and repeatability of the end beverage and also of the correct operation of the associated machines, which are not subject to unforeseeably variable flow conditions. Rubino at [0012]:

	The capsule 1 comprises a main body of substantially cylindrical overall geometry, which has just a longitudinal axis of symmetry A. In particular, the main body is comprised of a top face 2 and a bottom face 3 having a substantially circular contour, and of a lateral surface or skirt 4 bearing a plurality of grooves that will be detailed hereinafter. Such top and bottom faces 2 and 3 and lateral skirt 4 define an internal housing 10 of the capsule 1, better seen in Figures 7 and 8, receiving the ground coffee. Rubino at [0018]-[0019]: As mentioned above, in correspondence of its lateral skirt 4 the main body of the capsule 1 has a plurality of concave external grooves 5, identical the one to the other and equally distributed over the entire lateral extension of the skirt 4 itself according to an axial geometry. The grooves 5 develop in a direction substantially parallel to axis A of the capsule 1 and are partitioned by external longitudinal ribs 52. Also the latter are identical the one to the other, equally distributed over the entire lateral extension of the skirt 4, and develop along a direction substantially parallel to the axis A of the capsule 1. As it is better seen in Figure 8, the external ribs 52 are internally hollow, thereby producing in correspondence of the housing 10 a plurality of grooves or internal notches 50 of the capsule itself. Therefore, said internal notches 50 define longitudinal portions of the housing 10 inside which part of the ground coffee is received. The presence and arrangement of the notches 50 allows, as already mentioned above, optimal conveyance of the extraction fluid within the capsule 1, preventing stagnation, allowing to accurately control and foresee the properties of said flow and generally to optimize the extraction process. Rubino at Claim 1: A capsule (1) of the type containing or apt to contain a substantially granular infusion for making beverages such as coffee and the like in an extraction process providing the passing through the capsule itself by an extraction fluid, said capsule (1) comprising a main body (2, 3, 4) defining an internal housing (10) apt to receive said infusion (C), characterized in that said main body (2, 3, 4) has, in correspondence of at least part of the lateral wall (4) of said housing (10), a plurality of internal longitudinal grooves (50) arranged substantially in the

	direction of the extraction fluid flow and apt to convey such a fluid through the capsule (1) itself. Rubino at Fig. 8:  FIG. 8 *See also* Rubino at Claims 2, 3, 6; Figs. 1-4, 7. Sweeney at Abstract: A beverage filter cartridge includes a cup-shaped outer container with a bottom and a side wall extending upwardly from the bottom wall to a circular rim surrounding an upper opening. The side wall has an upper section extending downwardly from the rim to an intermediate section, and a tapered lower section configured to provide a plurality of circumferentially spaced flutes extending downwardly from the intermediate section to the

	bottom wall. A filter element subdivides the interior of the container into first and second chambers. A beverage medium is stored in the first chamber. A cover is joined to the side wall at the rim to close the upper opening. The cover is yieldably piercable to accommodate an injection of liquid into the first chamber for combination with the beverage medium to produce a beverage. The filter element is permeable to accommodate a flow of the beverage from the first chamber into the second chamber, and the bottom wall is yieldably piercable to accommodate an outflow of the beverage from the second chamber to the exterior of the cartridge. Sweeney at 2:20-35 In accordance with the present invention, the container side wall is provided with circumferentially spaced flutes which are strategically positioned to enhance resistance to buckling without interfering with or compromising the integrity of the seal between the side wall and the filter component. The location at which the filter component is joined to the interior side wall of the container is lowered to achieve a beneficial increase in beverage medium storage capacity. This location is defined by a tapered circular ledge against which the tapered filter component is reliably sealed. The channels formed between the circumferentially spaced flutes serve to efficiently direct the brewed beverage downwardly towards the pierced container bottom, with an accompanying beneficial increase in turbulence in the head space defined between the filter element and container side wall. Sweeney at 2:47-55 In a third embodiment of the present invention, the circumferentially spaced flutes protrude sufficiently inwardly into the container interior to radially contact the filter element at circumferentially spaced locations. This radial contact beneficially guides the filter element into its centrally located position during assembly of the cartridge components, and, during the processing cycle, provides radial support which resists distortion and possible bursting of the filter element.

	Sweeney at 3:65-4:8 The lower tapered wall section 20 c is configured to provide a plurality of circumferentially spaced flutes 20 e, the upper ends of which terminate beneath the intermediate section defined by ledge 20 b, and the lower ends of which terminate as indentations in the bottom wall 18. It will be seen from FIG. 8 that the depths "d" of the flutes 20 e gradually increase from a minimum at their upper ends to a maximum at their lower ends. Likewise, as can be seen from FIG. 7, the widths "w" of the flutes also gradually increase from a minimum at their upper ends to a maximum at their lower ends. Sweeney at 5:11-19 In all embodiments, the downwardly diverging and gradually deepening of the flutes serves to promote downward flow of the brewed beverage in chamber B while beneficially encouraging turbulence. The upwardly protruding bosses 18 a, 318 a on the container bottoms of the first and third embodiments provide readily accessible support platforms for the bottoms of the filter elements. Securing the bottoms of the filter elements to the bosses 18 a, 218 a insures that the filter elements will not be punctured by the outlet probe 30. Sweeney at Fig. 1:

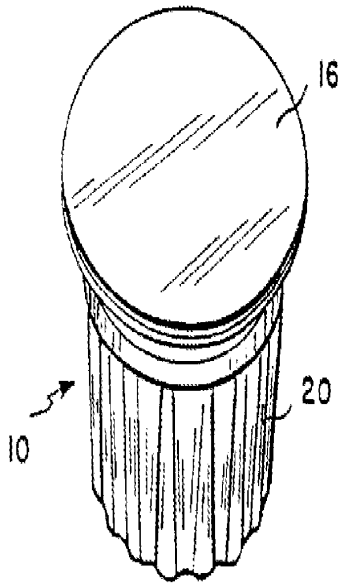


FIG. 1

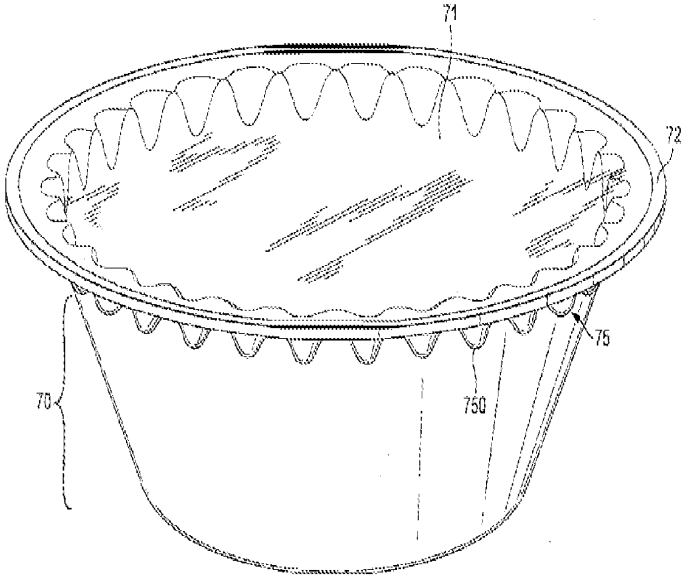
See also Sweeney at Figs. 2, 3, 5, 7, 9-11, and 15.

Yoakim at [0161]:

In yet another embodiment, the surface of the capsule comprises a toothed structure.

Yoakim at [0215]:

FIG. 23 illustrates another capsule of the invention. The capsule comprises means for connecting it to the external rotational driving means of the device. For this, capsule has a toothed structure 75 on at least one of its outer surface. The capsule has a body 70 comprising an upper edge 72 which can be closed by an upper membrane 71. The toothed structure comprises a series of teeth which is positioned below the edge or rim 72 of the body of the capsule. The teeth are placed along the whole periphery of the body of the capsule. The body of the capsule can be made of plastic and/or aluminium or aluminium alloy. For example, it can be moulded by injection of plastic or deep drawn in aluminium. For example, the shape of the teeth could be slightly triangular, oval, rectangular or pyramidal. It should be noticed that the

	teeth could be replaced by other equivalent structures such as series of elements in relief and/or hollow. For example, slits, pins or small needles can be envisaged. Yoakim at [0216]: The device itself that receives the capsule of FIG.23 comprises a toothed surface of complementary shape. FIG. 24 shows a capsule holder 44 adapted to receive the capsule of FIG. 23. The capsule holder has a cavity into which are provided hollow teeth 440. The hollow teeth are arranged to fit the teeth 750 on the outer surface of the capsule. Yoakim at FIG. 23:  FIG. 23
[1.h] the cavity has radially spaced and vertically oriented ribs,	The below cited art discloses, either expressly or inherently, the cavity has radially spaced and vertically oriented ribs. *See, e.g.*:

	See [1.g]. Erickson at 5:9-26: The reservoir 14 of the container 12 is open at the top and includes a rim 24, a depending side wall 26 and a bottom wall 28. The rim 24 extends laterally and outwardly from the upper end of the wall 26 to facilitate pouring of the water or other liquid into the reservoir and movement of the coffee maker 10 without spilling. The wall 26 is cylindrical and is stepped and tapered inwardly and includes vertical ribs 30 for strengthening. The bottom wall 28, in the illustrative embodiment, is in the form of an annular shoulder and includes a relatively large central opening 32. As illustrated, the reservoir 14 of the invention is configured to contain the appropriate amount of water necessary to brew the desired amount of coffee and to provide the necessary hydrostatic pressure to the partition 20 to cause the partition 20 to allow the flow of water therethrough at the desired brewing temperature. Erickson at Fig. 1:

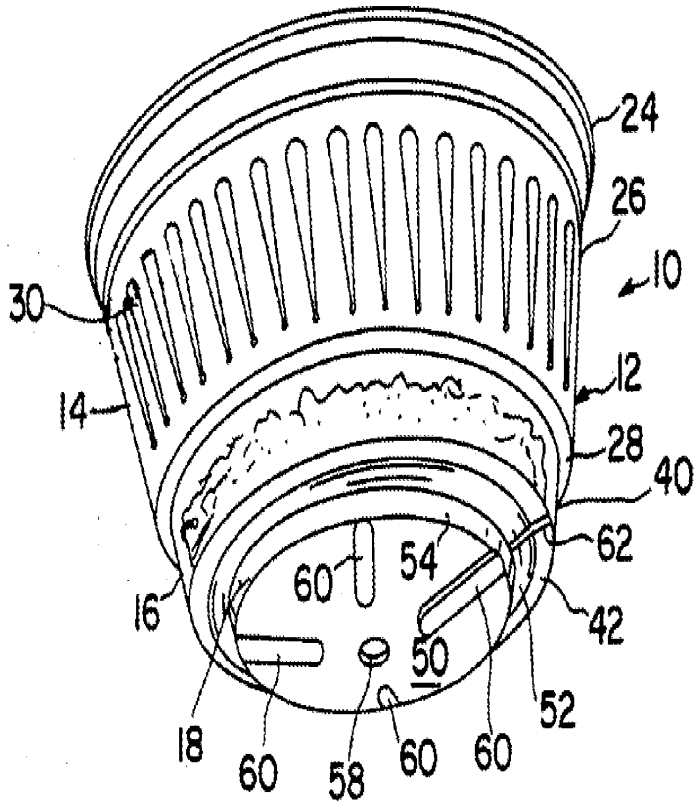


FIG. 1

Lazaris at [0012]:

In other embodiments of the present invention the interior surface of the housing is contoured to coact in mechanical interengagement with the surface irregularities in the cartridge side wall.

Lazaris at [0028]:

A typical beverage filter cartridge is depicted ay 50 in FIGS. 7 and 8A. The cartridge includes a cup-shaped base 51 having an inverted frustum-shaped side wall interrupted by surface irregularities indicated typically at 52 and comprising circumferentially spaced grooves. The cup-shaped base is closed by a lid 53. As herein employed, the term "surface irregularity" is intended to broadly encompass any deviation from a smooth surface than can mechanically

	interengage with adjacent components or surfaces of the housing 28. Non limiting examples of such surface irregularities may comprise a uniform array of grooves as shown in FIG. 8A, or pairs of oppositely disposed grooves 52 a in the side wall of a cartridge 50 a as shown in FIG. 8B, or a single surface irregularity such as the outwardly projecting rib 54 b in the side wall of cartridge 50 b as shown in FIG. 8C. Lazaris at [0039]: FIG. 6 illustrates an alternative embodiment of a cartridge holder in which the side wall of the housing 28 is provided with internal grooves 300″ configured and arranged to slidably receive and coact in mechanical interengagement with externally projecting ribs 52 c in the side wall of cartridge 50 c Still another embodiment of a cartridge holder is illustrated in FIGS. 9-11. The cartridge 50 d is of the type described in the above-referenced patent application Ser. No. 09/782,660, with generally flat side walls diverging upwardly from a bottom to a top opening closed by a lid 53 a. Oppositely facing side walls are provided with surface irregularities in the form of protruding somewhat triangular-shaped bosses 52 d. Lazaris at [0041]: The recesses 301 in the housing side walls coact with the bosses 52 d in the cartridge side wall to orientate the cartridge within the housing in one of two possible positions. Lazaris at Fig. 7:

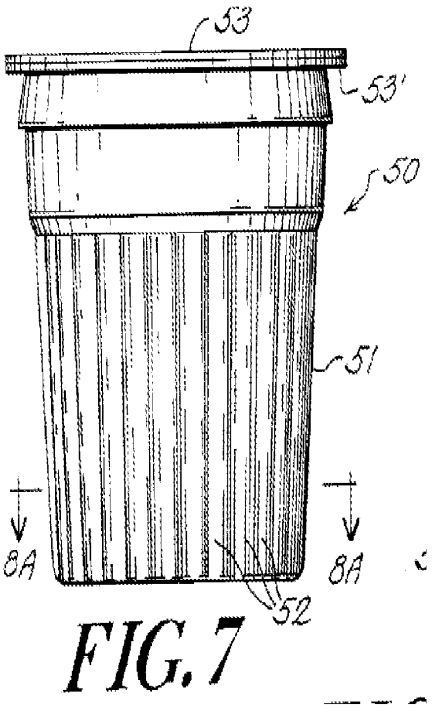


FIG. 7

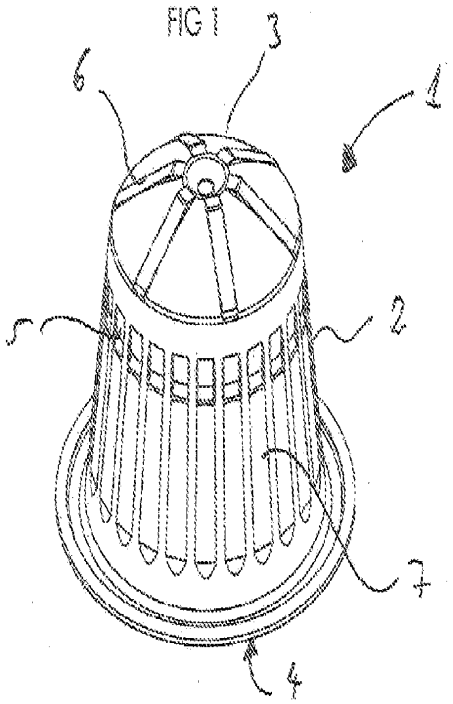
See also Lazaris at Fig. 8A.

Mariller at [0020]-[0032]:

List of numerical references used in the figures:

1. capsule
2. side wall
3. top wall
4. bottom wall
5. cavity
6. top wall stiffening element
7. side wall stiffening element
8. top edge stiffening element
9. internal protrusion
10. beading
11. weakened zone
12. piercing element

	Mariller at [0034]: a) The top part of the capsule is reinforced by an architecture known as an "exposed beams", "reinforcing" or "framework" architecture the purpose of which is to reinforce the capsule in its ability to withstand the pressure of the water and at the time of its perforation. It is also possible to obtain a reinforced structure using folds of material. The rigidity may also be reinforced using an architecture of the "exposed beams" or "framework" type which is concave in relation to the capsule (see FIG. 2). Mariller at [0037]-[0038]: c) On the outside of the capsule, opposite each projecting element or opposite a circumferential rim, a cavity is created which strengthens the lateral parts of the capsule through a framework effect while at the same time saving on material (see cross section) and in particular allows the use of biodegradable material and fine materials of the PET or metal type or any other petroleum-derived material. The lateral reinforcement of the capsule may also be created by folds of the material (see FIGS. 5-6). d) The outer lateral part of the capsule has facets which may extend as far as the vicinity of the bottom part of the capsule or over a certain distance in the heightwise direction. In this alternative form also, it is therefore possible to save on material while at the same time reinforcing the lateral parts of the capsule (see FIGS. 7-8). Mariller at Fig. 1:



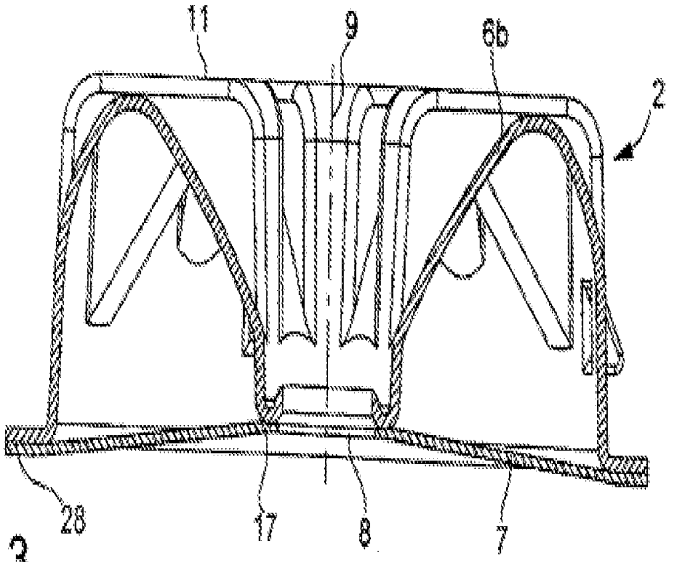
See also Mariller at Figs. 2, 7, 8.

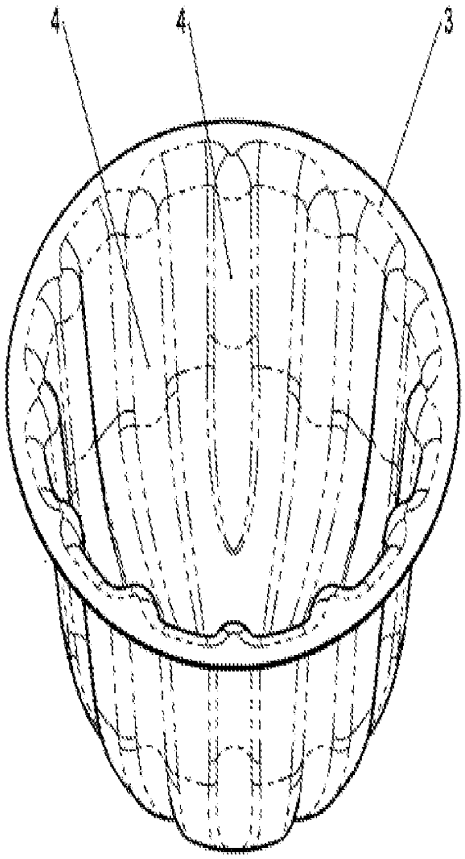
Mock at [0027]:

The packaging according to the invention may be produced with very diverse shapes and in very diverse materials. It may be rigid, for example made of thermoforming plastic or stamping thin metal sheet, for example made of aluminum, and have an outline that is, for example, circular, rectangular or hexagonal.

Mock at [0036]:

According to another preferred embodiment, the part of the packaging from which the hollow shaft departs is produced with strengthening ribs and/or with ribs for positioning the nozzle, these ribs being formed, for example by thermoforming, as recesses in the end wall and the wall and being orientated toward the hollow shaft.

	Mock at [0077]: As can also be seen in FIGS. 2 and 3, in this first embodiment, the capsule 2 has ribs 6a, 6b extending from the hollow shaft 9 to the periphery. A first series of ribs 6a plays a part in reinforcing the capsule 2, and possibly in partitioning it as will be seen later on. A second series of ribs 6b is designed to prevent the nozzle from rotating in the packaging, as will be explained with reference to FIGS. 6 and 7. . . . *See* FIG. 3.  Fig.3 Rapparini at FIG. 6:



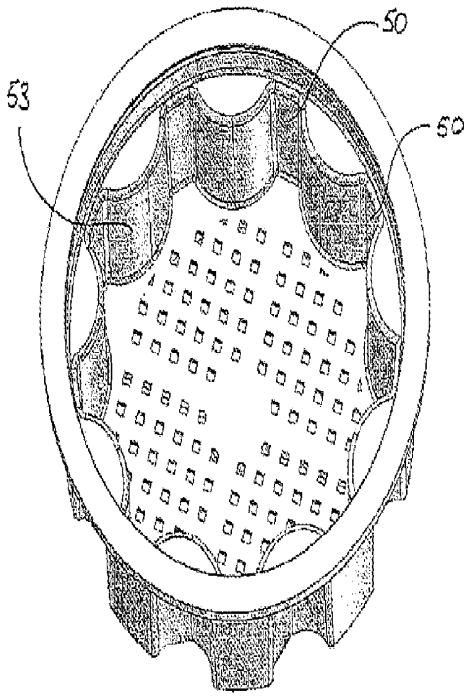
Rubino at [0009]:

The present invention provides several relevant advantages. The main advantage lies in the fact that the internal grooves of the capsule attain optimal flow conditions for the liquid passing through the capsule itself, to the advantage of the quality and repeatability of the end beverage and also of the correct operation of the associated machines, which are not subject to unforeseeably variable flow conditions.

Rubino at [0012]:

The capsule 1 comprises a main body of substantially cylindrical overall geometry, which has just a longitudinal axis of symmetry A. In particular, the main body is comprised of a top face 2 and a bottom face 3 having a substantially circular contour, and of a lateral surface or skirt 4

	bearing a plurality of grooves that will be detailed hereinafter. Such top and bottom faces 2 and 3 and lateral skirt 4 define an internal housing 10 of the capsule 1, better seen in Figures 7 and 8, receiving the ground coffee. Rubino at [0018]-[0019]: As mentioned above, in correspondence of its lateral skirt 4 the main body of the capsule 1 has a plurality of concave external grooves 5, identical the one to the other and equally distributed over the entire lateral extension of the skirt 4 itself according to an axial geometry. The grooves 5 develop in a direction substantially parallel to axis A of the capsule 1 and are partitioned by external longitudinal ribs 52. Also the latter are identical the one to the other, equally distributed over the entire lateral extension of the skirt 4, and develop along a direction substantially parallel to the axis A of the capsule 1. As it is better seen in Figure 8, the external ribs 52 are internally hollow, thereby producing in correspondence of the housing 10 a plurality of grooves or internal notches 50 of the capsule itself. Therefore, said internal notches 50 define longitudinal portions of the housing 10 inside which part of the ground coffee is received. The presence and arrangement of the notches 50 allows, as already mentioned above, optimal conveyance of the extraction fluid within the capsule 1, preventing stagnation, allowing to accurately control and foresee the properties of said flow and generally to optimize the extraction process. Rubino at Claim 1: A capsule (1) of the type containing or apt to contain a substantially granular infusion for making beverages such as coffee and the like in an extraction process providing the passing through the capsule itself by an extraction fluid, said capsule (1) comprising a main body (2, 3, 4) defining an internal housing (10) apt to receive said infusion (C), characterized in that said main body (2, 3, 4) has, in correspondence of at least part of the lateral wall (4) of said housing (10), a plurality of internal longitudinal grooves (50) arranged substantially in the direction of the extraction fluid flow and apt to convey such a fluid through the capsule (1) itself.

	Rubino at Fig. 8:  FIG. 8 *See also* Rubino at Claims 2, 3, 6; Figs. 1-4, 7. Sweeney at Abstract: A beverage filter cartridge includes a cup-shaped outer container with a bottom and a side wall extending upwardly from the bottom wall to a circular rim surrounding an upper opening. The side wall has an upper section extending downwardly from the rim to an intermediate section, and a tapered lower section configured to provide a plurality of circumferentially spaced flutes extending downwardly from the intermediate section to the bottom wall. A filter element subdivides the interior of the container into first and second chambers. A beverage medium is stored in the first chamber. A cover is joined to the side wall at the rim to close the upper opening. The cover is yieldably piercable to accommodate

	an injection of liquid into the first chamber for combination with the beverage medium to produce a beverage. The filter element is permeable to accommodate a flow of the beverage from the first chamber into the second chamber, and the bottom wall is yieldably piercable to accommodate an outflow of the beverage from the second chamber to the exterior of the cartridge. Sweeney at 2:20-35 In accordance with the present invention, the container side wall is provided with circumferentially spaced flutes which are strategically positioned to enhance resistance to buckling without interfering with or compromising the integrity of the seal between the side wall and the filter component. The location at which the filter component is joined to the interior side wall of the container is lowered to achieve a beneficial increase in beverage medium storage capacity. This location is defined by a tapered circular ledge against which the tapered filter component is reliably sealed. The channels formed between the circumferentially spaced flutes serve to efficiently direct the brewed beverage downwardly towards the pierced container bottom, with an accompanying beneficial increase in turbulence in the head space defined between the filter element and container side wall. Sweeney at 2:47-55 In a third embodiment of the present invention, the circumferentially spaced flutes protrude sufficiently inwardly into the container interior to radially contact the filter element at circumferentially spaced locations. This radial contact beneficially guides the filter element into its centrally located position during assembly of the cartridge components, and, during the processing cycle, provides radial support which resists distortion and possible bursting of the filter element. Sweeney at 3:65-4:8

	The lower tapered wall section 20 c is configured to provide a plurality of circumferentially spaced flutes 20 e, the upper ends of which terminate beneath the intermediate section defined by ledge 20 b, and the lower ends of which terminate as indentations in the bottom wall 18. It will be seen from FIG. 8 that the depths "d" of the flutes 20 e gradually increase from a minimum at their upper ends to a maximum at their lower ends. Likewise, as can be seen from FIG. 7, the widths "w" of the flutes also gradually increase from a minimum at their upper ends to a maximum at their lower ends. Sweeney at 5:11-19 In all embodiments, the downwardly diverging and gradually deepening of the flutes serves to promote downward flow of the brewed beverage in chamber B while beneficially encouraging turbulence. The upwardly protruding bosses 18 a, 318 a on the container bottoms of the first and third embodiments provide readily accessible support platforms for the bottoms of the filter elements. Securing the bottoms of the filter elements to the bosses 18 a, 218 a insures that the filter elements will not be punctured by the outlet probe 30. Sweeney at Fig. 1:

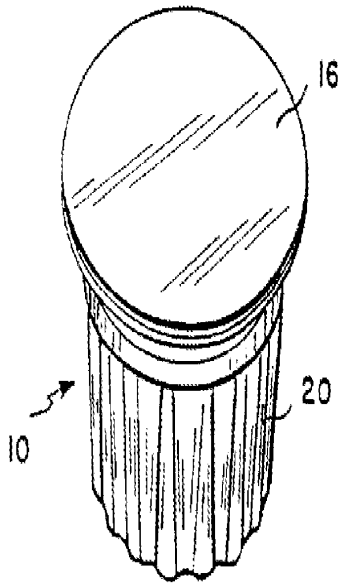


FIG. 1

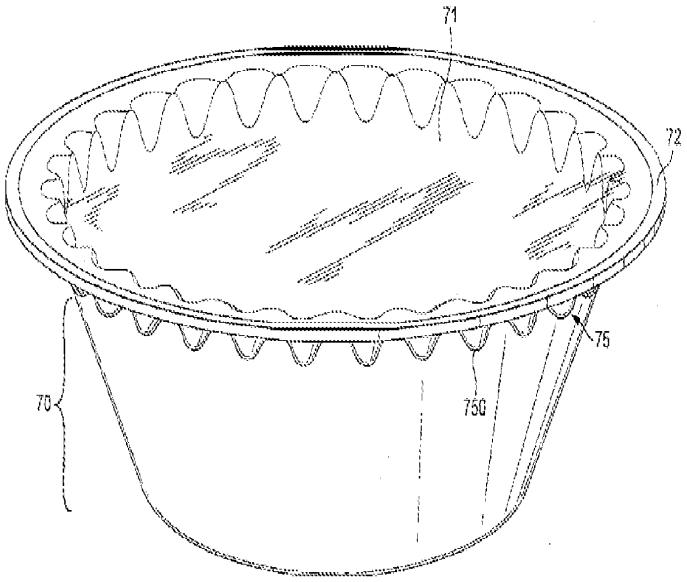
See also Sweeney at Figs. 2, 3, 5, 7, 9-11, and 15.

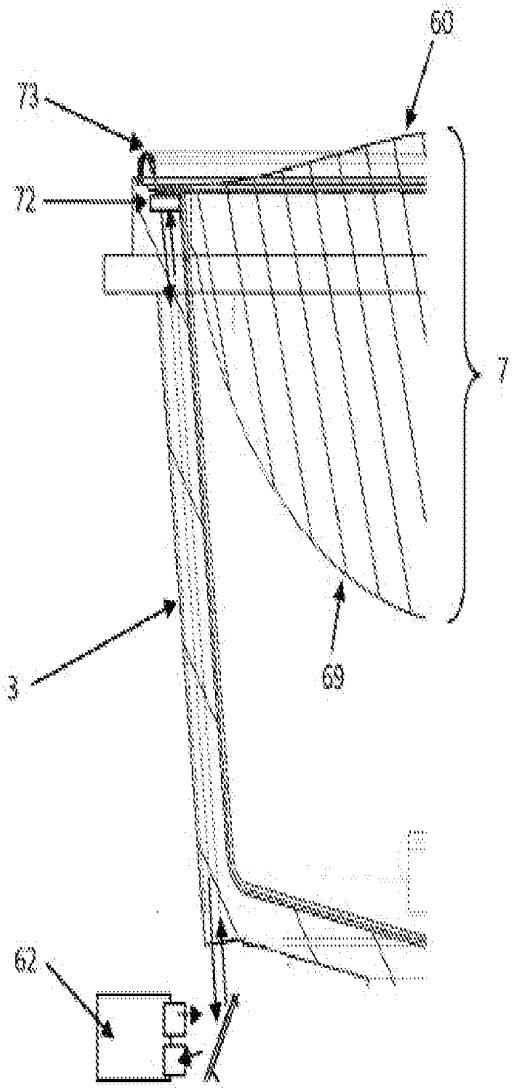
Yoakim at [0161]:

In yet another embodiment, the surface of the capsule comprises a toothed structure.

Yoakim at [0215]:

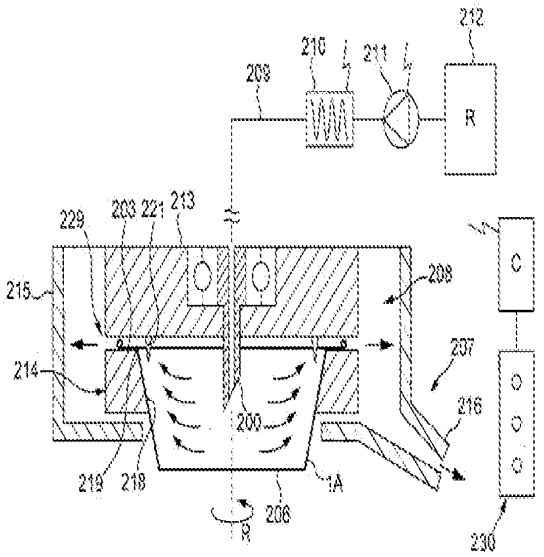
FIG. 23 illustrates another capsule of the invention. The capsule comprises means for connecting it to the external rotational driving means of the device. For this, capsule has a toothed structure 75 on at least one of its outer surface. The capsule has a body 70 comprising an upper edge 72 which can be closed by an upper membrane 71. The toothed structure comprises a series of teeth which is positioned below the edge or rim 72 of the body of the capsule. The teeth are placed along the whole periphery of the body of the capsule. The body of the capsule can be made of plastic and/or aluminium or aluminium alloy. For example, it can be moulded by injection of plastic or deep drawn in aluminium. For example, the shape of the teeth could be slightly triangular, oval, rectangular or pyramidal. It should be noticed that the

	teeth could be replaced by other equivalent structures such as series of elements in relief and/or hollow. For example, slits, pins or small needles can be envisaged. Yoakim at [0216]: The device itself that receives the capsule of FIG.23 comprises a toothed surface of complementary shape. FIG. 24 shows a capsule holder 44 adapted to receive the capsule of FIG. 23. The capsule holder has a cavity into which are provided hollow teeth 440. The hollow teeth are arranged to fit the teeth 750 on the outer surface of the capsule. Yoakim at FIG. 23:  FIG. 23
[1.i] the portion capsule being free of a filter,	The below cited art discloses, either expressly or inherently, the portion capsule being free of a filter. *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 FIG. 4:  Fig. 4

	Mahlich at [0004]: The invention concerns single-serving units for the simplified stocking of espresso machines with coffee powder. Increasingly, single-serving capsules or pouches are being used as single-serving units. The pouches enclose a certain amount of pre-portioned coffee powder within a transparent material similar to that of coffee filter paper. Compared to the previously common method of supplying the brewing head of an espresso machine with loose coffee powder, the use of pouches is advantageous due to the fact that the coffee powder contained therein is already pre-pressed, which is important for the generation of crema. 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. 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. 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. Yoakim at [0171]: In this mode, premade radial outlets for the brewed liquid are provided in the capsule. For instance, a series of slits are provide in the lid and/or body. When the capsule is driven in rotation, the brewed liquid can pass through the slits whereas the solid particles are retained in the capsule. An additional filtering layer can be used to filter the liquid depending on the size of the outlets. Yoakim at [0288]: The capsule may comprise a filter means to filter the centrifuged before the liquid is released from the outlets at the sidewall. Yoakim at [0343]: In a possible mode, the portion of wall with the outlet openings can be formed from a paper filter or woven, non-woven fibres, meshed material, porous polymer membrane or combination thereof. In this case, part of the portion of wall can be formed by a band or different parts of the filter, fibres or meshed material. . . . Yoakim at [0461]: FIGS. 45 to 50 are other variants of capsules according to the invention. For example, the capsule of FIG. 45 has a cylindrical side wall 700, an upper wall 701 and a lower wall 702 both sealed or connected to the sidewall 700. The capsule is gastight by choosing materials for the walls, e.g., aluminium and/or suitable plastics, which have gas barrier properties. The upper walls and lower walls can be flexible or rigid depending on said materials. For example, wall 701 can be a flexible sealing membrane welded on upper rim 703 of the body

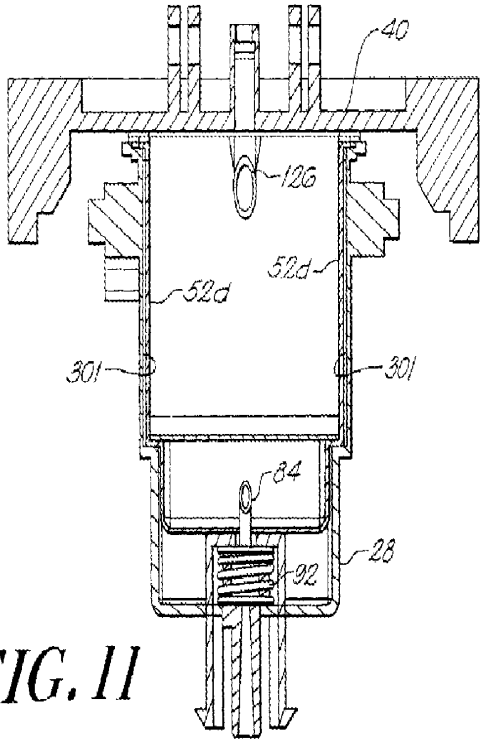
	705 forming the sidewall 700 and lower wall 702. The side wall 700 may comprise outlets 704, 706 for release of the liquid when centrifuged in the beverage preparation device around central axis AA of the capsule. Optionally, the capsule may comprise a filter part 708 delimiting the cavity 709 for the substance and a collecting recess 710 peripherally placed relative to the central cavity. Yoakim at FIG. 54:  FIG. 54
[1.j] the base element and/or the lid are made of metal;	The below cited art discloses, either expressly or inherently, the base element and/or the lid are made of metal. *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

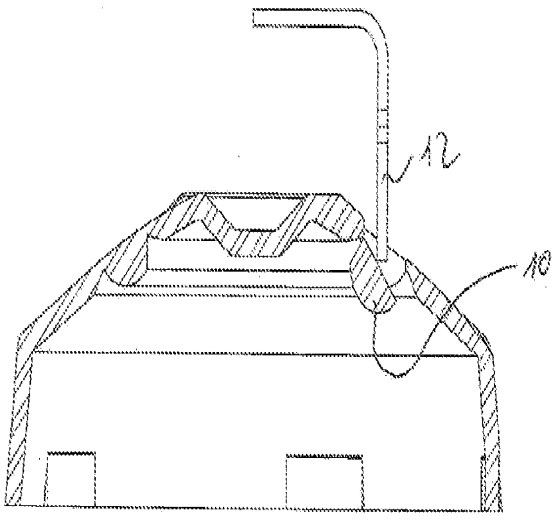
	Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is passed through the filter capsule to produce an espresso 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. *See also* [1]. 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.

	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. Mahlich at [0005]: The single-serving capsules consist mostly of a deep-drawn plastic or aluminium foil and their advantage, when compared to pouches, lies in the fact that they have an air-tight seal and that certain manufacturers fill them with a protective gas containing the coffee aroma as well. Such pre-proportioned single-serving units are available for approximately 10 different coffee fillings. Due to this variety the consumer is able to stock smaller amounts of different types of coffee. In addition, the use of these single-serving units in conjunction with the special brewing heads of those espresso machines equipped to process such single-serving units results in a reliably constant optimum brew. Yoakim at [0128]: The capsule can comprise a sealing lid. The sealing lid can comprise a flexible membrane. The membrane can comprise gas barrier and support layers made of polymers, aluminium and/or aluminium alloys. Yoakim at [0129]: The capsule can also comprise a cup-shaped body onto which the sealing lid is sealed. The cup-shaped body may also comprise gas barrier materials, such as metal, e.g., thin aluminium and/or plastic.

	Yoakim at [0215]: The body of the capsule can be made of plastic and/or aluminium or aluminium alloy. For example, it can be moulded by injection of plastic or deep drawn in aluminium. Yoakim at [0461]: FIGS. 45 to 50 are other variants of capsules according to the invention. For example, the capsule of FIG. 45 has a cylindrical side wall 700, an upper wall 701 and a lower wall 702 both sealed or connected to the sidewall 700. The capsule is gastight by choosing materials for the walls, e.g., aluminium and/or suitable plastics, which have gas barrier properties. *See also* [1.c].
[1.k] piercing the foil lid;	The below cited art discloses, either expressly or inherently, piercing the foil lid. *See, e.g.*: Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is passed through the filter 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. 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. Lazaris at [0010]: The holder of the present invention is designed for use in an apparatus for brewing a beverage by infusing heated liquid with a beverage medium contained in a single serve disposable cartridge. In one embodiment of the present invention, the holder is configured for use within a cartridge having an inverted frustum-shaped side wall specially contoured to provide at least one and preferably a plurality of strategically placed surface irregularities. The cartridge is removably received in a cup-shaped housing having a side wall configured and dimensioned to surround the cartridge side wall. Locating elements are arranged to coact with the one or plural surface irregularities in the cartridge side wall to rotatably immobilize the cartridge within the housing. A lid is mounted for manipulation between an open position

	accommodating insertion and removal of the cartridge, and a closed position confining the cartridge within the housing. Tubular probes associated with the lid and housing are arranged to pierce the thus confined cartridge to thereby accommodate a through flow of heated liquid for infusion with the beverage medium contained in the cartridge. Lazaris at [0037]: In FIG. 2B, the lid 40 has been lowered, resulting in the cartridge 50 and the cartridge platform 86 being forced downwardly against the action of spring 92. As a result, the cartridge lid and base are pierced respectively by the inlet and outlet probes 126, 84, thus accommodating a flow of heated liquid through the cartridge. The heated liquid infuses a beverage medium (not shown) contained in the cartridge to thereby produce a beverage which exits the cartridge via the outlet probe 84. Lazaris at Fig. 11:  FIG. 11 Mariller at [0020]-[0032]:

	List of numerical references used in the figures: 1. capsule 2. side wall 3. top wall 4. bottom wall 5. cavity 6. top wall stiffening element 7. side wall stiffening element 8. top edge stiffening element 9. internal protrusion 10. beading 11. weakened zone 12. piercing element Mariller at Fig. 12: FIG 12 

	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. 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. Panesar at p. 35 at line 32 – p. 33 at line 3:

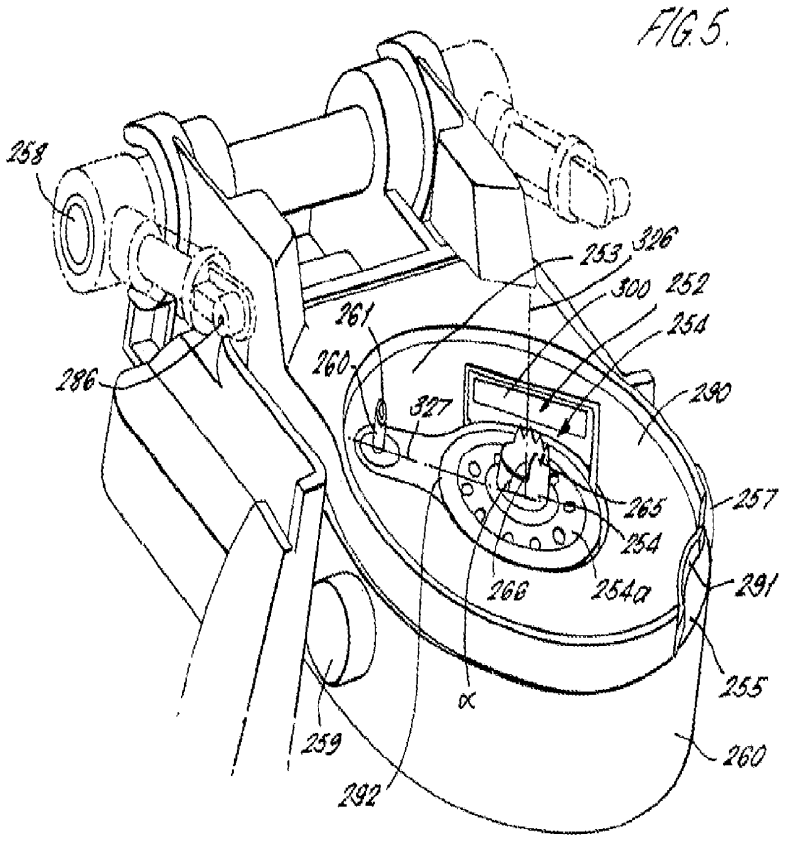
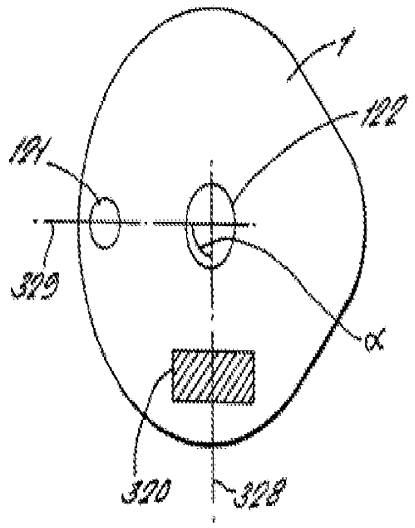
	During closure the inlet and outlet piercers 253, 254 pierce the laminate 5 of the cartridge 1 to form the cartridge inlet 121 and outlet 122. Panesar at FIG. 5:  Panesar at FIG. 10:

FIG. 10.

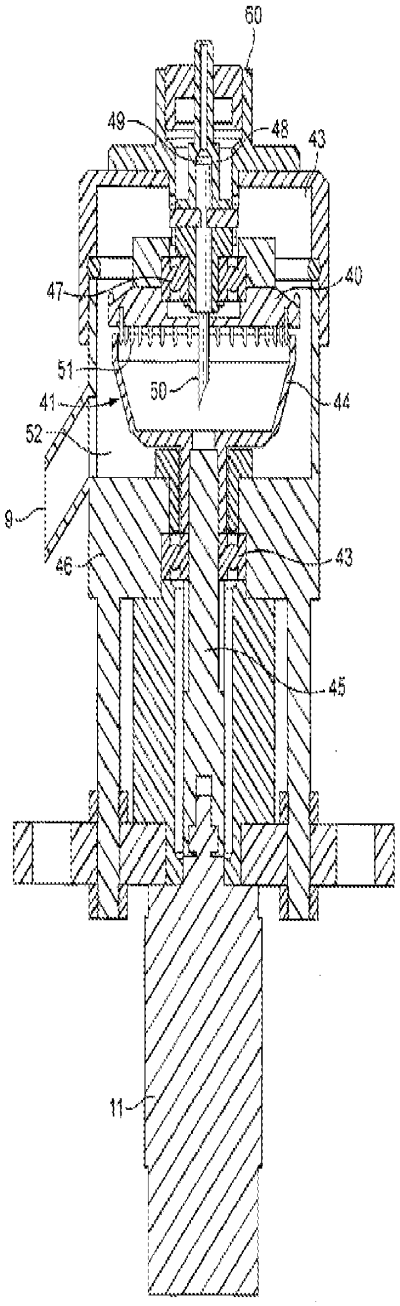


Sweeney at Abstract:

A beverage filter cartridge includes a cup-shaped outer container with a bottom and a side wall extending upwardly from the bottom wall to a circular rim surrounding an upper opening. The side wall has an upper section extending downwardly from the rim to an intermediate section, and a tapered lower section configured to provide a plurality of circumferentially spaced flutes extending downwardly from the intermediate section to the bottom wall. A filter element subdivides the interior of the container into first and second chambers. A beverage medium is stored in the first chamber. A cover is joined to the side wall at the rim to close the upper opening. The cover is yieldably piercable to accommodate an injection of liquid into the first chamber for combination with the beverage medium to produce a beverage. The filter element is permeable to accommodate a flow of the beverage from the first chamber into the second chamber, and the bottom wall is yieldably piercable to

	accommodate an outflow of the beverage from the second chamber to the exterior of the cartridge. Sweeney at 1:19-32: This beverage filter cartridge is comprised basically of an impermeable yieldably-piercable cup-shaped outer container internally subdivided by a permeable cone-shaped filter into first and second chambers. A granular or powdered dry beverage medium, e.g., roasted ground coffee, is stored in the first chamber, and the container is closed by an impermeable yieldably piercable lid. During a processing cycle, the lid and container bottom are pierced, respectively, by tubular inlet and outlet probes. The inlet probe admits heated liquid under pressure into the first chamber for infusion with the beverage medium, and the resulting brewed beverage passes through the filter into the second chamber from which it exits via the outlet probe for delivery to an underlying cup. Sweeney at 4:20-23: The lid may be cut or blanked from any suitable impermeable heat sealable and yieldably piercable material, such as for example, a metallic/polymer laminate supplied by Winpak Heat Seal Packaging, Inc. of Montreal, Canada. Sweeney at 4:35-42: At the onset of a processing cycle, the lid 16 and container bottom 18 are pierced, respectively, by tubular inlet and outlet probes 28, 30 (see FIG. 3). The inlet probe 28 admits a heated liquid, typically hot water, into chamber A where it infuses and combines with the beverage medium M to produce a beverage. The beverage passes through the filter element 14 into chamber B, from which it exits via outlet probe 30. Yoakim at [0186]:

	At the inside surface of the injection lid 40 is placed a piercing structure 450 which has the function of piercing the injection side 30 of the capsule. A water injector or lance 50 is provided which traverses the injection side 30 and which comprises an injection conduit for carrying water from the water circuit into the capsule. The water injector 50 is preferably located in the center of the capsule. Yoakim at [0187]: A series of needles 51 . . . positioned on the side of the lid 40 to form small perforations at the periphery of the upper side of the capsule. Yoakim at [0435]: About the water injector is mounted a capsule rotary engaging part 149. The engaging part 149 has a central bore for receiving the water injector and rotational guiding means such as a ball or needle bearing 150 inserted between the part 149 and the injector 145. The engaging part further comprises outlet piercing members 151,152, 153, 154 protruding from a disc-shaped engaging wall 155 of the part 149. The piercing members can be small cylindrical portions with a slanted cutting surface able to cut or perforate small holes in the sealing foil 103 of the capsule. The piercing members are arranged at the periphery of the wall 155, preferably evenly distributed to provide several openings in the capsule for the centrifuged liquid to leave the capsule forming several streams of liquid. . . .

	Yoakim at FIG. 4:  FIG. 4

Yoakim at FIG. 35:

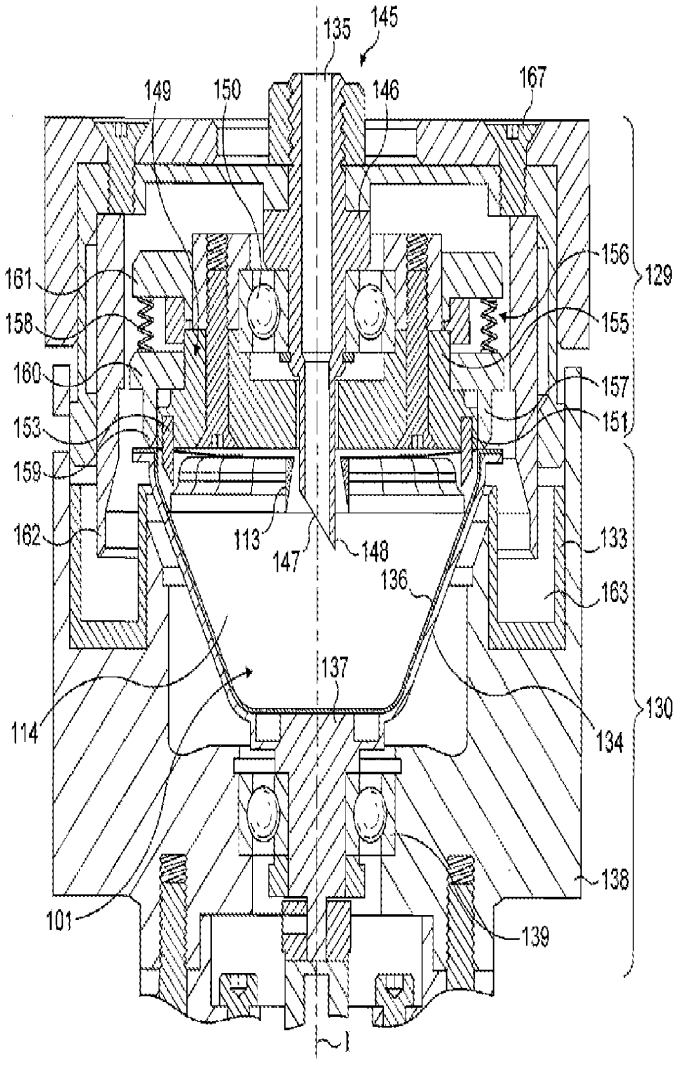
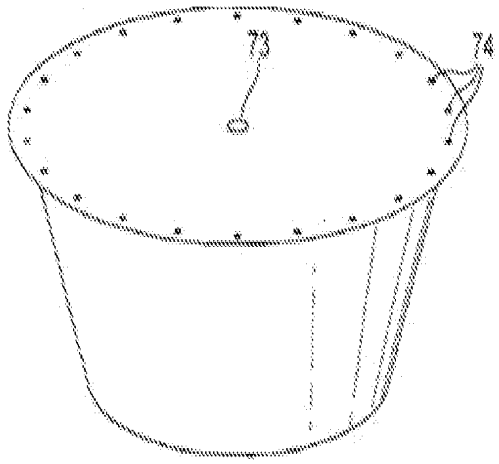
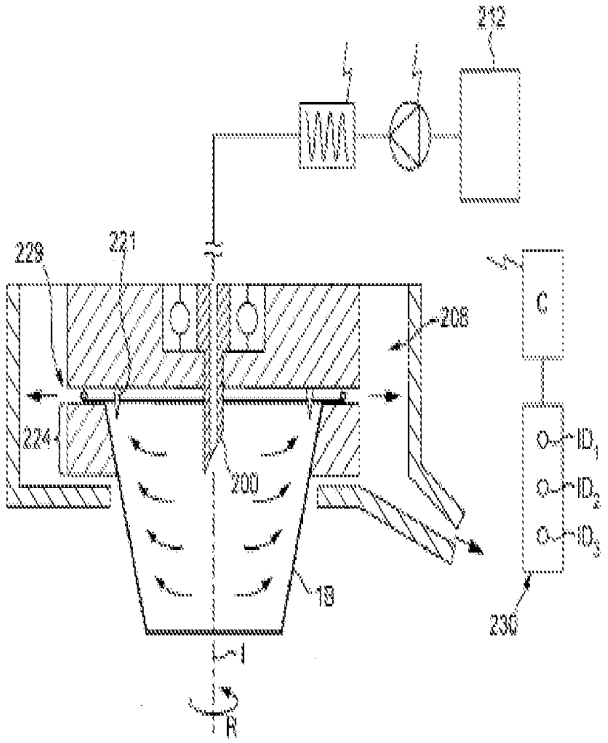


FIG. 35

Yoakim at [0507]:

. . . .The assembly 213 comprises a central injection needle 200 capable of being introduced precisely along the axis of rotation I of the capsule. At its periphery the interface assembly 213 can comprise a series of outlet perforators 221 for allowing centrifuged beverage to leave the

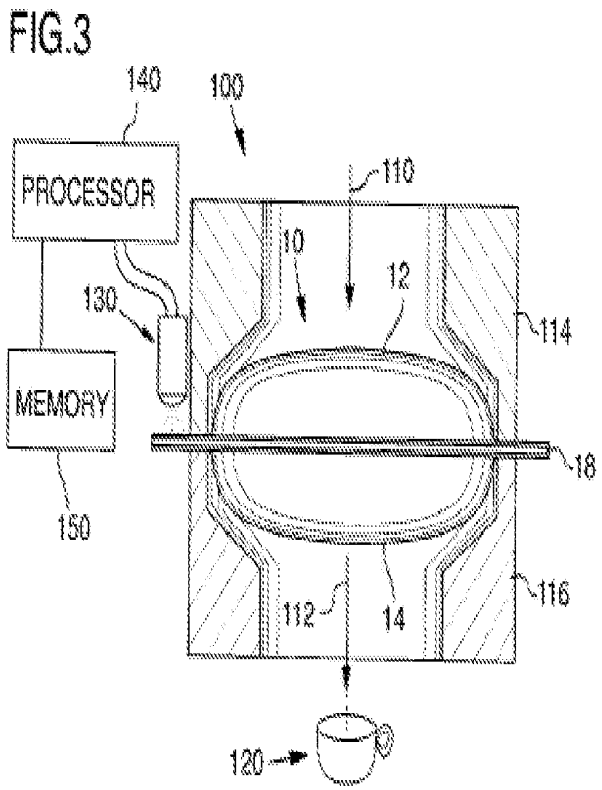
	capsule through the peripheral outlet 229 between the capsule holder 214 and the interface assembly 213. . . . Yoakim at FIG. 7:  FIG. 7 Yoakim at FIG. 55:

	 FIG. 55
[1.l] reading the barcode with the barcode reader;	The below cited art discloses, either expressly or inherently, reading the barcode with the barcode reader. *See, e.g.*: Boyd at [0006]: A brewing packet is provided for use in the preparation of hot or cold beverages. The brewing packet envel-ops a brewing ingredient chosen according to the tastes of a beverage drinker. The packet includes a machine interpretable feature that contains encoded data capable of being read by a beverage producing device. Furthermore, the data on the packet may be capable of directing the beverage producing device to employ a specific brewing operation suited for the particular brewing packet. This allows for producing the optimal beverage from 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. 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 [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:  Boyd at Fig. 4:

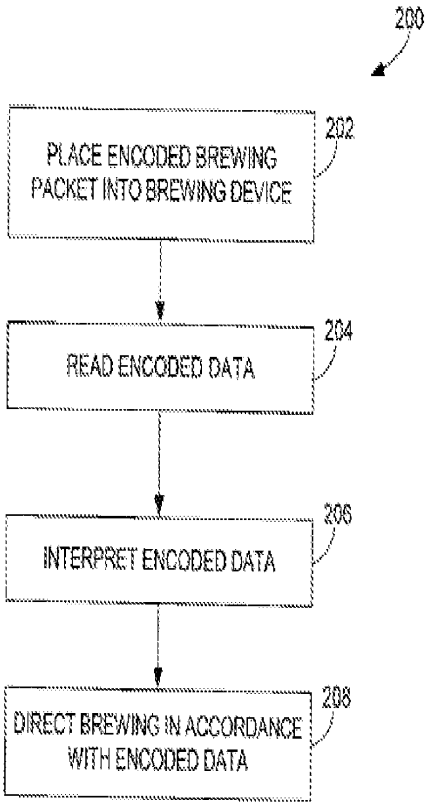


FIG. 4

Jarisch at [0022]:

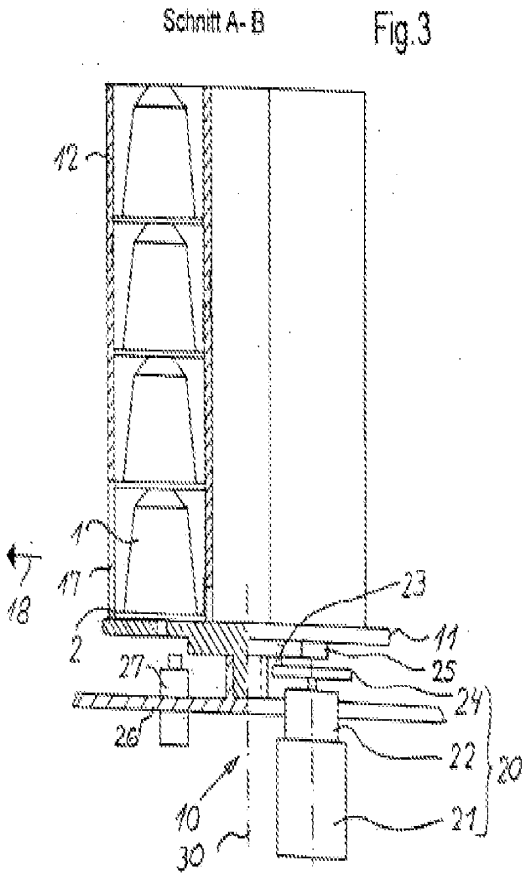
In another embodiment, the code is present on the rim of the capsule. In the most preferred embodiment, the code is present on the bottom of the rim of the capsule which is opposed to the lid of the capsule. The bottom of the rim is sufficiently away from the liquid injection and beverage delivery areas 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 [0064]-0064]: 2) Optical reading on rim bottom side of capsule (figures 4 to 7): 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. Jarisch at [0070]: The bit code is read by rotating the capsule along its central axis A. Lazaris at [0042]: It is contemplated that the housings may be mounted such that they do not pivot to automatically eject the cartridges at the end of the brewing cycle, thus requiring users to manually remove the used cartridges. The holder may also employ multiple inlet probes to increase liquid distribution within the cartridge. The inlet probes also may have different heights to improve saturation of the beverage medium within the cartridge. It is also contemplated that the brewer may include a control system for automatically determining the type of cartridge (e.g., the beverage medium within the cartridge) and adjust the brewing cycle accordingly. This may include providing machine readable data such as bar codes, data matrixes, dielectric encoding, etc, on a portion of the cartridge exterior accessible to a corresponding reader in the brewer. Mahlich at [0008]: It is thus the task of the present invention to equip the actual single-serving units to be selected with suitable machine readable identification whereby complicated voluminous double mirror scanners are not required for reading the identification code and whereby the accurate alignment of the single-serving pouch with regard to the scanner or its reading unit does not matter. In particular, the difficult process of aligning a rotation-symmetrical single-

	serving unit, whereby the shape of the capsule is mainly frustoconical and the pouch is mainly lozenge-shaped, is thus eliminated. Mahlich at [0010]: According to the invention, direct scanning or immediate reading of the identification on the single-serving unit, particularly of the single-serving capsule itself and not of any part of the storage magazine adjacent to the capsule, guarantees that the selected type of coffee is correctly identified with the single-serving unit and is actually being brewed after removal of the single-serving unit from the storage magazine. The identification can be read easily and accurately via an uncomplicated and compact reading head able to read in a linear manner, provided that the reading head is able to register the rotation-symmetrical identification. However, the rotational or angular position of the rotation-symmetrical identification with regard to the reading head that reads in a linear manner is not important, whereby the alignment of the single-serving unit with regard to the reading head is greatly simplified. In addition, the rotation-symmetrical identification is suitable for testing via a simple procedure according to claim 12. Mahlich at [0014]-[0016]: Apart from coffee type identification, the identification on any single-serving unit may also contain producer identification, whereby the latter in conjunction with an adapted evaluation system for controlling the espresso machine can block operation of the espresso machine if the producer identification on the single-serving unit does not correspond to the machine's preprogrammed producer identification. As mentioned above, an uncomplicated system for the registration of the machine readable identification on a single-serving unit according to the invention may consist of a registration device with at least one reading head able to read in a linear manner. The reading head comprises a reading sensor consisting of a transmitter scanning a luminous spot on the identification or part thereof, and of a decoder receiver. The latter may be equipped with a controlling device whereby the setting, particularly that of a magazine unit, can be controlled

	in order to convey the single-serving units containing the desired coffee type into the dispensing position. According to claim 7 the linear reading head is located in a compact and secure position below the magazine tubes of the magazine unit. The reading head is directed upwards towards the plane where the bases of the single-serving capsules are positioned within the magazine tubes, in such a way that the rotation-symmetrical identification on the base of the respective lowest single-serving capsule can be read. Mahlich at [0037] The support frame 26 also carries a reading head 27 mainly consisting of a scan transmitter and an encoder receiver. Reading head 27 is pointing from below towards the turntable 11 in such a way that it is able to register and scan the single-serving capsules stacked with their base facing downwards inside the magazine tubes 12 to 16 when the magazine tubes are moved across the reading head 27. For this purpose at least part of turntable 11 is transparent to the scanning of the ID code: windows 29 located below the magazine tubes 12 to 16 are designed as slits and are each arranged at equal radial distance to a main axis 30 of turntable 11, cf. FIG. 3. The ID codes 3 on the bases 2 of the single-serving capsules can be registered across their greatest radius r_1 and r_2 through these slits, according to FIG. la. In this case ID code 3 is being registered on entering and on leaving the reading station when the base 2 of the capsule, equipped with the ID code, passes on its circular path across reading head 27 arranged in front of dispensing station 18 in the direction of rotation 28 of the turntable. It is thus guaranteed, via comparison of the two registered ID codes as well as via data processing, that only one single-serving capsule 1 containing the desired coffee type is conveyed to the dispensing station 18, once the desired coffee type has been selected, for example by means of a control panel or a knob. Mahlich at Fig. 3:



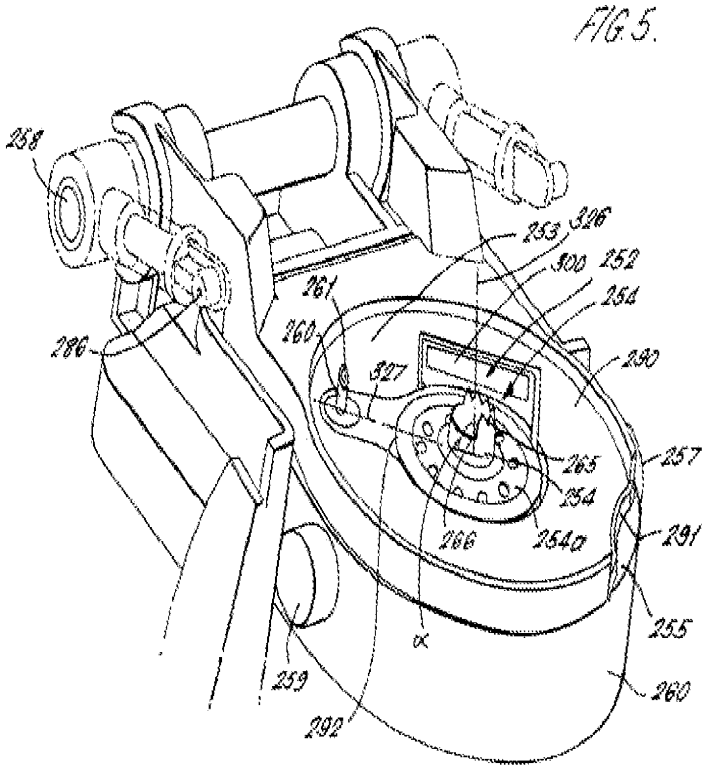
See also Mahlich at Claims 1-12.

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:

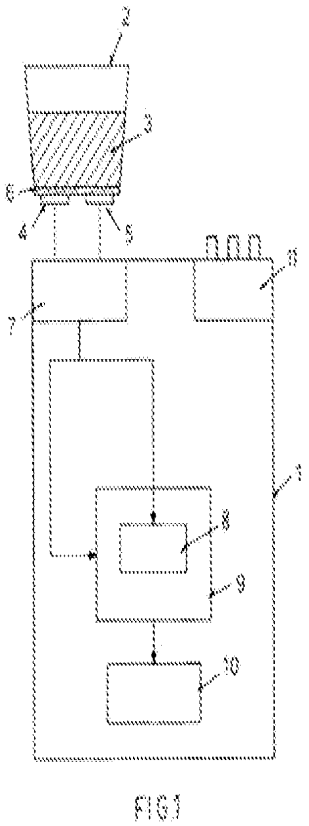
	Preferably the barcode reader or RFID reader window is located at or near a periphery of the brew head. Panesar at p. 34, ll. 5–26: The purpose of the recognition means 252 is to allow the machine 201 to recognize the type of beverage cartridge 1 that has been inserted and to adjust one or more operational 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 the cartridge 1. Panesar at FIG. 5:



Panesar at Claims 24, 27, 30.

Rossi at Abstract:

The process for controlling the operation of an edible-product making machine (1) of the type being fed with a single use load element (2) having a brewable or water soluble aromatic substance (3) for preparation of the edible product, comprises a first step of recognition wherein the edible-product making machine (1) recognises an identifying element (4) on the load element (2) allowing the edible-product making machine (1) to take further steps only if it also recognises on the load element (2) a validation element (5) to be validated, a second step of validation of the validation element (5), and a third step of activation wherein the edible-product making machine (1) automatically activates a cycle of production of the edible product only after having recognised on the load element (2) the identifying element (4) in combination with the validation element (5) as validated.

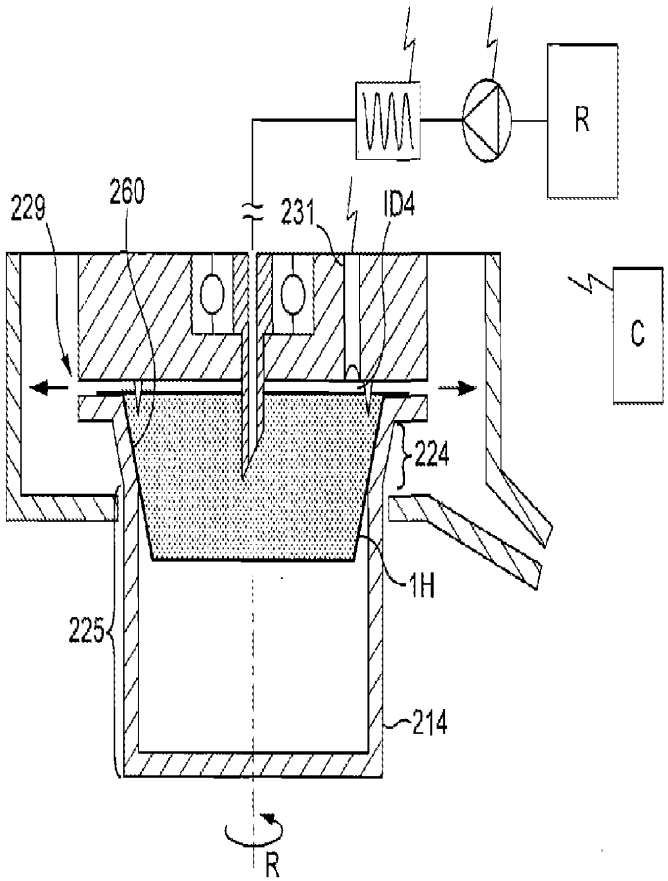
	Rossi at Fig. 1:  FIG 1 Rossi at 4: The technical task, as well as these and other objects, are achieved according to the present invention by a process for controlling the operation of an edible-product making machine of the type being fed with a single use load element having a brewable or water soluble aromatic substance for preparation of said edible product, characterised in that it comprises a first step of recognition wherein said edible-product making machine recognises an identifying element on said load element allowing said edible-product making machine to take further steps only if it also recognises on said load element a validation element to be validated, a second step of validation of said validation element, and a third step of activation wherein said edible-product making machine automatically activates a cycle of production of said edible product

	only after having recognised on said load element said identifying element in combination with said validation element as validated. Rossi at 6: The process of the present invention comprises a first step of the edible-product making machine recognising an identifying element on the load element. This can optionally be through an infra red (IR) wave communication channel, a radio frequency (RF) wave communication channel, or an optical wave communication channel. The user may hold the identifying element on the load element up against recognition means located externally on the edible-product making machine. Rossi at 9: The load element of the system comprises an identifying element for its recognition and a validation element for its validation. These are preferably in the form of barcodes, antennae, or paints having optically measurable properties. The machine comprises means for recognising the load element and the validation element, such as at least one infra red barcode reader, radio frequency wave transmitter and receiver, or optical sensor. These are preferably located externally on a lateral wall of the capsule, externally on the protective packaging of the capsule, or externally on the protective sheet on the outlet base of the capsule. Rossi at 10: Figure 1 shows a schematic view of one embodiment of the system of the present invention. With reference to the above figure, the system comprises an edible-product making machine 1 and a single use load element in the form of a capsule 2. The load element contains a brewable or water soluble aromatic substance 3 for preparation of an edible product. The capsule 2 comprises an identifying element in the form of a barcode 4 and a validation element also in the form of a barcode 5, both located externally on a protective sheet 6 of the outlet base of the capsule. The machine 1 comprises recognising means in the form of an infrared barcode reader 7. This is connected to checking means 8 stored within a control unit 9 of the machine. The checking means allow the machine activation means 10 to be engaged

	only if the barcode reader 7 recognises the identification barcode 4 and the validation barcode 5. The machine 1 further comprises validation means in the form of a mechanical tool 11 having a plurality of tips for destroying the validation barcode 5, for example by ripping, cutting, scratching or piercing, such that the barcode reader 7 cannot recognise it as an unvalidated validation barcode. If, after the positive signal from the checking means 8 from the first recognition of the identification and validation barcodes 4,5, the barcode reader 7 performs a second recognition of the identification barcode 4 combined with the validated validation barcode 5, the activation means 10, connected to the barcode reader 7 through the control unit 9, automatically activate a cycle of production of the edible product. Rossi at Claim 15. Yoakim at [0025]: The device is useful for preparing beverages from a plurality of different capsules, in which case it further comprises identification means for identifying the different capsules, and control means capable of operating the device in centrifugation for any of the different capsules according to predetermined liquid food preparation parameters including the flow rate and the volume of liquid to be injected into the capsule, with the identification means comprising capsule recognition means which are recognized by sensing means connected to the control means of the device to control the preparation parameters accordingly. Yoakim at [0192]: Therefore, as much as two, three, four or even more different flow rates and/or speed ranges can be provided in function of the types of coffee to be delivered. Therefore, depending on the types of beverage to be brewed, the control unit can be programmed to adjust the optical centrifugal conditions. For instance, the control unit may be associated to a capsule recognition system enabling to recognize the types of capsules, i.e., espresso, lungo, cappuccino, long coffee (e.g., 180-400 ml), latte, tea, etc., and to adjust the speed and/or other brewing parameters (e.g., water temperature) according the capsule which is inserted in the device. A recognition system uses a code on the capsule and recognized by the device, such as a color, a barcode, an RFID, a magnetic code, ferromagnetic micro-wires or labels, shapes and combinations thereof.

	Yoakim at [0477]: The capsule system further comprises an identification means associated to the different capsules in the set for identifying each capsule and adjusting brewing parameters accordingly. Yoakim at [0496]: The recognition means can be differentiable by a visual code such as a barcode, a colour, a sign, a logo, etc., or by a radio-frequency code (RFID), a magnetic element or by an identifiable shape. Yoakim at [0477]: The capsule system further comprises an identification means associated to the different capsules in the set for identifying each capsule and adjusting brewing parameters accordingly. The adjustable parameters can be the rotational speed, the back-pressure at the outlet of the capsule, and/or the volume of liquid fed in the capsule. The identification means participates to deliver a wider range of beverages having differentiated characteristics (volume, taste, strength, crema, colour, etc.). The identification means are associated to control means placed in the centrifugal brewing device which controls the adjustment of the said parameters, by controlling the rotational motor driving the capsule holder or/and the pump supplying liquid in the capsule. Yoakim at [0494]-[0496]: The identification means can be sensed by sensing means connected to the control means for an active control of the parameters or can be passive identification means, e.g., selective flow restriction means. In particular, the identification means comprises capsule recognition means which are recognized by the sensing means connected to the control means of the brewing device which controls the brewing parameters accordingly. The recognition means can be differentiable by a visual code such as a barcode, a colour, a sign, a logo, etc., or by a radio-frequency (RFID), a magnetic element or by an identifiable shape.

	Yoakim at [0525]: In an alternative illustrated in FIGS. 61 and 62, the identification means are directly associated to the different capsules. In this case, the identification means ID4 and ID5 are capsule recognition means attached to or embedded in the capsules. The recognition means can be any mechanical, optical, magnetic, or radio-frequency recognition means capable of delivering information to the brewing device, via a sensing device 231, as to which type of capsule is inserted in the device. For example, the recognition means is a barcode, a colour code, a RFID tag, a magnetically sensitive element, or a mechanical key or shape.

	Yoakim at FIG. 61:  FIG. 61 *See also* [1.a] and [1.e].
[1.m] determining whether the read barcode agrees with a stored reference; and activating the pump to push heated water into the portion capsule only upon a determination	The below cited art discloses, either expressly or inherently, determining whether the read barcode agrees with a stored reference; and activating the pump to push heated water into the portion capsule only upon a determination that the read barcode agrees with the stored reference. *See, e.g.*: Boyd at [0006]:

that the read barcode agrees with the stored reference.	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. 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 [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:

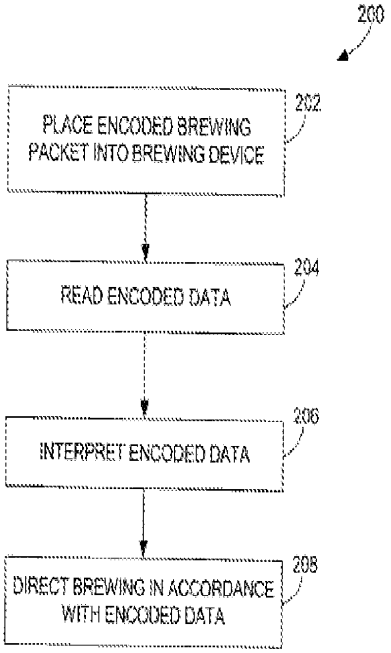


FIG. 4

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.

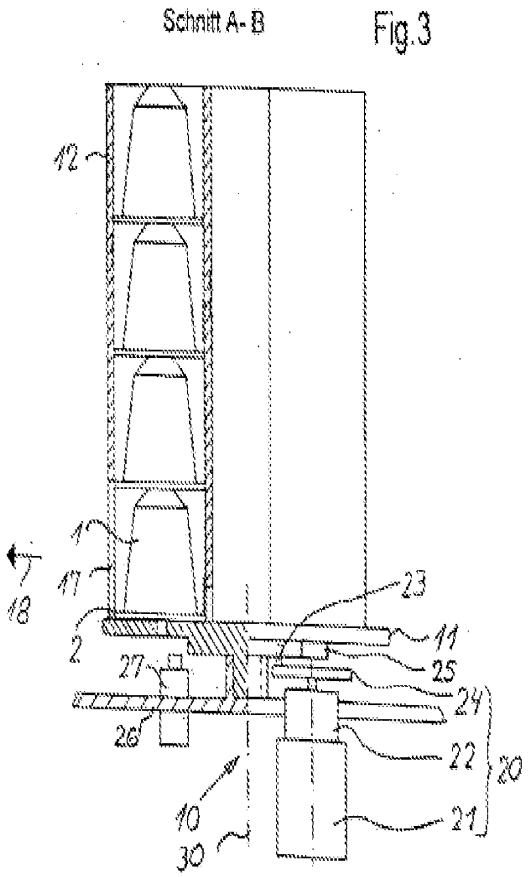
Jarisch at [0024]:

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. Mahlich at [0008]: It is thus the task of the present invention to equip the actual single-serving units to be selected with suitable machine readable identification whereby complicated voluminous double mirror scanners are not required for reading the identification code and whereby the accurate alignment of the single-serving pouch with regard to the scanner or its reading unit does not matter. In particular, the difficult process of aligning a rotation-symmetrical single-serving unit, whereby the shape of the capsule is mainly frustoconical and the pouch is mainly lozenge-shaped, is thus eliminated. Mahlich at [0010]: According to the invention, direct scanning or immediate reading of the identification on the single-serving unit, particularly of the single-serving capsule itself and not of any part of the storage magazine adjacent to the capsule, guarantees that the selected type of coffee is correctly identified with the single-serving unit and is actually being brewed after removal of the single-serving unit from the storage magazine. The identification can be read easily and

	accurately via an uncomplicated and compact reading head able to read in a linear manner, provided that the reading head is able to register the rotation-symmetrical identification. However, the rotational or angular position of the rotation-symmetrical identification with regard to the reading head that reads in a linear manner is not important, whereby the alignment of the single-serving unit with regard to the reading head is greatly simplified. In addition, the rotation-symmetrical identification is suitable for testing via a simple procedure according to claim 12. Mahlich at [0014]-[0016]: Apart from coffee type identification, the identification on any single-serving unit may also contain producer identification, whereby the latter in conjunction with an adapted evaluation system for controlling the espresso machine can block operation of the espresso machine if the producer identification on the single-serving unit does not correspond to the machine's preprogrammed producer identification. As mentioned above, an uncomplicated system for the registration of the machine readable identification on a single-serving unit according to the invention may consist of a registration device with at least one reading head able to read in a linear manner. The reading head comprises a reading sensor consisting of a transmitter scanning a luminous spot on the identification or part thereof, and of a decoder receiver. The latter may be equipped with a controlling device whereby the setting, particularly that of a magazine unit, can be controlled in order to convey the single-serving units containing the desired coffee type into the dispensing position. According to claim 7 the linear reading head is located in a compact and secure position below the magazine tubes of the magazine unit. The reading head is directed upwards towards the plane where the bases of the single-serving capsules are positioned within the magazine tubes, in such a way that the rotation-symmetrical identification on the base of the respective lowest single-serving capsule can be read. Mahlich at [0037]

	The support frame 26 also carries a reading head 27 mainly consisting of a scan transmitter and an encoder receiver. Reading head 27 is pointing from below towards the turntable 11 in such a way that it is able to register and scan the single-serving capsules stacked with their base facing downwards inside the magazine tubes 12 to 16 when the magazine tubes are moved across the reading head 27. For this purpose at least part of turntable 11 is transparent to the scanning of the ID code: windows 29 located below the magazine tubes 12 to 16 are designed as slits and are each arranged at equal radial distance to a main axis 30 of turntable 11, cf. FIG. 3. The ID codes 3 on the bases 2 of the single-serving capsules can be registered across their greatest radius r_1 and r_2 through these slits, according to FIG. la. In this case ID code 3 is being registered on entering and on leaving the reading station when the base 2 of the capsule, equipped with the ID code, passes on its circular path across reading head 27 arranged in front of dispensing station 18 in the direction of rotation 28 of the turntable. It is thus guaranteed, via comparison of the two registered ID codes as well as via data processing, that only one single-serving capsule 1 containing the desired coffee type is conveyed to the dispensing station 18, once the desired coffee type has been selected, for example by means of a control panel or a knob. Mahlich at Fig. 3:



Panesar at p. 4, ll. 24–29:

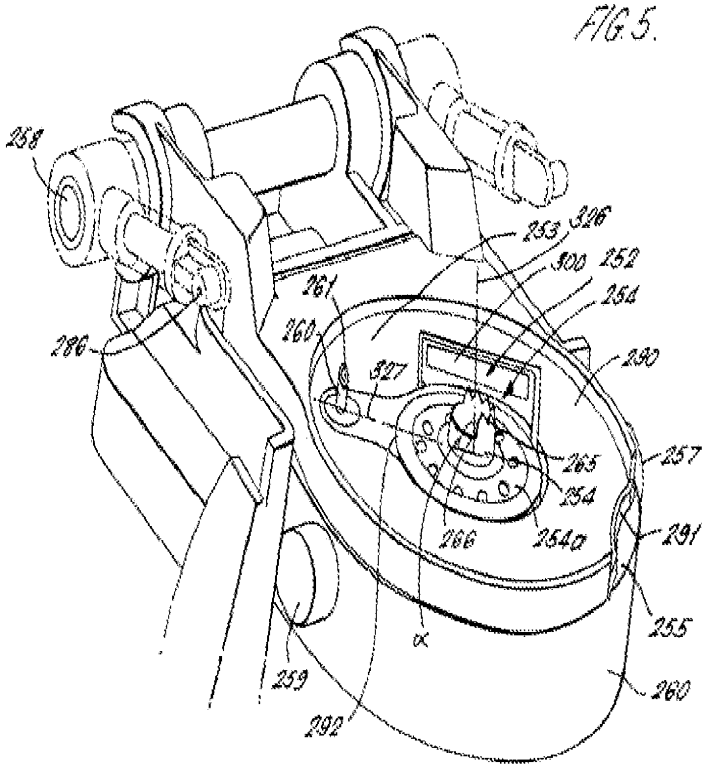
The beverage preparation machine may comprise a brew head comprising an upwardly directed inlet for supplying water to the brew head, a downwardly directed outlet for outflow of beverage produced by the machine and a barcode or RFID reader having a window in the brew head through which signals may be 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:

	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 the cartridge 1. Panesar at FIG. 5:

	 Panesar at Claims 24, 27, 30. Rossi at Abstract: The process for controlling the operation of an edible-product making machine (1) of the type being fed with a single use load element (2) having a brewable or water soluble aromatic substance (3) for preparation of the edible product, comprises a first step of recognition wherein the edible-product making machine (1) recognises an identifying element (4) on the load element (2) allowing the edible-product making machine (1) to take further steps only if it also recognises on the load element (2) a validation element (5) to be validated, a second step of validation of the validation element (5), and a third step of activation wherein the edible-product making machine (1) automatically activates a cycle of production of the edible product only after having recognised on the load element (2) the identifying element (4) in combination with the validation element (5) as validated.

	Rossi at 5-6: The use of a validation element and validation means, as well as the step allowing the machine to take further steps only if it also recognises on the load element the validation element help to prevent the use of an already-used single use load element in the machine, thereby avoiding the production of an edible product of inferior quality and ensuring the proper functioning of the machine. In the case of re-use of a load element originally containing a water soluble aromatic substance, the dynamics of the fluid flow through the machine could be different if there is no substance in the load unit for the water to contact, thereby causing incorrect functioning of the machine and the associated health hazard. The use of an activation step of automatically activating the cycle of edible-product production only when the same identifying element is recognised in combination with the validated validation element ensures that the operating conditions actually used are the correct conditions as selected by the machine in the first recognition step. This helps to prevent the user from making the mistake of inserting into the machine a different load element to the one that was first recognised, for which the operating conditions are set. Rossi at 7: The edible-product making machine is only allowed to take further steps if it in the first step also recognises on the load element a validation element to be validated. In practice, this may take the form of unlocking the machine when both the identification element and the unvalidated validation element are recognised. Thus, the production process cannot be activated unless the first step has been completed. The process could also require that the validation element be of a specific kind or be related to or associated to the identification element in a specific way in order for this first step to be completed. The validation element could be identical to the identification element, but is preferably different thereto, and could either be either of the same or of a different type to the identification element. If the identification element and the validation element are of different types, the recognition means for the two must accordingly also be different. Rossi at 8:

	In a third step of the process, the product-making machine automatically activates a cycle of edible-product production. However, this is only after having recognised on the load element the same identifying element as that recognised in the first step, and it must be recognised in combination with the validation element as validated. As with the first and second steps, this step may take place inside or outside the machine. However, for reasons of cost efficiency, it is preferable to use the same recognition means in step three as in step one. Rossi at 9-10: The system further optionally comprises checking means connected to a control unit of the machine. This may be in the form of a computer programme within the control unit. The checking means compares the signal from the recognising means for the identifying element and the validation element with pre-stored data in order to allow the machine to proceed to activation only if it recognises the identifying element and the unvalidated validation element. The checking means may be connected to unlocking means for unlocking the machine when said recognition takes place. Rossi at 10: Figure 1 shows a schematic view of one embodiment of the system of the present invention. With reference to the above figure, the system comprises an edible-product making machine 1 and a single use load element in the form of a capsule 2. The load element contains a brewable or water soluble aromatic substance 3 for preparation of an edible product. The capsule 2 comprises an identifying element in the form of a barcode 4 and a validation element also in the form of a barcode 5, both located externally on a protective sheet 6 of the outlet base of the capsule. The machine 1 comprises recognising means in the form of an infrared barcode reader 7. This is connected to checking means 8 stored within a control unit 9 of the machine. The checking means allow the machine activation means 10 to be engaged only if the barcode reader 7 recognises the identification barcode 4 and the validation barcode 5. The machine 1 further comprises validation means in the form of a mechanical tool 11 having a plurality of tips for destroying the validation barcode 5, for example by ripping, cutting, scratching or piercing, such that the barcode reader 7 cannot recognise it as an

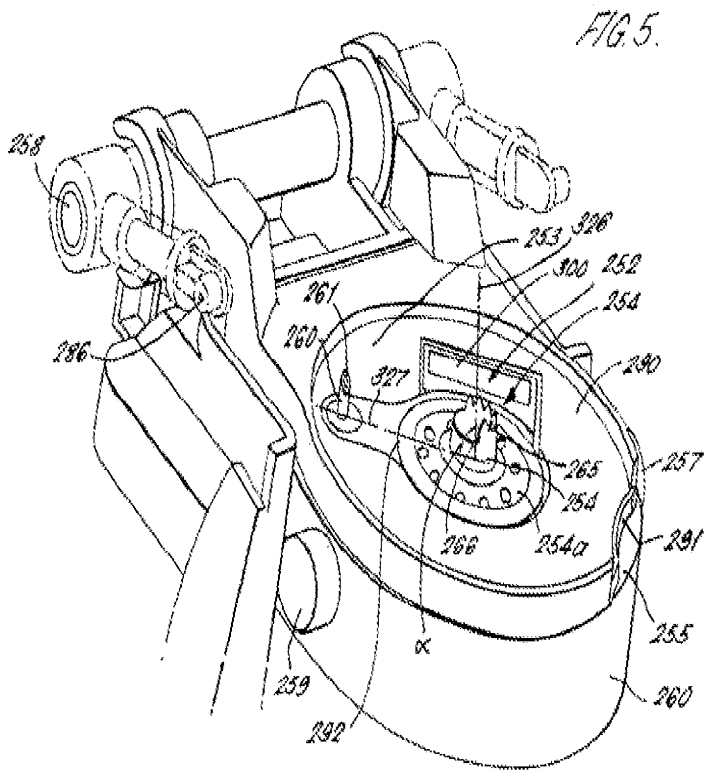
	unvalidated validation barcode. If, after the positive signal from the checking means 8 from the first recognition of the identification and validation barcodes 4,5, the barcode reader 7 performs a second recognition of the identification barcode 4 combined with the validated validation barcode 5, the activation means 10, connected to the barcode reader 7 through the control unit 9, automatically activate a cycle of production of the edible product. Rossi at Claims 1, 13. Yoakim at [0025]: The device is useful for preparing beverages from a plurality of different capsules, in which case it further comprises identification means for identifying the different capsules, and control means capable of operating the device in centrifugation for any of the different capsules according to predetermined liquid food preparation parameters including the flow rate and the volume of liquid to be injected into the capsule, with the identification means comprising capsule recognition means which are recognized by sensing means connected to the control means of the device to control the preparation parameters accordingly. Yoakim at [0192]: Therefore, as much as two, three, four or even more different flow rates and/or speed ranges can be provided in function of the types of coffee to be delivered. Therefore, depending on the types of beverage to be brewed, the control unit can be programmed to adjust the optical centrifugal conditions. For instance, the control unit may be associated to a capsule recognition system enabling to recognize the types of capsules, i.e., espresso, lungo, cappuccino, long coffee (e.g., 180-400 ml), latte, tea, etc., and to adjust the speed and/or other brewing parameters (e.g., water temperature) according the capsule which is inserted in the device. A recognition system uses a code on the capsule and recognized by the device, such as a color, a barcode, an RFID, a magnetic code, ferromagnetic micro-wires or labels, shapes and combinations thereof. Yoakim at [0477]: The capsule system further comprises an identification means associated to the different capsules in the set for identifying each capsule and adjusting brewing parameters accordingly.

	The adjustable parameters can be the rotational speed, the back-pressure at the outlet of the capsule, and/or the volume of liquid fed in the capsule. The identification means participates to deliver a wider range of beverages having differentiated characteristics (volume, taste, strength, crema, colour, etc.). The identification means are associated to control means placed in the centrifugal brewing device which controls the adjustment of the said parameters, by controlling the rotational motor driving the capsule holder or/and the pump supplying liquid in the capsule. *See also* [1.l].
2. The method according to claim 1, wherein the method comprises not activating the pump to push the heated water into the portion capsule upon a determination that the read barcode does not agree with the stored reference.	The below cited art discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises not activating the pump to push the heated water into the portion capsule upon a determination that the read barcode does not agree with the stored reference. *See, e.g.*: *See* [1.m]. *See also* [1]. 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 [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. Mahlich at [0014]-[0016]: Apart from coffee type identification, the identification on any single-serving unit may also contain producer identification, whereby the latter in conjunction with an adapted evaluation system for controlling the espresso machine can block operation of the espresso machine if the producer identification on the single-serving unit does not correspond to the machine's preprogrammed producer identification. As mentioned above, an uncomplicated system for the registration of the machine readable identification on a single-serving unit according to the invention may consist of a registration device with at least one reading head able to read in a linear manner. The reading head comprises a reading sensor consisting of a transmitter scanning a luminous spot on the identification or part thereof, and of a decoder receiver. The latter may be equipped with a controlling device whereby the setting, particularly that of a magazine unit, can be controlled in order to convey the single-serving units containing the desired coffee type into the dispensing position.

	According to claim 7 the linear reading head is located in a compact and secure position below the magazine tubes of the magazine unit. The reading head is directed upwards towards the plane where the bases of the single-serving capsules are positioned within the magazine tubes, in such a way that the rotation-symmetrical identification on the base of the respective lowest single-serving capsule can be read. Mahlich at [0037] The support frame 26 also carries a reading head 27 mainly consisting of a scan transmitter and an encoder receiver. Reading head 27 is pointing from below towards the turntable 11 in such a way that it is able to register and scan the single-serving capsules stacked with their base facing downwards inside the magazine tubes 12 to 16 when the magazine tubes are moved across the reading head 27. For this purpose at least part of turntable 11 is transparent to the scanning of the ID code: windows 29 located below the magazine tubes 12 to 16 are designed as slits and are each arranged at equal radial distance to a main axis 30 of turntable 11, cf. FIG. 3. The ID codes 3 on the bases 2 of the single-serving capsules can be registered across their greatest radius r_1 and r_2 through these slits, according to FIG. la. In this case ID code 3 is being registered on entering and on leaving the reading station when the base 2 of the capsule, equipped with the ID code, passes on its circular path across reading head 27 arranged in front of dispensing station 18 in the direction of rotation 28 of the turntable. It is thus guaranteed, via comparison of the two registered ID codes as well as via data processing, that only one single-serving capsule 1 containing the desired coffee type is conveyed to the dispensing station 18, once the desired coffee type has been selected, for example by means of a control panel or a knob. 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: 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 the cartridge 1. Panesar at FIG. 5:



Panesar at Claims 24, 27, 30.

Rossi at Abstract:

The process for controlling the operation of an edible-product making machine (1) of the type being fed with a single use load element (2) having a brewable or water soluble aromatic substance (3) for preparation of the edible product, comprises a first step of recognition wherein the edible-product making machine (1) recognises an identifying element (4) on the load element (2) allowing the edible-product making machine (1) to take further steps only if it also recognises on the load element (2) a validation element (5) to be validated, a second step of validation of the validation element (5), and a third step of activation wherein the edible-product making machine (1) automatically activates a cycle of production of the edible product only after having recognised on the load element (2) the identifying element (4) in combination with the validation element (5) as validated.

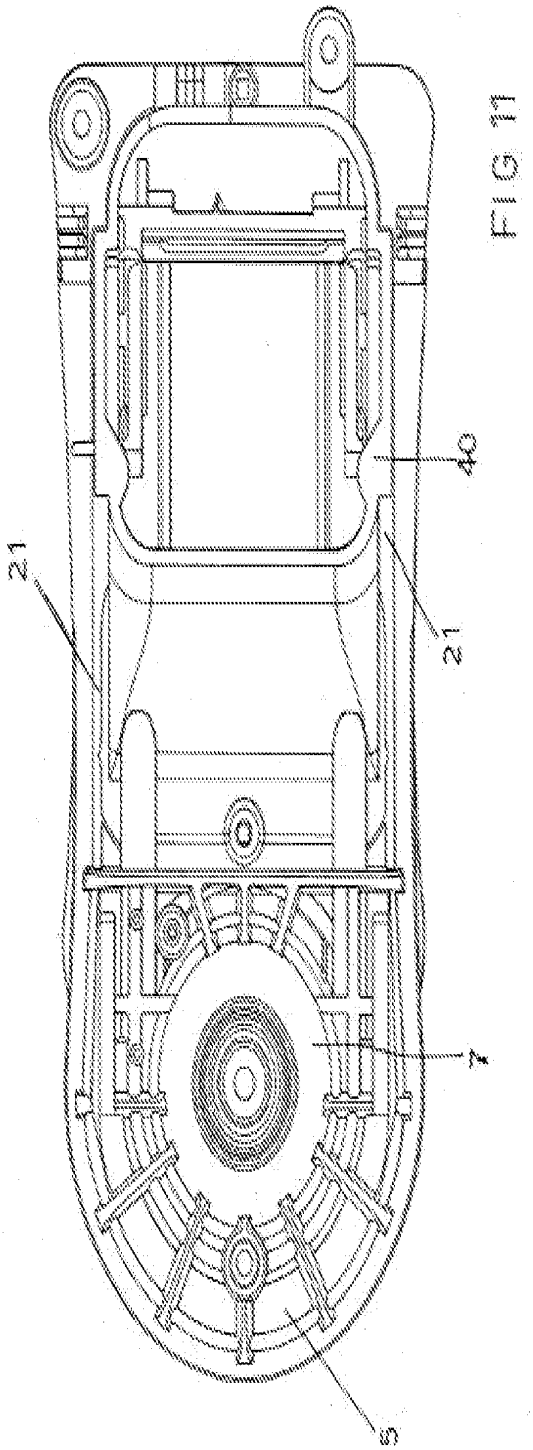
	Rossi at 5-6: The use of a validation element and validation means, as well as the step allowing the machine to take further steps only if it also recognises on the load element the validation element help to prevent the use of an already-used single use load element in the machine, thereby avoiding the production of an edible product of inferior quality and ensuring the proper functioning of the machine. In the case of re-use of a load element originally containing a water soluble aromatic substance, the dynamics of the fluid flow through the machine could be different if there is no substance in the load unit for the water to contact, thereby causing incorrect functioning of the machine and the associated health hazard. The use of an activation step of automatically activating the cycle of edible-product production only when the same identifying element is recognised in combination with the validated validation element ensures that the operating conditions actually used are the correct conditions as selected by the machine in the first recognition step. This helps to prevent the user from making the mistake of inserting into the machine a different load element to the one that was first recognised, for which the operating conditions are set. Rossi at 7: The edible-product making machine is only allowed to take further steps if it in the first step also recognises on the load element a validation element to be validated. In practice, this may take the form of unlocking the machine when both the identification element and the unvalidated validation element are recognised. Thus, the production process cannot be activated unless the first step has been completed. The process could also require that the validation element be of a specific kind or be related to or associated to the identification element in a specific way in order for this first step to be completed. The validation element could be identical to the identification element, but is preferably different thereto, and could either be either of the same or of a different type to the identification element. If the identification element and the validation element are of different types, the recognition means for the two must accordingly also be different. Rossi at 8:

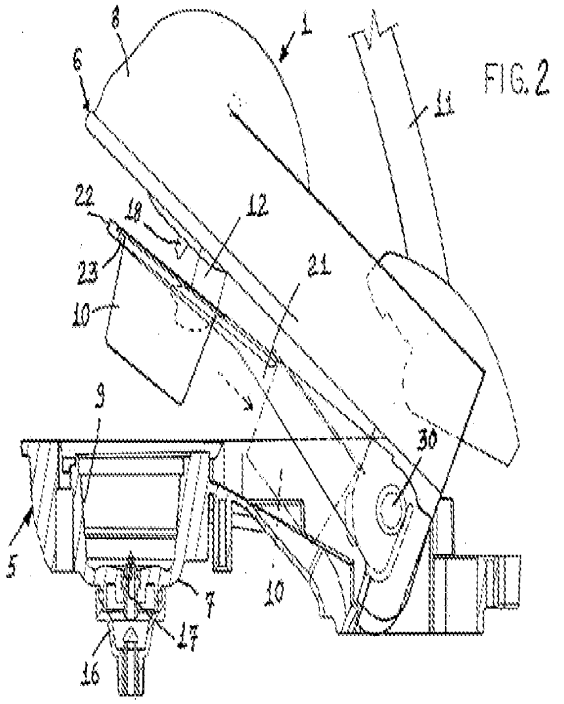
	In a third step of the process, the product-making machine automatically activates a cycle of edible-product production. However, this is only after having recognised on the load element the same identifying element as that recognised in the first step, and it must be recognised in combination with the validation element as validated. As with the first and second steps, this step may take place inside or outside the machine. However, for reasons of cost efficiency, it is preferable to use the same recognition means in step three as in step one. Rossi at 9-10: The system further optionally comprises checking means connected to a control unit of the machine. This may be in the form of a computer programme within the control unit. The checking means compares the signal from the recognising means for the identifying element and the validation element with pre-stored data in order to allow the machine to proceed to activation only if it recognises the identifying element and the unvalidated validation element. The checking means may be connected to unlocking means for unlocking the machine when said recognition takes place. Rossi at 10: Figure 1 shows a schematic view of one embodiment of the system of the present invention. With reference to the above figure, the system comprises an edible-product making machine 1 and a single use load element in the form of a capsule 2. The load element contains a brewable or water soluble aromatic substance 3 for preparation of an edible product. The capsule 2 comprises an identifying element in the form of a barcode 4 and a validation element also in the form of a barcode 5, both located externally on a protective sheet 6 of the outlet base of the capsule. The machine 1 comprises recognising means in the form of an infrared barcode reader 7. This is connected to checking means 8 stored within a control unit 9 of the machine. The checking means allow the machine activation means 10 to be engaged only if the barcode reader 7 recognises the identification barcode 4 and the validation barcode 5. The machine 1 further comprises validation means in the form of a mechanical tool 11 having a plurality of tips for destroying the validation barcode 5, for example by ripping, cutting, scratching or piercing, such that the barcode reader 7 cannot recognise it as an

	unvalidated validation barcode. If, after the positive signal from the checking means 8 from the first recognition of the identification and validation barcodes 4,5, the barcode reader 7 performs a second recognition of the identification barcode 4 combined with the validated validation barcode 5, the activation means 10, connected to the barcode reader 7 through the control unit 9, automatically activate a cycle of production of the edible product. Rossi at Claims 1, 13. Yoakim at [0025]: The device is useful for preparing beverages from a plurality of different capsules, in which case it further comprises identification means for identifying the different capsules, and control means capable of operating the device in centrifugation for any of the different capsules according to predetermined liquid food preparation parameters including the flow rate and the volume of liquid to be injected into the capsule, with the identification means comprising capsule recognition means which are recognized by sensing means connected to the control means of the device to control the preparation parameters accordingly. Yoakim at [0192]: Therefore, as much as two, three, four or even more different flow rates and/or speed ranges can be provided in function of the types of coffee to be delivered. Therefore, depending on the types of beverage to be brewed, the control unit can be programmed to adjust the optical centrifugal conditions. For instance, the control unit may be associated to a capsule recognition system enabling to recognize the types of capsules, i.e., espresso, lungo, cappuccino, long coffee (e.g., 180-400 ml), latte, tea, etc., and to adjust the speed and/or other brewing parameters (e.g., water temperature) according the capsule which is inserted in the device. A recognition system uses a code on the capsule and recognized by the device, such as a color, a barcode, an RFID, a magnetic code, ferromagnetic micro-wires or labels, shapes and combinations thereof. Yoakim at [0477]: The capsule system further comprises an identification means associated to the different capsules in the set for identifying each capsule and adjusting brewing parameters accordingly.

	The adjustable parameters can be the rotational speed, the back-pressure at the outlet of the capsule, and/or the volume of liquid fed in the capsule. The identification means participates to deliver a wider range of beverages having differentiated characteristics (volume, taste, strength, crema, colour, etc.). The identification means are associated to control means placed in the centrifugal brewing device which controls the adjustment of the said parameters, by controlling the rotational motor driving the capsule holder or/and the pump supplying liquid in the capsule. *See also* [1].
3. The method according to claim 1, wherein the method comprises engaging the portion capsule with a pair of holding arms, and wherein the base element and/or the foil lid are made of aluminum.	The below cited art discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises engaging the portion capsule with a pair of holding arms, and wherein the base element and/or the foil lid are made of aluminum. *See, e.g.*: *See* [1.f], [1.j]. 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. Castellani at [0043]: "Further, according to the present invention, the delivery head 1 comprises moreover coffee capsule 10 ejecting means, including a capsule ejecting fork element 21 pivoted to the pivot pin 30 applied to the bottom supporting element 5 and including an annular portion 22 designed for encompassing the top of the coffee capsule 10, which is suitably provided with a perimetrical bearing edge portion 23." Castellani at [0053]: "Thus, the fork element 21 will rise said capsule 10, by its annular portion 22, which engages at the bottom thereof the bearing perimetrical edge portion 23 of the capsule 10." Castellani at [0054]: "Upon achieving a set inclination, as is clearly shown in FIG. 2, the capsule 10 will slide on the fork element 21, and, after having passed the annular portion 22, will fall inside the fork element 21 and, through a specifically designed passage, will be collected in a collecting vessel formed in the upright 2."

	Castellani at FIG. 11: 

	Castellani at FIG. 2:  FIG. 2 Lazaris at [0027]: The cartridge holder also includes a vertically moveable lid 40 that is manipulated by a linkage yoke 38 (partially shown), driven by an electric motor 37 through a pinion driven rack 39. The lid 40 is guided along vertical tracks 42, 44 between a raised ready position and a lowered beverage brewing position coacting with the housing. In the ready position, the lid 40 is positioned above and separated from the housing 28, assuming of course that the slidable drawer 22 is in the closed position. The housing 28 defines a chamber 36, and includes cartridge ejection arms 46, 48 that support and position a beverage cartridge within the holder.

	Lazaris at [0029]: With reference to FIG. 3, it will be seen that the housing **28** has a circular bottom **80** through which protrudes an upwardly extending hollow exit probe **84**. A slidable cartridge platform **86** has a bore **88** aligned with the upwardly extending probe **84**. The cartridge ejection arms **46**, **48** project upwardly from and are formed integrally with the cartridge platform **86**. Lazaris at [0036]: A typical brewing cycle is illustrated in FIGS. 2A-2D. Beginning with FIG. 2A, the lid 40 is elevated above the housing 28, and a cartridge 50 is received in the housing chamber 36. The lip 53′ of the cartridge lid 53 is supported in the upper surfaces 108, 110 of the cartridge ejection arms 46, 48. An inlet probe 126 carried by the lid 40 is located over the cartridge lid 53. Lazaris at Fig. 1:

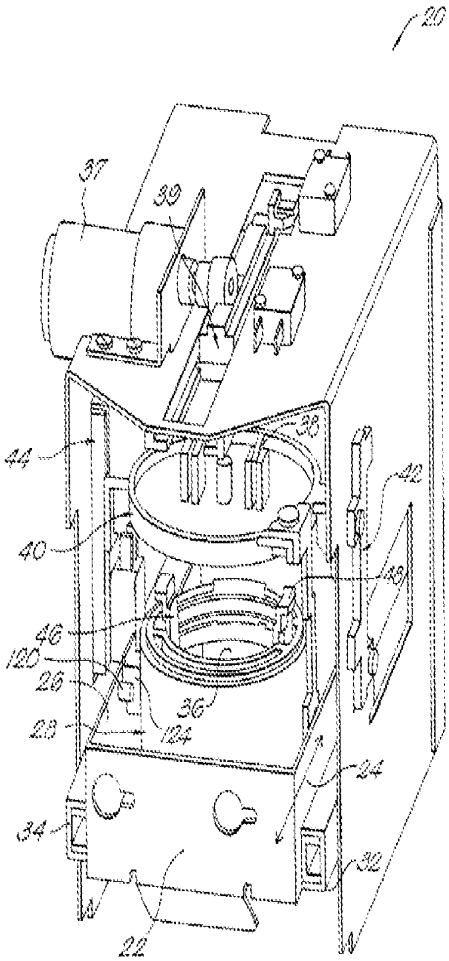


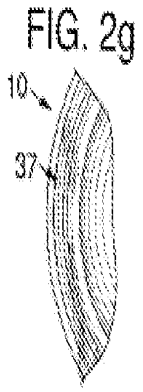
FIG. 1

Mannich at [0003]:

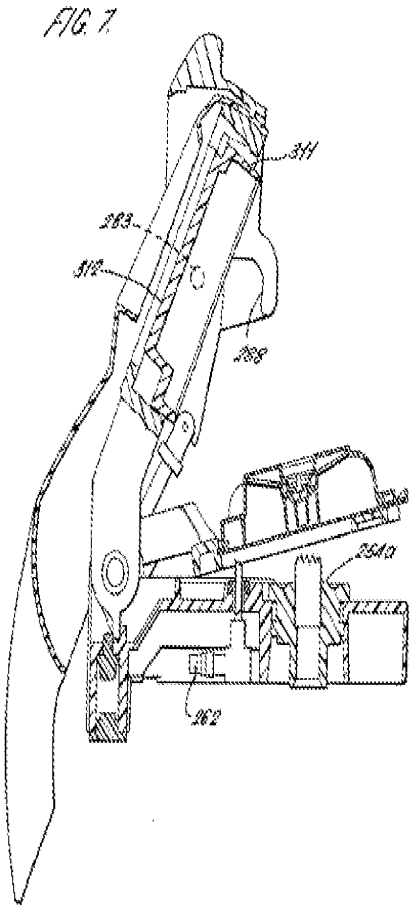
The single-serving capsules consist mostly of a deep-drawn plastic or aluminium foil and their advantage, when compared to pouches, lies in the fact that they have an air-tight seal and that certain manufacturers fill them with a protective gas containing the coffee aroma as well. Such pre-proportioned single-serving units are available for approximately 10 different coffee fillings. Due to this variety the consumer is able to stock smaller amounts of different types of

	coffee. In addition, the use of these single-serving units in conjunction with the special brewing heads of those espresso machines equipped to process such single-serving units results in a reliably constant optimum brew. Panesar at p. 9, ll. 8–23: 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. The beverage flow path is defined by spatial inter-relationships between the outer member 2, inner member 3 and laminate 5 as discussed below. Other components may optionally be included in the cartridge 1, such as a filter 4, as will be described further below. Panesar at p. 14, ll. 21–32: 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. The cast polypropylene layer is between 0.025 and 0.065 mm in thickness. In one embodiment the aluminium layer is 0.06 mm and the polypropylene layer is 0.025 mm 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 5 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. Roll laminate stock may be used instead of die cut stock. The cartridge 1 may be closed by a rigid or semi-rigid lid instead of a flexible laminate. *See also* Panesar at FIGs. 10-21.

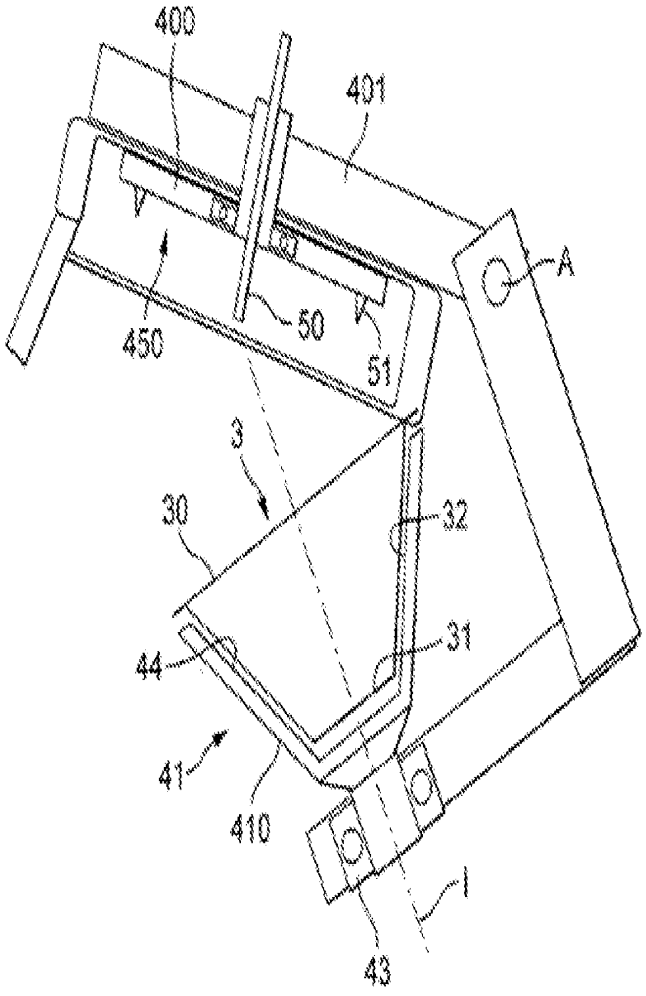
	See also [1].
5. The method according to claim 1, wherein the method comprises sealing a seal of the apparatus against the foil lid, and wherein the grooves are free from extending all the way into a region of the base element that is immediately adjacent to the flange.	The below cited art discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises sealing a seal of the apparatus against the foil lid, and wherein the grooves are free from extending all the way into a region of the base element that is immediately adjacent to the flange. *See, e.g.*: *See* [1.c], 1.g]. Boyd at [0015]: FIG. 2 g is a fragmentary view of an alternative embodiment packet, illustrating encoded data in the form of grooves. Boyd at [0029]: Examples of alternative embodiments are depicted in FIGS. 2 b through 2 h. In FIG. 2b the feature is geometric shape 32. The shape may be raised or lowered and may, or may not incorporate color, or some other machine-interpretably characteristic. FIG. 2c shows text string 33. The text string may consist of alpha-numeric characters and may be of various lengths including a single character. FIG. 2d shows glyph 34. The glyph may be any symbolic figure including a symbol used as a trademark. A digital watermark 35 is depicted in FIG. 2e. FIG. 2f shows notches 36. The notches may be localized to a particular area of the packet or may span its entire perimeter in singular or repetitive fashion. Grooves 37 are depicted in FIG. 2g. One or more grooves may be incorporated to create a texture. FIG. 2h shows holes. One or more holes may be used, which holes may be, of various shapes and sizes. The above-noted machine interpretable features; or other machine interpretable features, may similarly may be employed in combination or alone, such features being selected for their ability to store brewing directives and packet and/or ingredient-characteristic data, and for their cost of manufacture, aesthetic appearance, and ability to carry machine interpretal features which are capable of being successfully detected, read, and interpreted.

	Boyd at Fig. 2g:  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. Mahlich at [0005]: The single-serving capsules consist mostly of a deep-drawn plastic or aluminium foil and their advantage, when compared to pouches, lies in the fact that they have an air-tight seal and that certain manufacturers fill them with a protective gas containing the coffee aroma as well. Such pre-proportioned single-serving units are available for approximately 10 different coffee fillings. Due to this variety the consumer is able to stock smaller amounts of different types of coffee. In addition, the use of these single-serving units in conjunction with the special brewing heads of those espresso machines equipped to process such single-serving units results in a reliably constant optimum brew. 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. 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 cartridge 1 to form a fluid tight seal of sufficient integrity to withstand the pressures developed during the dispense cycle. Panesar at Fig. 7:  Yoakim at [0384]: A valve means in the device provide the advantage of a control of the pressure of liquid exerted in the capsule at the level of the device. The valve means can be designed to open at a certain

	pressure threshold, for example by calibration or adjustment, for matching the features of various or specific beverages, e.g., coffee extract, tea extract, instant beverages, etc. Yoakim at [0388]: For example, the engaging portion of the valve means can also comprise an annular pressing edge which is arranged to seal on the engaging portion of the capsule. The pressing edge may take different forms such as a V, W or U shape in order to exert a sufficient sealing pressure on the capsule when the pressure of liquid is still under a predetermined threshold. Yoakim at [0436]: According to one aspect of the invention, the water injection subassembly 129 further comprises a valve system 156 for controlling the flow of liquid that is discharged from the device. . . .The annular engaging portion 157 includes a pressing peripheral surface 159 which applies a closing force on the peripheral rim 104 of the capsule to be able to restrict the flow of liquid under the force of the elastic loading means. The surface 159 can form a cone or V for increasing the sealing pressure in a localized area. Yoakim at [0445]: [T]he valve system 156 of the device can start opening as pressure of liquid increases on the valve when liquid leaves the capsule. Therefore, a certain time delay before opening can be controlled by the valve system to enable sufficient interaction between water and the substance contained in the capsule. This controlled delay depends on various parameters . . . Yoakim at [0446]: In another mode of the invention illustrated in FIGS. 37 and 38, the same numeral references have been taken to identify the same or equivalent technical means. In this mode, the valve system 156 differs in that the elastic loading means is obtained by a rubber elastic O-ring 169 inserting between a lower member comprising a pinching surface 159 and an upper fixed portion 161 of the water injection subassembly 129. The O-ring is maintained in place between two concave surfaces 170, 171 of valve system. Again during brewing, the pressure

	of liquid in the capsule tends to lift the pinching surface 159 to create an annular passage between the rim 104 of the capsule and the pinching Surface. The pinching surface can be shaped with a sharp tip or edge that can create a concentration of the pinching forces onto the rim. Yoakim at FIG. 2:  FIG. 2

Yoakim at FIG. 35:

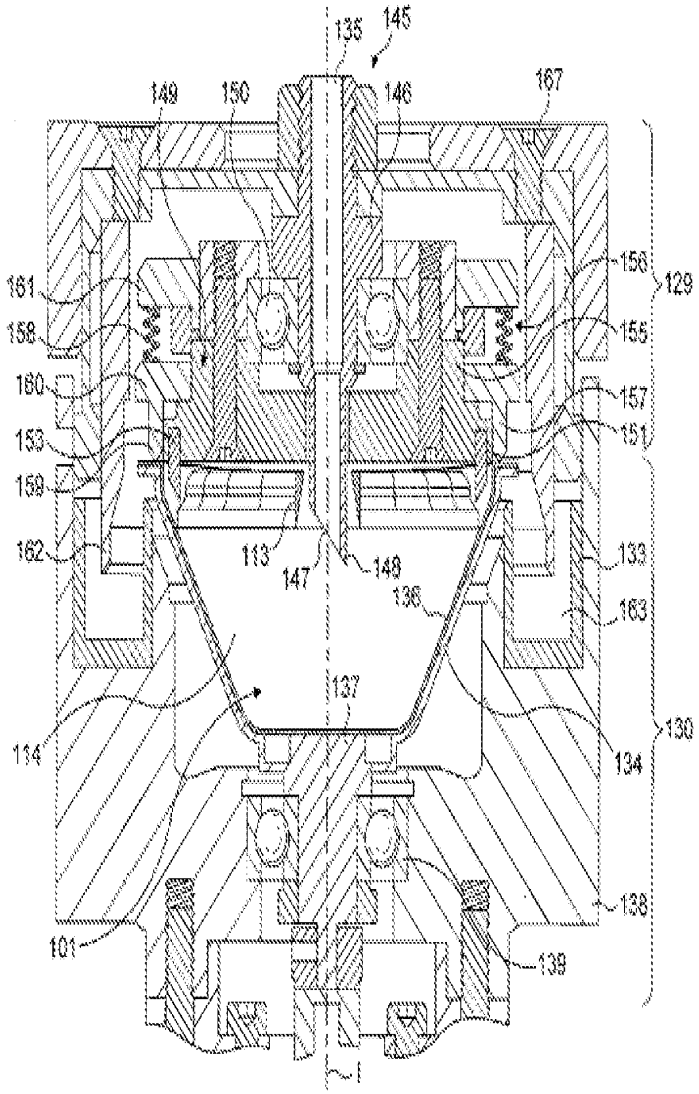
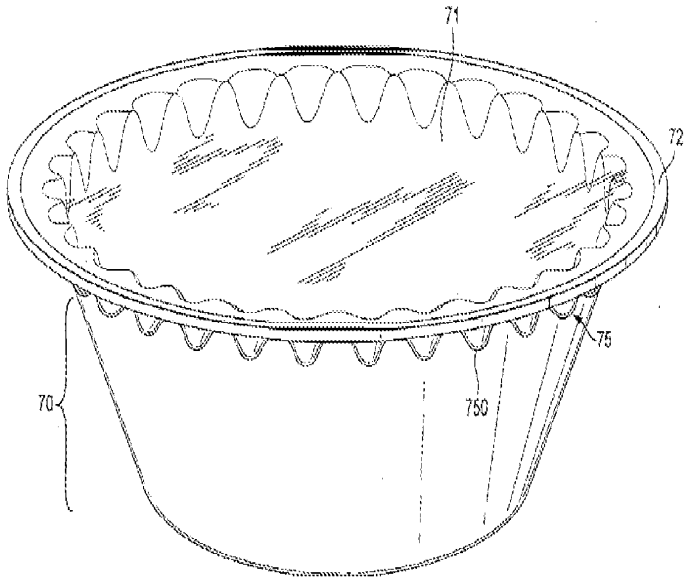


FIG. 35

Yoakim at [0161]:

In yet another embodiment, the surface of the capsule comprises a toothed structure.

	Yoakim at [0215]: FIG. 23 illustrates another capsule of the invention. The capsule comprises means for connecting it to the external rotational driving means of the device. For this, capsule has a toothed structure 75 on at least one of its outer surface. The capsule has a body 70 comprising an upper edge 72 which can be closed by an upper membrane 71. The toothed structure comprises a series of teeth which is positioned below the edge or rim 72 of the body of the capsule. The teeth are placed along the whole periphery of the body of the capsule. The body of the capsule can be made of plastic and/or aluminium or aluminium alloy. For example, it can be moulded by injection of plastic or deep drawn in aluminium. For example, the shape of the teeth could be slightly triangular, oval, rectangular or pyramidal. It should be noticed that the teeth could be replaced by other equivalent structures such as series of elements in relief and/or hollow. For example, slits, pins or small needles can be envisaged. Yoakim at [0216]: The device itself that receives the capsule of FIG.23 comprises a toothed surface of complementary shape. FIG. 24 shows a capsule holder 44 adapted to receive the capsule of FIG. 23. The capsule holder has a cavity into which are provided hollow teeth 440. The hollow teeth are arranged to fit the teeth 750 on the outer surface of the capsule. Yoakim at FIG. 23:

	 FIG. 23 *See also* [1].
6. The method according to claim 1, wherein the method comprises introducing the heated water into the portion capsule along a central axis of the portion capsule.	The below cited art discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises introducing the heated water into the portion capsule along a central axis of the portion capsule. *See, e.g.*: Boyd at [0003]: Automated coffee machines have long been used for brewing coffee, both in large-scale commercial settings and in smaller business and home settings. These machines typically operate on the principle of placing a quantity of ground coffee into a filter, and passing hot water through the ground coffee to produce a coffee beverage.

	Boyd at [0006]: A brewing packet is provided for use in the preparation of hot or cold beverages. The brewing packet envelops a brewing ingredient chosen according to the tastes of a beverage drinker. The packet includes a machine interpretable feature that contains encoded data capable of being read by a beverage producing device. Furthermore, the data on the packet may be capable of directing the beverage producing device to employ a specific brewing operation suited for the particular brewing packet. This allows for producing the optimal beverage from the brewing ingredient. The packet may be utilized with a variety of brewing ingredients to produce a variety of beverages. Similarly, the packet may be configured to produce single or multiple servings of a beverage. Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is passed through the filter capsule to produce an espresso beverage. The subject matter of each of these patents is incorporated herein by this reference. The invention also may be practiced in connection with espresso machines such as those disclosed in U.S. Pat. Nos. 4,253,385, 4,254,694, 4,353,293, 4,429,623, 4,484, 515, 4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through 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. Jarisch at [0035]: The centrifugal unit 2 comprises a centrifugal cell 3. The cell 3 may comprise a capsule holder and a capsule received therein. The centrifugal unit is connected to driving means 5 such as a rotary motor. The centrifugal unit comprises a collecting part and an outlet 35. A receptacle 48 can be disposed below the outlet to collect the extracted beverage. The system further comprises liquid supply means such as a water reservoir 6 and a fluid circuit 4. Heating means 31 may also be provided in the reservoir or along the fluid circuit. The liquid supply means may further comprise a pump 7 connected to the reservoir. A flow restriction means 19 is provided to create a restriction to the flow of the centrifuged liquid which leaves the capsule. The system may further comprise a flow meter such as a flow-metering turbine 8 for providing a control of the flow rate of water supplied in the cell 3. The counter 11 can be connected to the flow-metering turbine 8 to enable an analysis of the generated impulse data 10. The analysed data is then transferred to the processor 12. Accordingly, the exact actual flow rate of the liquid within the fluid circuit 4 can be calculated in real-time. A user interface 13 may be provided to allow the user to input information that is transmitted to the control unit 9. Further characteristics of the system can be found in WO2010/026053. Lazaris at [0010]:

	The holder of the present invention is designed for use in an apparatus for brewing a beverage by infusing heated liquid with a beverage medium contained in a single serve disposable cartridge. In one embodiment of the present invention, the holder is configured for use within a cartridge having an inverted frustum-shaped side wall specially contoured to provide at least one and preferably a plurality of strategically placed surface irregularities. The cartridge is removably received in a cup-shaped housing having a side wall configured and dimensioned to surround the cartridge side wall. Locating elements are arranged to coact with the one or plural surface irregularities in the cartridge side wall to rotatably immobilize the cartridge within the housing. A lid is mounted for manipulation between an open position accommodating insertion and removal of the cartridge, and a closed position confining the cartridge within the housing. Tubular probes associated with the lid and housing are arranged to pierce the thus confined cartridge to thereby accommodate a through flow of heated liquid for infusion with the beverage medium contained in the cartridge. Lazaris at [0037]: In FIG. 2B, the lid 40 has been lowered, resulting in the cartridge 50 and the cartridge platform 86 being forced downwardly against the action of spring 92. As a result, the cartridge lid and base are pierced respectively by the inlet and outlet probes 126, 84, thus accommodating a flow of heated liquid through the cartridge. The heated liquid infuses a beverage medium (not shown) contained in the cartridge to thereby produce a beverage which exits the cartridge via the outlet probe 84. Lazaris at Fig. 11:

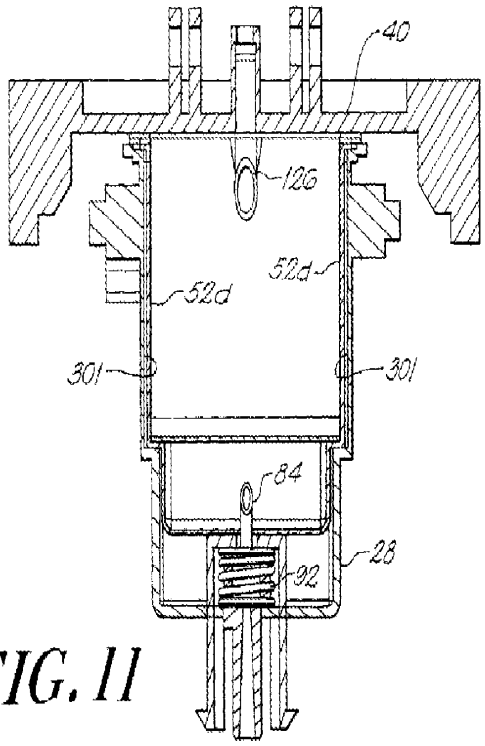


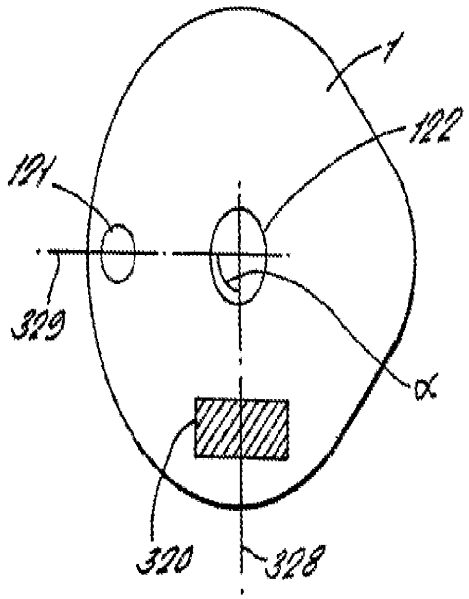
FIG. 11

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. 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 FIG. 10: FIG. 10.  Sweeney at Abstract: A beverage filter cartridge includes a cup-shaped outer container with a bottom and a side wall extending upwardly from the bottom wall to a circular rim surrounding an upper opening. The side wall has an upper section extending downwardly from the rim to an intermediate section, and a tapered lower section configured to provide a plurality of circumferentially spaced flutes extending downwardly from the intermediate section to the

	bottom wall. A filter element subdivides the interior of the container into first and second chambers. A beverage medium is stored in the first chamber. A cover is joined to the side wall at the rim to close the upper opening. The cover is yieldably piercable to accommodate an injection of liquid into the first chamber for combination with the beverage medium to produce a beverage. The filter element is permeable to accommodate a flow of the beverage from the first chamber into the second chamber, and the bottom wall is yieldably piercable to accommodate an outflow of the beverage from the second chamber to the exterior of the cartridge. Sweeney at 1:19-32: This beverage filter cartridge is comprised basically of an impermeable yieldably-piercable cup-shaped outer container internally subdivided by a permeable cone-shaped filter into first and second chambers. A granular or powdered dry beverage medium, e.g., roasted ground coffee, is stored in the first chamber, and the container is closed by an impermeable yieldably piercable lid. During a processing cycle, the lid and container bottom are pierced, respectively, by tubular inlet and outlet probes. The inlet probe admits heated liquid under pressure into the first chamber for infusion with the beverage medium, and the resulting brewed beverage passes through the filter into the second chamber from which it exits via the outlet probe for delivery to an underlying cup. Sweeney at 4:20-23: The lid may be cut or blanked from any suitable impermeable heat sealable and yieldably piercable material, such as for example, a metallic/polymer laminate supplied by Winpak Heat Seal Packaging, Inc. of Montreal, Canada. Sweeney at 4:35-42: At the onset of a processing cycle, the lid 16 and container bottom 18 are pierced, respectively, by tubular inlet and outlet probes 28, 30 (see FIG. 3). The inlet probe 28 admits a heated liquid, typically hot water, into chamber A where it infuses and combines with the

	beverage medium M to produce a beverage. The beverage passes through the filter element 14 into chamber B, from which it exits via outlet probe 30. Yoakim at [1080]: The module is in fluid communication with a water reservoir 5 containing fresh or, alternatively heated water. A fluid transport means such as a low pressure pump 6 can be provided in the water circuit to transport water from the reservoir to the module. A water heater 7 is further provided to heat water to the desired temperature. It can be noted that water could be heated in the reservoir itself and water could be transported from the reservoir by effect of vaporization. Yoakim at [0019]: The inlet port [is] aligned with the central axis of the capsule, wherein the liquid to be injected into the capsule is water[.] Yoakim at [0220]: . . . a water injector, as part of the water injection head, arranged for introducing water along a central axis relative to the capsule holder[.] Yoakim at FIG. 4:

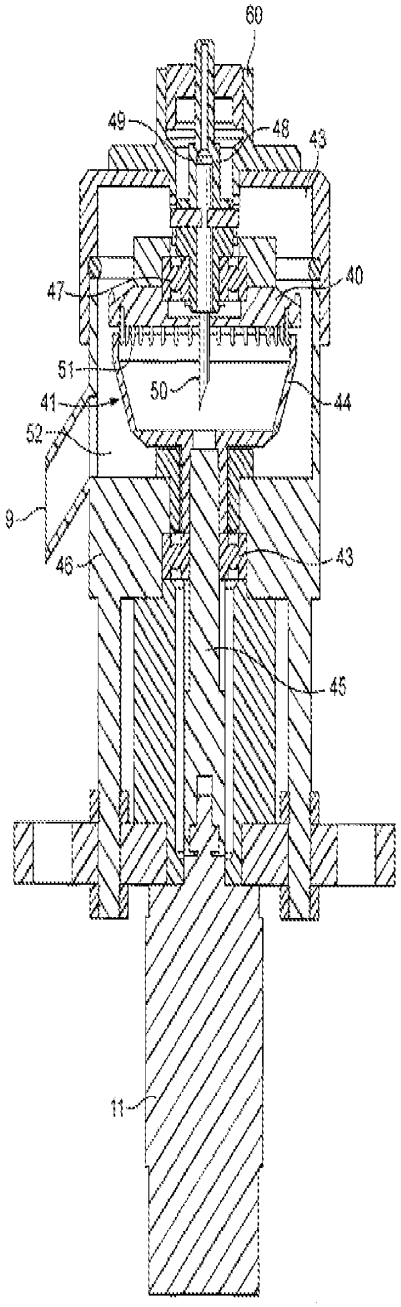


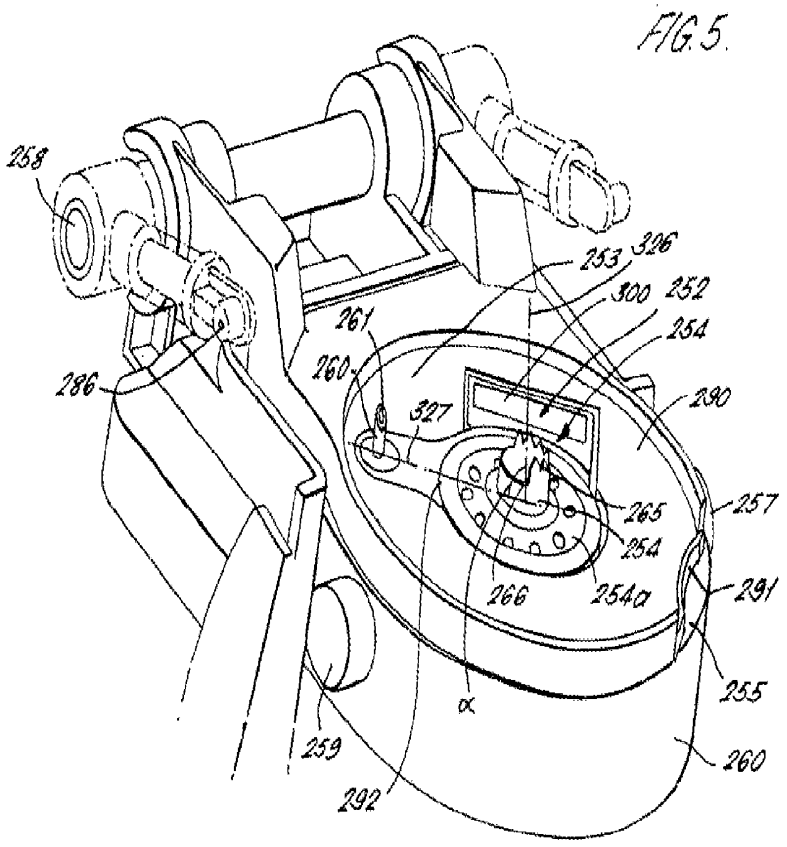
FIG. 4

Yoakim at [0021]:

	The liquid introducing means preferably comprises at least one needle for injecting liquid into the capsule at or near its central axis . . . *See also* [1].
7. The method according to claim 1, wherein the method comprises piercing the foil lid in a region that is offset from a central axis of the portion capsule, and wherein the lid is crowned in a region of the central axis of the portion capsule relative to a region of the lid adjacent to the flange.	The below cited art discloses, either expressly or inherently, the method according to claim 1, wherein the method comprises piercing the foil lid in a region that is offset from a central axis of the portion capsule, and wherein the lid is crowned in a region of the central axis of the portion capsule relative to a region of the lid adjacent to the flange. *See, e.g.*: Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to 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. 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. 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. 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. 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:  Panesar at FIG. 10:

	Yoakim at [0186]: At the inside surface of the injection lid 40 is placed a piercing structure 450 which has the function of piercing the injection side 30 of the capsule. A water injector or lance 50 is provided which traverses the injection side 30 and which comprises an injection conduit for carrying water from the water circuit into the capsule. The water injector 50 is preferably located in the center of the capsule. Yoakim at [0187]: A series of needles 51 . . . positioned on the side of the lid 40 to form small perforations at the periphery of the upper side of the capsule. Yoakim at [0435]: About the water injector is mounted a capsule rotary engaging part 149. The engaging part 149 has a central bore for receiving the water injector and rotational guiding means such as a ball or needle bearing 150 inserted between the part 149 and the injector 145. The engaging part further comprises outlet piercing members 151,152, 153, 154 protruding from a disc-shaped engaging wall 155 of the part 149. The piercing members can be small cylindrical portions with a slanted cutting surface able to cut or perforate small holes in the sealing foil 103 of the capsule. The piercing members are arranged at the periphery of the wall 155, preferably evenly distributed to provide several openings in the capsule for the centrifuged liquid to leave the capsule forming several streams of liquid. . . . Yoakim at FIG. 4:

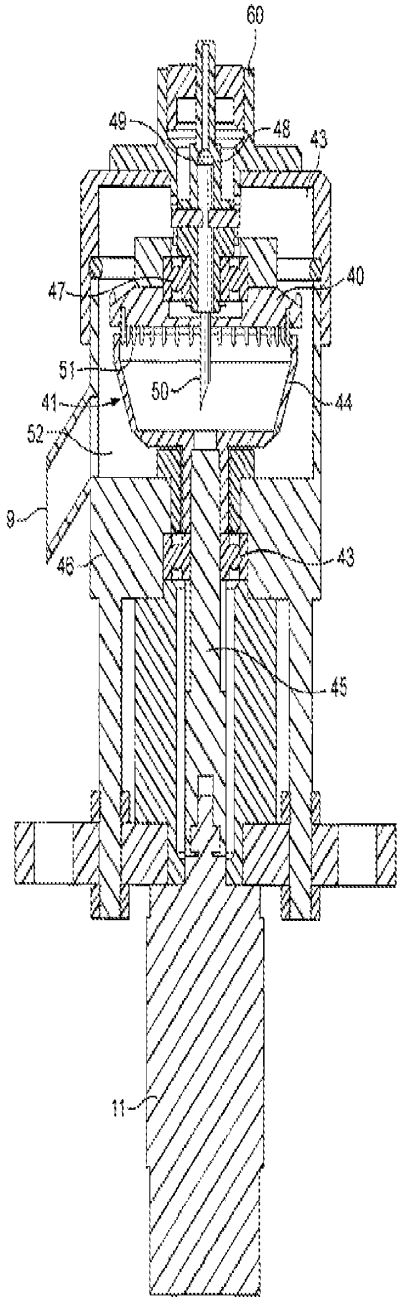


FIG. 4

Yoakim at FIG. 35:

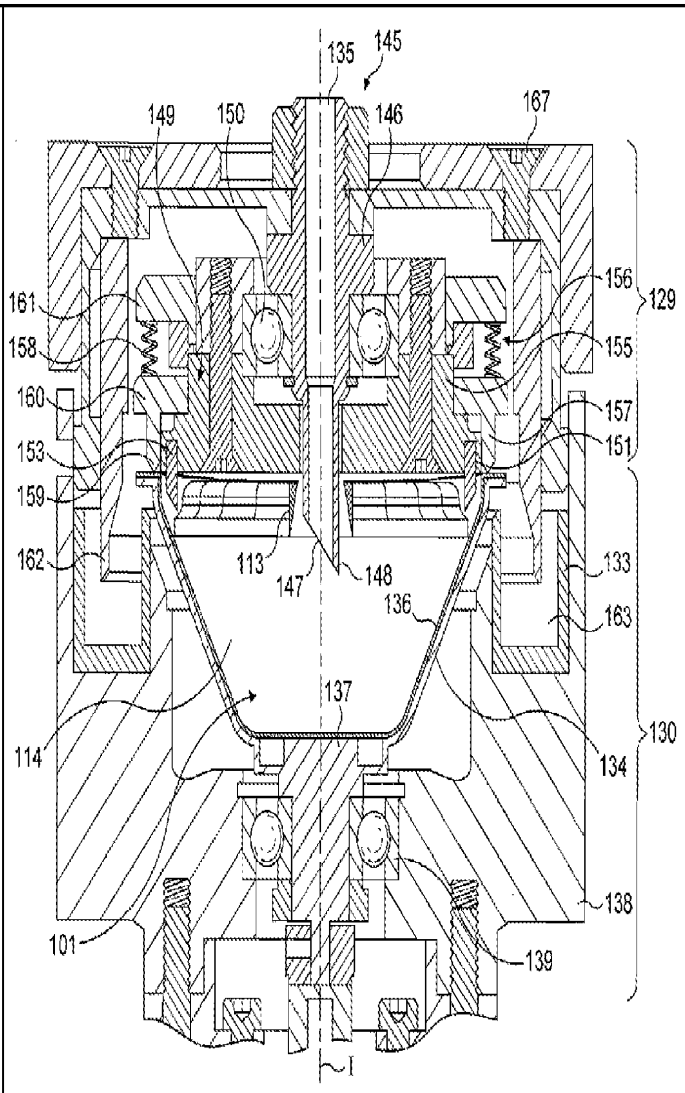
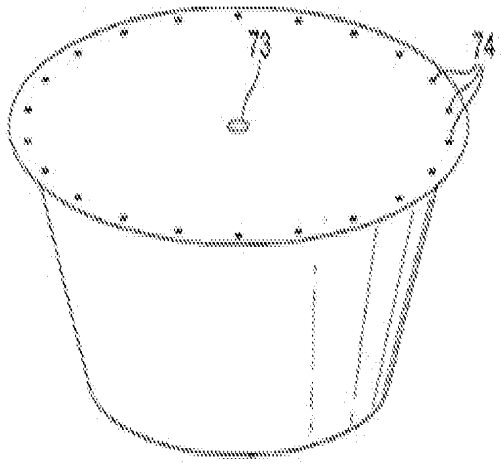


FIG. 35

Yoakim at [0507]:

. . . .The assembly 213 comprises a central injection needle 200 capable of being introduced precisely along the axis of rotation I of the capsule. At its periphery the interface assembly 213 can comprise a series of outlet perforators 221 for allowing centrifuged beverage to leave the capsule through the peripheral outlet 229 between the capsule holder 214 and the interface assembly 213. . . .

	Yoakim at FIG. 7:  FIG. 7 Yoakim at FIG. 55:

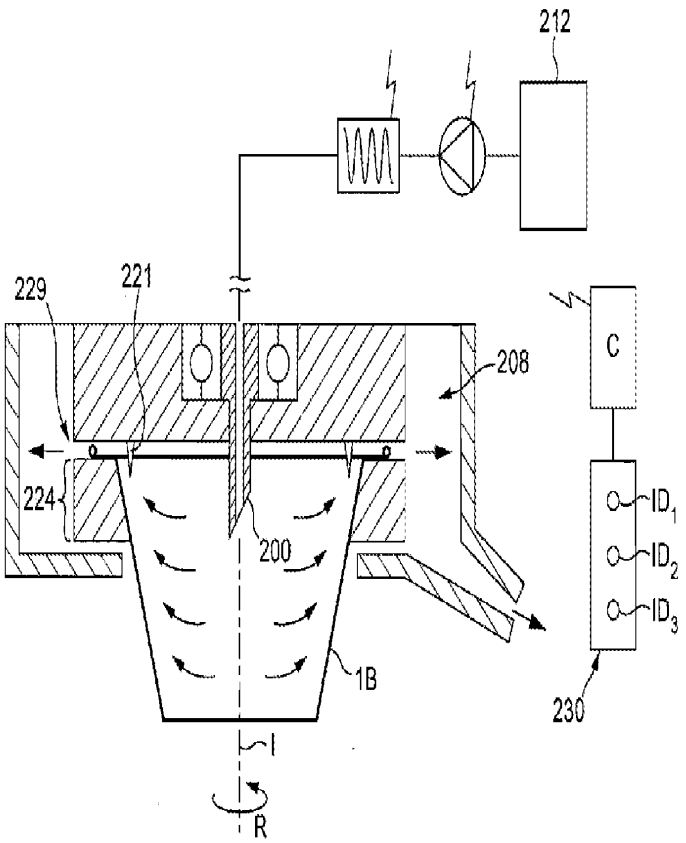


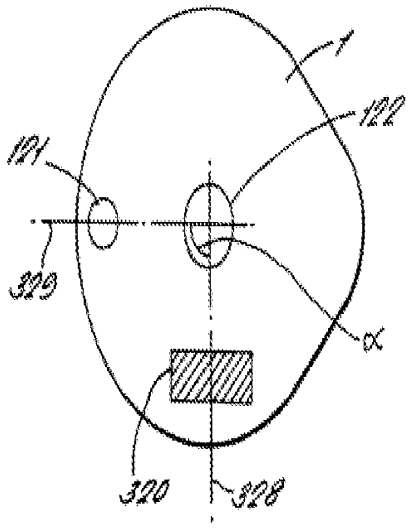
FIG. 55

Yoakim at [0270]:

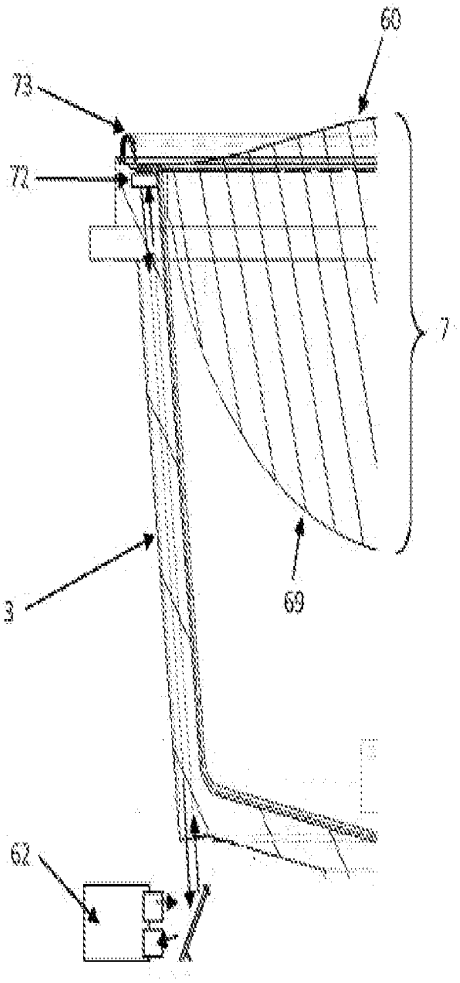
Preferably, the enclosure is partially filled with a substance for enabling the substance to move against a peripheral wall of the capsule during the centrifugation process. The free volume in the enclosure of the capsule is preferably at least partially filled by a protective gas to preserve the freshness of the substance. A suitable protective gas is nitrogen for example. The free volume can also be partially occupied by a gas coming from the substance after degassing of the substance in the capsule. Such gas for ground coffee can be carbon dioxide.

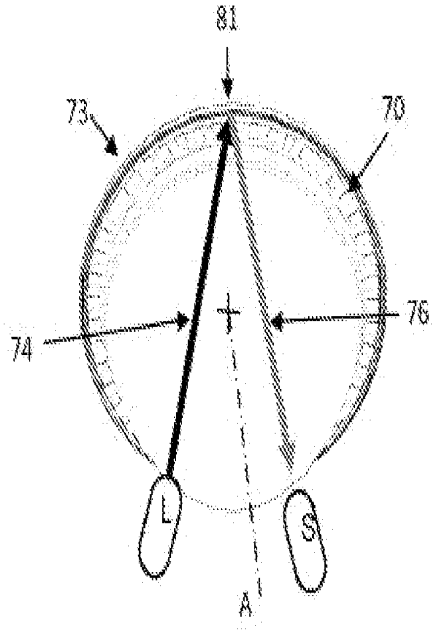
Yoakim at [0355]:

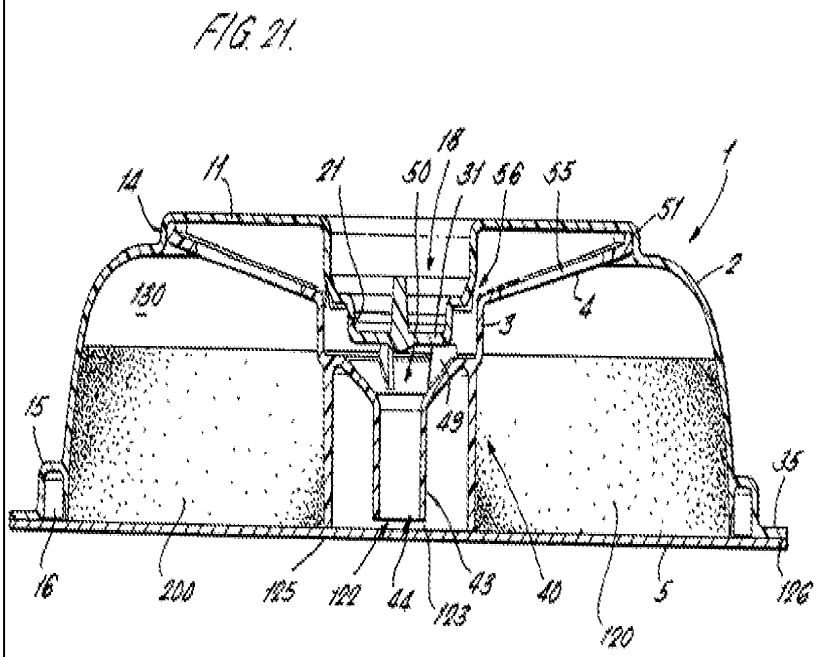
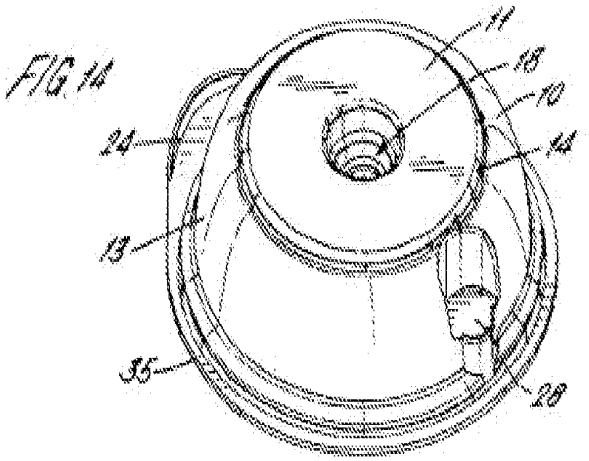
The dished body and/or lid can be thermoformed or injected in plastics. The lid can be also a porous membrane made of polymer such as PET. In an alternative, the body and/or lid can be

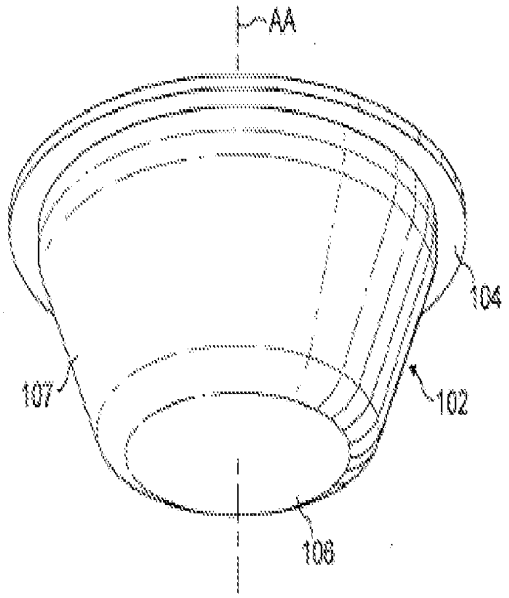
	FIG. 10.  deep drawn from thin metal Such as aluminium alloy or a complex of plastic and aluminium alloy. *See also* [1].
[8.pre] The method according to claim 1,	The below cited art discloses, either expressly or inherently, the method according to claim 1. *See, e.g.*: *See* [1].
[8.a] wherein the method comprises controlling a production process of	The below cited art discloses, either expressly or inherently, wherein the method comprises controlling a production process of the beverage according to the read barcode. *See, e.g.*:

the beverage according to the read barcode,	*See* [1.m].
[8.b] and wherein the wall comprises an upper section and a lower section, the upper section is located adjacent to the flange, and the lower section is located in between the upper section and a bottom of the base element,	The below cited art discloses, either expressly or inherently, that the wall comprises an upper section and a lower section, the upper section is located adjacent to the flange, and the lower section is located in between the upper section and a bottom of the base element. *See, e.g.*: 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. Jarisch at [0037]: The capsule is designed for rotating around an axis A. This axis A crosses perpendicularly the center of the membrane which has the form of a disk. This axis A exits at the center of the bottom of the body. This axis A will help to define the notion of circumference which is a circular path located on the capsule and having the axis A as reference axis. This circumference can be on the lid, e.g., membrane or on the body part such as on the flange-like rim. The lid may be impervious to liquid before insertion in the device or it may be pervious to liquid by means of small openings or pores provided in the center and/or periphery of the lid. The code is spread along the circumference or a part of the circumference. The code may comprise successive arch-shaped segments. The code may also comprise successive segments which are individually rectilinear but extend along at least a part of the circumference. According to one embodiment, the sensor cannot read the code without the rotation of the capsule. This is the case where the code is spread along at least a eighth, preferably at least a quarter of the circumference or even more. The fact that the code is placed along an arc-shaped line render the reading by a sweep beam very difficult. This is why the rotation of the capsule plays an important role. In case that the code is located on the body, it is then necessary to rotate the capsule to have access, for the sensor, to the entire set of marks composing the code. The code is further located close to the peripheral edge of the capsule.

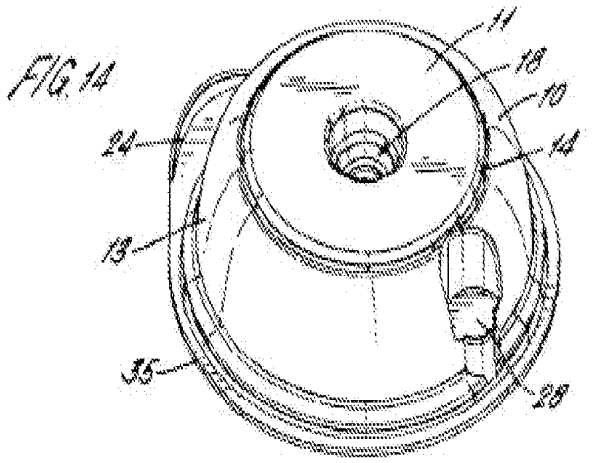
	The peripheral edge is defined as the outermost circular line of the capsule. Preferably, the distance of the code from the peripheral edge is not more than 10 mm, more preferably not more than 8 mm. Jarisch at FIG. 4:  Jarisch at FIG. 5:

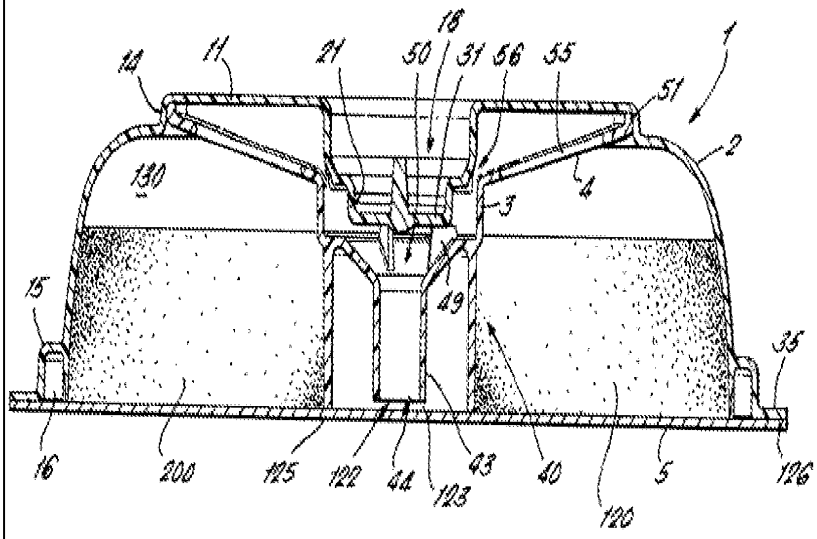
	 Panesar at Figs. 14 and 21:

	  Yoakim at FIG. 27:

	 FIG. 27
[8.c] wherein the upper section comprises a circumferential border and the wall of the lower section is angled, with respect to the upper section, and is tapered towards a bottom of the base element.	The below cited art discloses, either expressly or inherently, that the upper section comprises a circumferential border and the wall of the lower section is angled, with respect to the upper section, and is tapered towards a bottom of the base element. *See, e.g.*: *See also* [8.b]. 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. Jarisch at [0037]:

	The capsule is designed for rotating around an axis A. This axis A crosses perpendicularly the center of the membrane which has the form of a disk. This axis A exits at the center of the bottom of the body. This axis A will help to define the notion of circumference which is a circular path located on the capsule and having the axis A as reference axis. This circumference can be on the lid, e.g., membrane or on the body part such as on the flange-like rim. The lid may be impervious to liquid before insertion in the device or it may be pervious to liquid by means of small openings or pores provided in the center and/or periphery of the lid. The code is spread along the circumference or a part of the circumference. The code may comprise successive arch-shaped segments. The code may also comprise successive segments which are individually rectilinear but extend along at least a part of the circumference. According to one embodiment, the sensor cannot read the code without the rotation of the capsule. This is the case where the code is spread along at least a eighth, preferably at least a quarter of the circumference or even more. The fact that the code is placed along an arc-shaped line render the reading by a sweep beam very difficult. This is why the rotation of the capsule plays an important role. In case that the code is located on the body, it is then necessary to rotate the capsule to have access, for the sensor, to the entire set of marks composing the code. The code is further located close to the peripheral edge of the capsule. The peripheral edge is defined as the outermost circular line of the capsule. Preferably, the distance of the code from the peripheral edge is not more than 10 mm, more preferably not more than 8 mm. Panesar at p. 10, ll. 6–13: The outer member 2 generally comprises a bowl-shaped shell 10 having a curved annular wall 13, a closed top 11 and an open bottom 12. The diameter of the outer member 2 is smaller at the top 11 compared to the diameter at the bottom 12, resulting from a flaring of the annular wall 13 as one traverses from the closed top 11 to the open bottom 12 The annular wall 13 and closed bottom 11 together define a receptacle having an interior 34. Panesar at Figs. 14 and 21:





Yoakim at [0164]:

Preferably, the capsule has a flared design . . . This design and outlet arrangement promotes the flow of the centrifuged brewed liquid in the capsule, its collection and its removal from the capsule.

	See also [8.b].
[10.pre] A method of using a portion capsule for making a coffee beverage, the method comprising:	The below cited art discloses, either expressly or inherently, a method of using a portion capsule for making a coffee beverage. *See, e.g.*: *See* [1].
[10.a] providing an apparatus including a barcode reader, the apparatus having a pump and being adapted to supply heated water;	The below cited art discloses, either expressly or inherently, providing an apparatus including a barcode reader. *See, e.g.*: *See* [1.a].
[10.b] the apparatus having a pump and being adapted to supply heated water;	The below cited art discloses, either expressly or inherently, the apparatus having a pump and being adapted to supply heated water. *See, e.g.*: *See* [1.b].
[10.c] inserting the portion capsule into the apparatus, the portion capsule including a foil lid sealed to a base element having a cavity within which a powdered coffee material is located,	The below cited art discloses, either expressly or inherently, inserting the portion capsule into the apparatus, the portion capsule including a foil lid sealed to a base element having a cavity within which a powdered coffee material is located. *See, e.g.*: *See* [1.c].
[10.d] the base element including a circumferential flange having a top side	The below cited art discloses, either expressly or inherently, the base element including a circumferential flange having a top side. *See, e.g.*: *See* [1.d].
[10.e] and a bottom side with a barcode located on the bottom side,	The below cited art discloses, either expressly or inherently, a bottom side with a barcode located on the bottom side. *See, e.g.*:

	See [1.e].
[10.f] the portion capsule being free of a filter	The below cited art discloses, either expressly or inherently, the portion capsule being free of a filter. *See, e.g.*: *See* [1.i].
[10.g] and comprising a plurality of ribs that are radially spaced, vertically oriented and extend toward a central portion of the cavity, wherein an outer surface of the base element comprises radially spaced and vertically oriented grooves;	The below cited art discloses, either expressly or inherently, a plurality of ribs that are radially spaced, vertically oriented and extend toward a central portion of the cavity, wherein an outer surface of the base element comprises radially spaced and vertically oriented grooves. *See, e.g.*: *See* [1.g] and [1.h].
[10.h] piercing the foil lid;	The below cited art discloses, either expressly or inherently, piercing the foil lid. *See, e.g.*: *See* [1.k].
[10.i] reading the barcode with the barcode reader; and	The below cited art discloses, either expressly or inherently, .reading the barcode with the barcode reader. *See, e.g.*: *See* [1.l].
[10.j] activating the pump to introduce the heated water into the portion capsule only upon a determination that the read barcode agrees with a stored reference, or not activating the pump upon a determination that the read barcode	The below cited art discloses, either expressly or inherently, activating the pump to introduce the heated water into the portion capsule only upon a determination that the read barcode agrees with a stored reference, or not activating the pump upon a determination that the read barcode does not agree with the stored reference. *See, e.g.*: *See* [1.m] and [2].

does not agree with the stored reference.	
11. The method according to claim 10, wherein the method comprises engaging the portion capsule with a pair of holding arms, and wherein the base element comprises an electrically conductive section.	The below cited art discloses, either expressly or inherently, the method according to claim 10, wherein the method comprises engaging the portion capsule with a pair of holding arms, and wherein the base element comprises an electrically conductive section. *See, e.g.*: *See* [1.f], [3].
14. The method according to claim 10, wherein the method comprises dropping the portion capsule into a dropping box, wherein the base element and/or the lid are made of metal.	The below cited art discloses, either expressly or inherently, the method according to claim 10, wherein the method comprises dropping the portion capsule into a dropping box, wherein the base element and/or the lid are made of metal. *See* [4].
[16.pre] The method according to claim 10,	The below cited art discloses, either expressly or inherently, the method according to claim 10. *See, e.g.*: *See* [10].
[16.a] wherein the method comprises sealing a seal of the apparatus against the foil lid	The below cited art discloses, either expressly or inherently, wherein the method comprises sealing a seal of the apparatus against the foil lid. *See, e.g.*: *See* [5].

[16.b] wherein the wall comprises an upper section and a lower section, the upper section is located adjacent to the flange, and the lower section is located between the upper section and a bottom of the base element	The below cited art discloses, either expressly or inherently, wherein the wall comprises an upper section and a lower section, the upper section is located adjacent to the flange, and the lower section is located between the upper section and a bottom of the base element. *See, e.g.*: Yoakim discloses, either expressly or inherently, wherein the wall comprises an upper section and a lower section, the upper section is located adjacent to the flange, and the lower section is located between the upper section and a bottom of the base element. *See, e.g.*: *See* [8.b].
[16.c] wherein the upper section comprises a circumferential border and the wall of the lower section is angled, with respect to the upper section, and is tapered towards a bottom of the base element.	The below cited art discloses, either expressly or inherently, wherein the upper section comprises a circumferential border and the wall of the lower section is angled, with respect to the upper section, and is tapered towards a bottom of the base element. *See, e.g.*: Yoakim discloses, either expressly or inherently, wherein the upper section comprises a circumferential border and the wall of the lower section is angled, with respect to the upper section, and is tapered towards a bottom of the base element. *See, e.g.*: *See* [8.c].

Exhibit B-1 – Invalidity of U.S. Patent No. 10,858,177 in view of Bentley

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

According to its cover page, European Patent No. 0455337 B1 ("Bentley") was published on November 6, 1991. Bentley therefore constitutes prior art to the '177 Patent under pre-AIA 35 U.S.C. § 102(b). Bentley anticipates and/or renders obvious the Asserted Claims of the '177 Patent (at least as Nespresso understands K-fee's application of the Asserted Claims in an effort to show infringement).

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

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

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

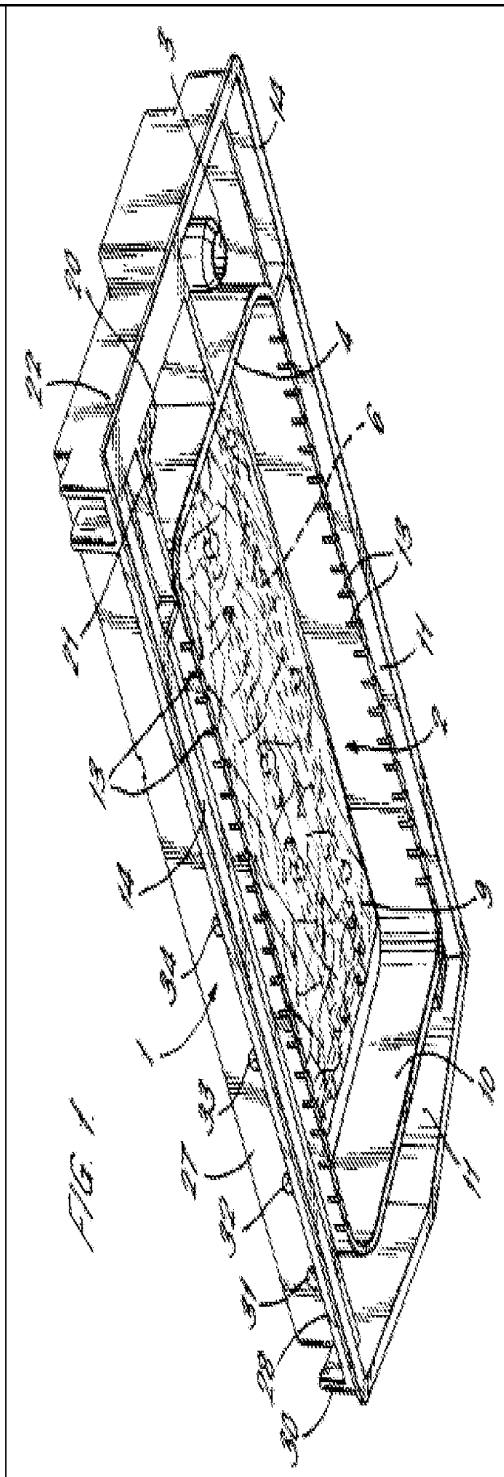
K-fee has yet to identify any limitation of the Asserted Claims that it contends is not anticipated and/or rendered obvious by Bentley. Nespresso therefore expressly reserves the right to respond to any such contention, including by identifying additional obviousness combinations, if K-fee makes any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

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

U.S. Patent No. 10,858,177	Disclosure
[1.pre] A beverage system for producing a beverage, comprising:	Bentley discloses, either expressly or inherently, a beverage system for producing a beverage. *See, e.g.*: Bentley at 1:3-8: The present invention relates to packages containing ingredients for the preparation of beverages and, in particular, to sealed packages which are formed from a substantially air- and water-impermeable material and which contain one or more ingre-dients for the preparation of beverages. Bentley at 1:38-45: There is also described in European Patent Application No. 87311325.2, a method for preparing a beverage which comprises positioning a beverage containing package at a brewing station, introducing water through water introduction means into the package, allowing the water to commingle with the beverage ingredient, and collecting the beverage so-formed through an outlet formed in the package. Bentley at 1:46-55: The beverage packages as described in European Patent Application No. 87311325.2 are primarily intended to be used with a beverage preparation machine which handles the packages automatically or semi-automatically. A machine of this type is described in our European Patent Application No. 89302708.6. The packages may contain roast and ground coffee, leaf tea or one or more powdered bev-erage preparation ingredients such as powdered chocolate, powdered coffee or powdered soup.
[1.a] a portion capsule comprising: a foil lid sealed to a base element	Bentley discloses, either expressly or inherently, a portion capsule comprising: a foil lid sealed to a base element. *See, e.g.*: Bentley at 1:26-37:

U.S. Patent No. 10,858,177	Disclosure
having a cavity within which a beverage raw material is provided,	In our European Patent Application No. 87311325.2 there is described a package which con-tains at least one beverage preparation ingredient, e.g. roast and ground coffee. In a preferred embodiment the package is formed from a substantially air-and water-impermeable material and comprises a sealed body portion having a compartment contain-ing the beverage ingredient and an outlet channel, the compartment and the outlet channel co-operating in such a manner that, in use, the beverage is filtered, thereby avoiding the necessity for an external filter. Bentley at 2:16-31: The beverage package used in the present invention preferably has a body portion which may be formed, for example, from a moulded plastics material. The inlet and/or outlet of the package may be closed by a plug of a plastics material moulded into the inlet and/or outlet nozzle during the moulding of the body portion. Alternatively, the inlet and/or outlet may be covered by a substantially air- and water-impermeable material, for example aluminium foil or a laminated material, such as a laminate of plastic material/metal foil/plastic material, prior to the opening of the inlet and/or outlet. Specific examples of materials which can be used are aluminium foil having a thickness in the range of from 30 to 60 micrometres coated with a layer of polypropylene or a laminate of polypropylene/aluminium foil/polyester. Bentley at 3:13-17: The beverage preparation ingredients contained in the packages used in the invention are preferably roast and ground coffee, or leaf tea, and according to individual taste, powdered milk or creamer, sugar or artificial sweetner. Bentley at 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

U.S. Patent No. 10,858,177	Disclosure
	The sensor may be, for example, a mechanical sensor, an optical sensor, a magnetic sensor, an electrical sensor or an inductive sensor. The machine is preferably adapted so that the package is handled automatically following its insertion into the machine. For example, a machine of the type as described in our European Patent Application No. 89302708.6 can be fitted with an appropriate sensor to sense and identify a recognition means provided on beverage packages intended for use therewith. Bentley at 6:10-29: Referring to the drawings a beverage package body is shown at 1. The body may be formed, for example, from a moulded plastics material. The body 1 has a compartment 2 in which the beverage preparation ingredient or ingredients are contained. The package body has an outlet nozzle 3 and an inlet 12 formed therein. The compartment 2 is separated from the area of the body in which the nozzle 3 is formed by means of a wall 4. The top 5 of the package 1 has four longitudinal ribs 6 moulded to the under- side thereof which are shown as a plurality of dotted lines in Figure 2. The four ribs 6 are joined at either end by transverse ribs 7 which are also shown in dotted outline in Figure 2. The ribs 6 and 7 are strengthened at intervals by posts 8 which are also moulded to the underside of the top 5 of package 1. These posts 8 are also shown in dotted outline in Figure 2. A filter material 9 is heat sealed to ribs 6, ribs 7 and posts 8, the filter material 9 extends across a substantial part of the top of compartment 2. Bentley at 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. Bentley at Fig. 1:



U.S. Patent No. 10,858,177	Disclosure
[1.b] the base element comprising a circumferential flange having a top side to which the lid is attached	Bentley discloses, either expressly or inherently, the base element comprising a circumferential flange having a top side to which the lid is attached. *See, e.g.*: 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.c] and a bottom side with a barcode located on the bottom side, and	Bentley discloses, either expressly or inherently, a bottom side with a barcode located on the bottom side. *See, e.g.*: Bentley at 4:41-5:34: The packages used in the present invention are preferably provided with a recognition means whereby, in use, the package is identified by the machine into which it is placed for treatment and the identification of the package thereby causes it to be subjected to the correct treatment steps including the introduction of a liquid medium into the package. For the preparation of beverages from beverage preparation ingredients the liquid medium introduced into the package will generally be water or a water/air mixture. 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

U.S. Patent No. 10,858,177	Disclosure
	of through holes in the package, a pattern of contrasting tones or colours printed onto the package or packages containing different comestibles being of different colours. The recognition means may also comprise one or more strips of a magnetic material applied to the body of the package which can be read by an appropriate magnetic sensor; one or more shaped or divided areas of metal foil applied to the package body which cause an inductive effect on movement of the package in the machine, which inductive effect can be sensed; or one or more electrically conductive areas formed on the body of the package which can be sensed electrically. As mentioned above, the package used in the present invention contains one or more beverage preparation ingredients, for example, roast and ground coffee or leaf tea and sugar and/or creamer, as desired. One machine which can readily be adapted for the preparation of a beverage from the preferred beverage package of the invention which includes a recognition means is described in our European Patent Application No. 89302708.6. The only modification required to be made to such a beverage preparation machine is to incorporate an appropriate sensor or sensors into it, the sensor or sensors being designed to read the particular coding on the capsule and to send a signal to the controller, which then selects the appropriate beverage preparation cycle. Bentley at 7:26-35: 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:

U.S. Patent No. 10,858,177	Disclosure
	As the package is driven into the beverage preparation machine the flange 28 is sensed as the side edge of the package passes beneath a sensing arm (not shown). The flange 28 has a plurality of upstanding pegs 31,32,33,34 located therein and as the package is driven into the machine by the engagement of the teeth 25 with the tooth of a cam, the sensor senses the presence or absence of upstanding pegs 31,32,33,34. If one or more of pegs 31,32,33,34 is not present the sensing arm will thereby identify a different type of beverage package. The sensing arm operates a switch (not shown) which thereby transmits information concerning the presence or absence of the pegs on the package to the control mechanism for the beverage dispensing machine. The arrangement of pegs 31,32,33,34 on the package thus identifies the type of package to the controller which then selects the appropriate beverage preparation conditions. The presence or absence of three pegs provides scope for the sensing arm to sense up to 8 different types of beverage packages. Thus, if the presence of a peg at a particular location is coded as 1 and the absence of a peg coded as 0, the following code combinations can be achieved. 000 001 010 100 101 110 011 111 The presence of the additional fourth peg formed in flange 28 provides an even larger number of code combinations.

U.S. Patent No. 10,858,177	Disclosure
[1.d] a beverage machine comprising: a detector to read the barcode,	Bentley discloses, either expressly or inherently, a beverage machine comprising: a detector to read the barcode. *See, e.g.*: Bentley at 1:46-55: The beverage packages as described in European Patent Application No. 87311325.2 are primarily intended to be used with a beverage preparation ma-chine which handles the packages automatically or semi-automatically. A machine of this type is described in our European Patent Application No. 89302708.6. The packages may contain roast and ground coffee, leaf tea or one or more powdered bev-erage preparation ingredients such as powdered chocolate, powdered coffee or powdered soup. Bentley at 5:40-54: The packages used in the present invention may be treated by a machine which includes therein one or more sensors which are adapted to sense and identify a recognition means provided on a package inserted into the machine. The sensor may be, for example, a mechanical sensor, an optical sensor, a magnetic sensor, an electrical sensor or an inductive sensor. The machine is preferably adapted so that the package is handled automatically following its insertion into the machine. For example, a machine of the type as described in our European Patent Application No. 89302708.6 can be fitted with an appropriate sensor to sense and identify a recognition means provided on beverage packages intended for use therewith. Bentley at 7:47-8:24: 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.

U.S. Patent No. 10,858,177	Disclosure
	If one or more of pegs 31,32,33,34 is not present the sensing arm will thereby identify a different type of beverage package. The sensing arm operates a switch (not shown) which thereby transmits information concerning the presence or absence of the pegs on the package to the control mechanism for the beverage dispensing machine. The arrangement of pegs 31,32,33,34 on the package thus identifies the type of package to the controller which then selects the appropriate beverage preparation conditions. The presence or absence of three pegs provides scope for the sensing arm to sense up to 8 different types of beverage packages. Thus, if the presence of a peg at a particular location is coded as 1 and the absence of a peg coded as 0, the following code combinations can be achieved. 000 001 010 100 101 110 011 111 The presence of the additional fourth peg formed in flange 28 provides an even larger number of code combinations. *See also* [1.c].
[1.e] a media chute configured to receive and support the portion capsule,	Bentley discloses, either expressly or inherently, a media chute configured to receive and support the portion capsule. *See, e.g.*: Bentley at [0005]:

U.S. Patent No. 10,858,177	Disclosure
	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.
[1.f] and a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference,	Bentley discloses, either expressly or inherently, a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference. *See, e.g.*: 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

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	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. *See also* [1.d].

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[1.g] wherein the base element has a wall region with an electrically conductive section	Bentley discloses, either expressly or inherently, wherein the base element has a wall region with an electrically conductive section. *See, e.g.*: Bentley at 2:16-31: The beverage package used in the present invention preferably has a body portion which may be formed, for example, from a moulded plastics material. The inlet and/or outlet of the package may be closed by a plug of a plastics material moulded into the inlet and/or outlet nozzle during the moulding of the body portion. Alternatively, the inlet and/or outlet may be covered by a substantially air- and water-impermeable material, for example aluminium foil or a laminated material, such as a laminate of plastic material/metal foil/plastic material, prior to the opening of the inlet and/or outlet. Specific examples of materials which can be used are aluminium foil having a thickness in the range of from 30 to 60 micrometres coated with a layer of polypropylene or a laminate of polypropylene/aluminium foil/polyester. Bentley at 5:9-18: The recognition means may also comprise one or more strips of a magnetic material applied to the body of the package which can be read by an appropriate magnetic sensor; one or more shaped or divided areas of metal foil applied to the package body which cause an inductive effect on movement of the package in the machine, which inductive effect can be sensed; or one or more electrically conductive areas formed on the body of the package which can be sensed electrically.
[1.h] and radially spaced and vertically oriented drawn grooves,	Bentley discloses, either expressly or inherently, radially spaced and vertically oriented drawn 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.

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	Bentley at 6:10-7:15: Referring to the drawings a beverage package body is shown at 1. The body may be formed, for example, from a moulded plastics material. The body 1 has a compartment 2 in which the beverage preparation ingredient or ingredients are contained. The package body has an outlet nozzle 3 and an inlet 12 formed therein. The compartment 2 is separated from the area of the body in which the nozzle 3 is formed by means of a wall 4. The top 5 of the package 1 has four longitudinal ribs 6 moulded to the under- side thereof which are shown as a plurality of dotted lines in Figure 2. The four ribs 6 are joined at either end by transverse ribs 7 which are also shown in dotted outline in Figure 2. The ribs 6 and 7 are strengthened at intervals by posts 8 which are also moulded to the underside of the top 5 of package 1. These posts 8 are also shown in dotted outline in Figure 2. A filter material 9 is heat sealed to ribs 6, ribs 7 and posts 8, the filter material 9 extends across a substantial part of the top of compartment 2. Compartment 2 is separated from the outlet nozzle by a wall 4 and surrounded on its other three sides by a U-shaped wall 10. The wall 10 has a U-shaped channel 11 surrounding it, the channel 11 communicating with inlet 12. The wall 10 has a plurality of small slots 13 formed in the two longitudinal arms thereof. In use of the beverage package as shown in the drawings, the bottom of the package 1 is sealed by means of an aluminium foil or a laminated foil which is heat sealed to the lower edges of walls 4 and 10 and to the lower edge 14 of the package. Water enters the package at a pressure of about 105Pa via inlet 12 which is opened by piercing or cutting the material covering the said opening. The water enters the channel 11 surrounding three sides of the compartment 2 containing the beverage ingredients. The water, which is under pressure, is forced through the elongate slots 13 formed in the wall 10 which separates channel 11 from compartment 2. The water mixes with the beverage preparation ingredients con- tamed in 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

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	pass through the filter. The passages 15 are closed at the end remote from the outlet by transverse rib 7. The beverage formed by the passage of water through the beverage preparation ingredients also passes directly through the filter material 9 into areas 16 which communicate with passages 15. The beverage passes along passages 15, commingles with the beverage collected in areas 16 and is then funnelled by means of angled extensions 17 of the middle two ribs 6 over a weir 18 to a beverage collection area 19 and thence into outlet nozzle 3. The beverage is then collected in a cup or other receptacle placed below the outlet nozzle 3. It may be desirable to support the filter material 9 by means of additional support ribs in the passages 15 in order to prevent the filter material from bowing and sealing the passages. Bentley at 7:36:46: The package is also provided, as best shown in Figure 2, with teeth 25 moulded along one side wall of compartment 2. The teeth 25 have recesses 26 formed therebetween. These teeth 25 are intended to enable the beverage package to be driven through a beverage preparation machine by the engagement of the teeth 25 with the tooth of a cam (not shown). The side wall 27 of the beverage package has a flange 28 extending at right angles thereto. The flange 28 has an upstanding rib 30 at the end thereof near to the leading end 29 of the package.
[1.i] the cavity has radially spaced and vertically oriented drawn ribs.	Bentley discloses, either expressly or inherently, the cavity has radially spaced and vertically oriented drawn ribs. *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:

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	Referring to the drawings a beverage package body is shown at 1. The body may be formed, for example, from a moulded plastics material. The body 1 has a compartment 2 in which the beverage preparation ingredient or ingredients are contained. The package body has an outlet nozzle 3 and an inlet 12 formed therein. The compartment 2 is separated from the area of the body in which the nozzle 3 is formed by means of a wall 4. The top 5 of the package 1 has four longitudinal ribs 6 moulded to the under- side thereof which are shown as a plurality of dotted lines in Figure 2. The four ribs 6 are joined at either end by transverse ribs 7 which are also shown in dotted outline in Figure 2. The ribs 6 and 7 are strengthened at intervals by posts 8 which are also moulded to the underside of the top 5 of package 1. These posts 8 are also shown in dotted outline in Figure 2. A filter material 9 is heat sealed to ribs 6, ribs 7 and posts 8, the filter material 9 extends across a substantial part of the top of compartment 2. Compartment 2 is separated from the outlet nozzle by a wall 4 and surrounded on its other three sides by a U-shaped wall 10. The wall 10 has a U-shaped channel 11 surrounding it, the channel 11 communicating with inlet 12. The wall 10 has a plurality of small slots 13 formed in the two longitudinal arms thereof. In use of the beverage package as shown in the drawings, the bottom of the package 1 is sealed by means of an aluminium foil or a laminated foil which is heat sealed to the lower edges of walls 4 and 10 and to the lower edge 14 of the package. Water enters the package at a pressure of about 105Pa via inlet 12 which is opened by piercing or cutting the material covering the said opening. The water enters the channel 11 surrounding three sides of the compartment 2 containing the beverage ingredients. The water, which is under pressure, is forced through the elongate slots 13 formed in the wall 10 which separates channel 11 from compartment 2. The water mixes with the beverage preparation ingredients con- tamed in 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

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	preparation ingredients also passes directly through the filter material 9 into areas 16 which communicate with passages 15. The beverage passes along passages 15, commingles with the beverage collected in areas 16 and is then funnelled by means of angled extensions 17 of the middle two ribs 6 over a weir 18 to a beverage collection area 19 and thence into outlet nozzle 3. The beverage is then collected in a cup or other receptacle placed below the outlet nozzle 3. It may be desirable to support the filter material 9 by means of additional support ribs in the passages 15 in order to prevent the filter material from bowing and sealing the passages. Bentley at 7:36:46: The package is also provided, as best shown in Figure 2, with teeth 25 moulded along one side wall of compartment 2. The teeth 25 have recesses 26 formed therebetween. These teeth 25 are intended to enable the beverage package to be driven through a beverage preparation machine by the engagement of the teeth 25 with the tooth of a cam (not shown). The side wall 27 of the beverage package has a flange 28 extending at right angles thereto. The flange 28 has an upstanding rib 30 at the end thereof near to the leading end 29 of the package. *See also* [1.h].
4. The beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule.	Bentley discloses, either expressly or inherently, the beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule. *See, e.g.*: 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,

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	allowing the water to commingle with the beverage ingredient, and collecting the beverage so-formed through an outlet formed in the package. Bentley at 2:3-15: Accordingly, the present invention provides a method for the preparation of a beverage from a sealed package containing one or more beverage preparation ingredients located in a compartment in the package, which method comprises introducing a liquid medium suitable for the preparation of the beverage under pressure into the package through an in- let formed therein, causing the liquid medium to enter the compartment thereby forming the beverage, and collecting the beverage so formed from an outlet formed in the package, characterised in that the beverage is filtered in an upwardly direction through a filter. Bentley at 3:41-50: In carrying out the method of the present invention a liquid medium is passed via the inlet of the package into the compartment containing the beverage preparation ingredient(s). The filter is disposed at the top of the compartment containing the beverage preparation ingredient(s) and the liquid medium is thereby caused to flow upwardly through the beverage preparation ingredients. The beverage so formed flows upwardly through the filter into the passage or passages which communicate with the outlet. Bentley at 6:36-7:15: In use of the beverage package as shown in the drawings, the bottom of the package 1 is sealed by means of an aluminium foil or a laminated foil which is heat sealed to the lower edges of walls 4 and 10 and to the lower edge 14 of the package. Water enters the package at a pressure of about 10^5Pa via inlet 12 which is opened by piercing or cutting the material covering the said opening. The water enters the channel 11 surrounding three sides of the compartment 2 containing the beverage ingredients. The water, which is under pressure, is forced through the elongate slots 13 formed in the wall 10 which separates channel 11 from compartment 2. The water mixes with the beverage preparation ingredients con- tamed in compartment 2 and is forced upwardly through the beverage preparation ingredients. The

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	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. *See also* [1].
5. The beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis.	Bentley discloses, either expressly or inherently, the beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis. *See, e.g.*: 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

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	used are aluminium foil having a thickness in the range of from 30 to 60 micrometres coated with a layer of polypropylene or a laminate of polypropylene/ aluminium foil/polyester. Bentley at 8:25-32: When the beverage preparation machine has selected the appropriate beverage preparation conditions, the water inlet 12 of the package is pierced or cut, the outlet 3 is uncovered in the package and water caused to flow under pressure through the compartment containing the beverage ingredient(s). The chosen beverage then being collected in a cup or receptacle placed below the outlet 3 of the package. *See also* [4].

Exhibit B-2 – Invalidity of U.S. Patent No. 10,858,177 in view of Boyd

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,177 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 '177 Patent under pre-AIA 35 U.S.C. § 102(b). Boyd anticipates and/or renders obvious the Asserted Claims of the '177 Patent (at least as Nespresso understands K-fee's application of the Asserted Claims in an effort to show infringement).

To the extent K-fee argues that any element below is not disclosed by 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 B-1 to B-9 and in Appendix B.

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

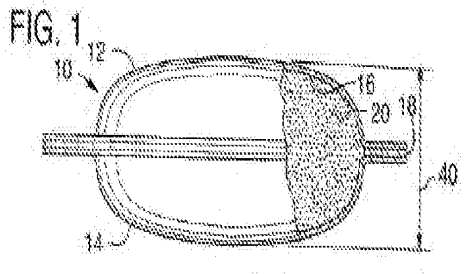
Where Nespresso states that Boyd "discloses" a limitation, that disclosure may be express, implicit, and/or inherent.

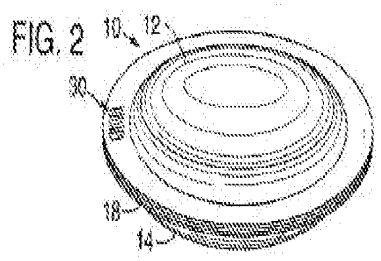
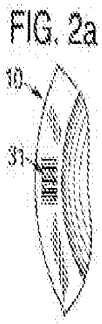
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[1.pre] A beverage system for producing a beverage, comprising:	Boyd discloses, either expressly or inherently, a beverage system for producing a beverage. *See, e.g.*: Boyd at Abstract: A brewing packet is provided for use in the preparation of hot 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 [0005]: Despite these advantages, however, coffee machines which employ such pre-measured coffee packets typically do not consider variations in individual taste, or the particular characteristics of the packaged coffee grounds. The use of such packets also has heretofore been reserved for espresso coffee making machines, which typically employ consistent size, shape and grind characteristics. Accordingly, applicants have developed a system whereby coffee packets may be encoded with data for use in directing the coffee brewing process to accommodate individual tastes and the particular characteristics of the ground coffee used. 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

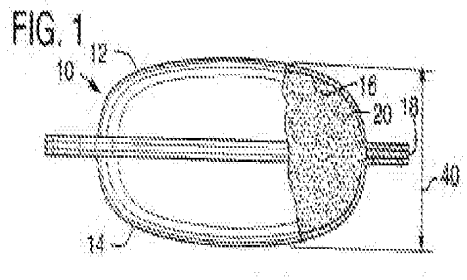
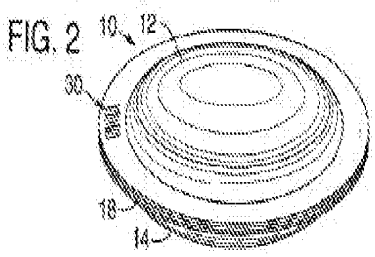
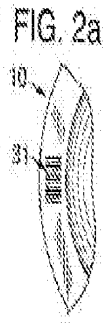
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	ingredients to produce a variety of beverages. Similarly, the packet may be configured to produce single or multiple servings of a beverage. Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is 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 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 [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

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	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

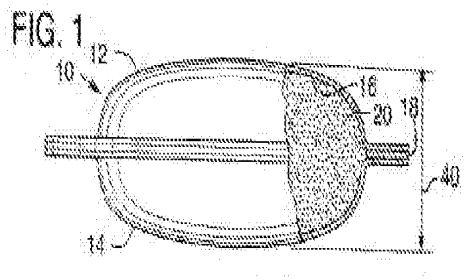
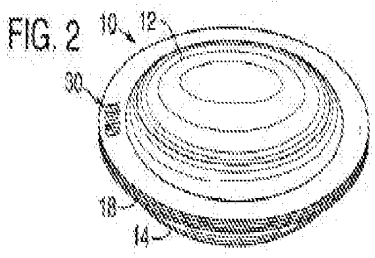
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	may be altered in accordance with desired brewing characteristics each time the packet is replaced. Particular brew characteristics thus may be controlled simply by selection of a packet with the desired encoded brewing directives (whether or not 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* Boyd at Claims 1-25.
[1.a] a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a	Boyd discloses, either expressly or inherently, a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided. *See, e.g.*: 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

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beverage raw material is provided,	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: 

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	Boyd at Fig. 2:  Boyd at Fig. 2a:  Boyd at Claims 1-25.
[1.b] the base element comprising a circumferential flange having a top side to which the lid is attached	Boyd discloses, either expressly or inherently, the base element comprising a circumferential flange having a top side to which the lid is attached. *See, e.g.*: 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

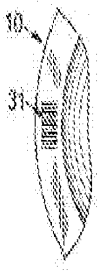
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	bed depth 40 of the packet is determined by the quantity of coffee grounds, the density of coffee grounds, and the desired coffee beverage taste. Boyd at Fig. 1:  Boyd at Fig. 2:  Boyd at Fig. 2a: 

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	Boyd at Claim 3.
[1.c] and a bottom side with a barcode located on the bottom side, and	Boyd discloses, either expressly or inherently, a bottom side with a barcode located on the bottom side. *See, e.g.*: Boyd at [0023]: With the foregoing in mind, it will be appreciated that it would be desirable to automatically customize the brew operation based on particular characteristics of the packet, the characteristics of the coffee, and/or the tastes of the user, whether or not the user is aware of what changes in the brew operation will lead to the desired taste. The present invention provides a vehicle for such customization in the form of an encoded packet configured to provide the brewing machine with data useful in directing the brewing operation in accordance with packet or packet content characteristics and/or the user's tastes. Boyd at [0028]: As shown in FIG. 2, packet 10 includes a machine interpretable feature 30 which directs operation of the coffee machine in accordance with predefined brewing directives. In the first depicted embodiment, the machine interpretable feature is a barcode 31 as depicted in FIG. 2 and 2a. It will be understood that the machine interpretable feature may be any machine readable feature associated with packet 10. Boyd at [0034]: Referring now to FIG. 4, a method of operation for the present invention is illustrated at 200. At 202, a brewing packet encoded with packet-characteristic data is placed into a brewing device. At 204, the packet-characteristic data is read by a sensor. At 206, the packet-characteristic data is interpreted by a processor. Finally, at 208, brewing is directed in accordance with the packet-characteristic data read by the sensor and interpreted by the processor. Boyd at [0037]:

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	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:

FIG. 2a



Boyd at Fig. 4:

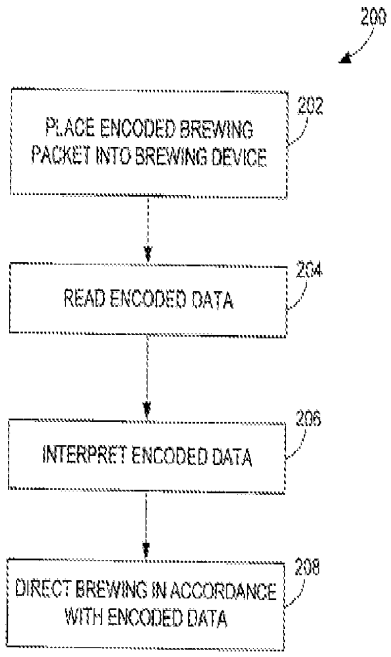


FIG. 4

Boyd at Claims 1-25.

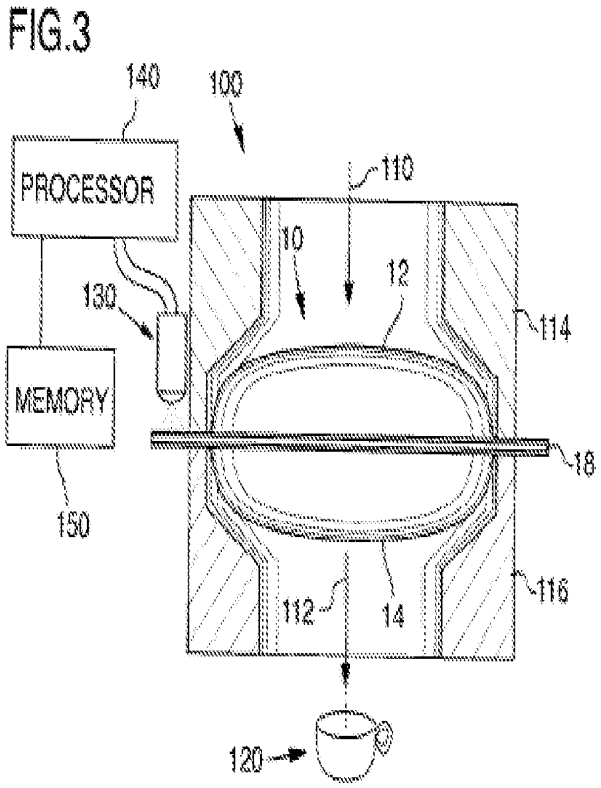
U.S. Patent No. 10,858,177	Disclosure
[1.d] a beverage machine comprising: a detector to read the barcode,	Boyd discloses, either expressly or inherently, a beverage machine comprising: a detector to read the barcode. *See, e.g.*: Boyd at [0006]: A brewing packet is provided for use in the preparation of hot or cold beverages. The brewing packet 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

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	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

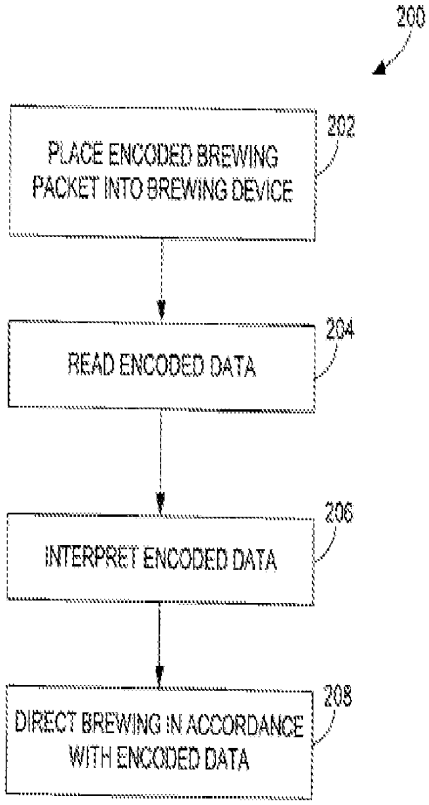
U.S. Patent No. 10,858,177	Disclosure
	include grind, blend, roast, quantity, bed depth, freshness, and expiration date. These examples are meant to be exemplary, not limiting in scope. Boyd at [0032]-[0034]: Coffee machine 100 includes a sensor 130 designed to read machine interpretable feature 30 of 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.

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	Finally, at 208, brewing is directed in accordance with the packet-characteristic data read by the sensor and interpreted by the processor.

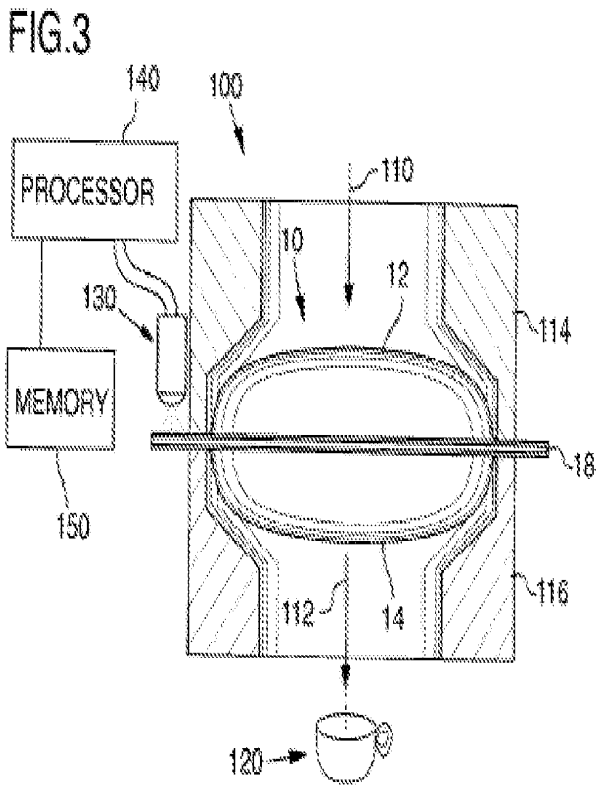
Boyd at Fig. 3:



Boyd at Fig. 4:

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	 FIG. 4 Boyd at Claims 6, 25. *See also* [1.c].
[1.e] a media chute configured to receive and support the portion capsule,	Boyd discloses, either expressly or inherently, a media chute configured to receive and support the portion capsule. *See, e.g.*: Boyd at [0019]-[0021]:

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	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 [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

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	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: 
[1.f] and a pump controlled to push water into the portion capsule only upon a	Boyd discloses, either expressly or inherently, a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference. *See, e.g.*:

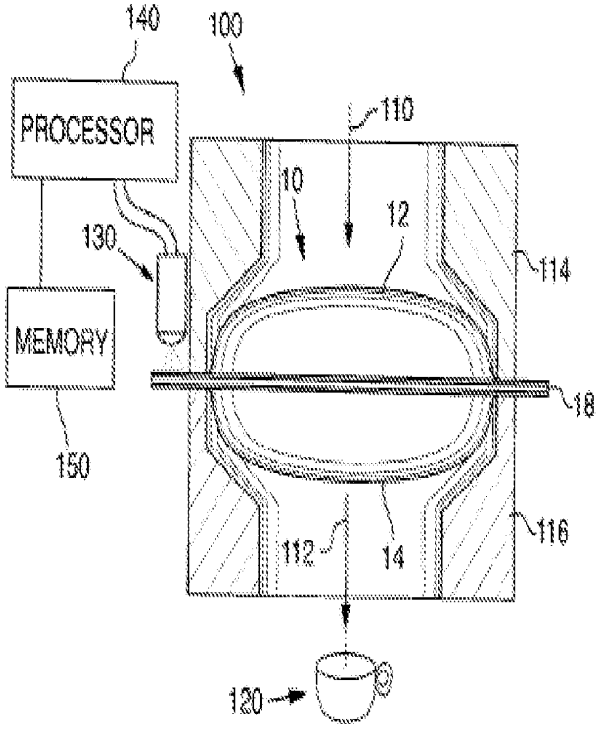
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determination that the read barcode agrees with a stored reference,	Boyd at [0003]: Automated coffee machines have long been used for brewing coffee, both in large-scale commercial settings and in smaller business and home settings. These machines 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 [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

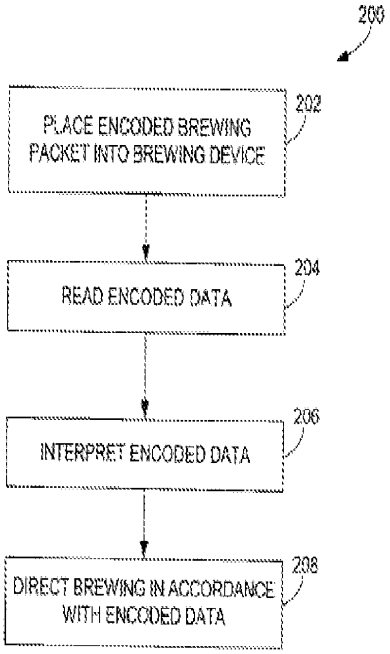
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	pre-fabricated espresso packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference. While the aforementioned machines generally are described for use 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. 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 [0030]-[0037]:

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	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. 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. 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

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	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.

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	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. 3:

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	FIG.3 

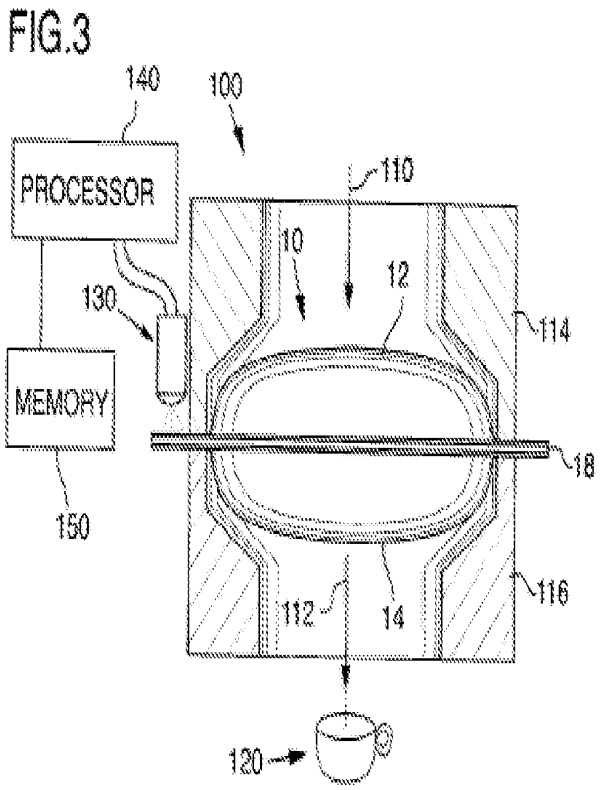
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	Boyd at Fig. 4:  FIG. 4
[1.g] wherein the base element has a wall region with an electrically conductive section	Boyd discloses, either expressly or inherently, wherein the base element has a wall region with an electrically conductive section. *See, e.g.*: Boyd at [0019]-[0021]: Although the present invention may be used in virtually any brewing machine, it is described herein for use in the context of machines such as those disclosed in U.S. Pat. No. 5,974,949 to Weber et al. and U.S. Pat. No. 6,035,762 to Ruckstuhl. Those patents disclose machines for brewing espresso using espresso espresso packets in the form of filter capsules which are received through a funnel into a brewing chamber where water is

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	passed through the filter capsule to produce an espresso beverage. The subject matter of each of these patents is incorporated herein by this reference. The invention also may be practiced in connection with espresso machines such as those disclosed in U.S. Pat. Nos. 4,253,385, 4,254,694, 4,353,293, 4,429,623, 4,484, 515, 4,555,894 and 4,852,333, all to Illy. These patents disclose various aspects of espresso machines which include brewing chambers configured to receive pre-fabricated espresso packets through which water is passed to produce an espresso drink. The subject matter of each of these patents also is incorporated herein by this reference. While the aforementioned machines generally are described for use in connection with espresso packets which contain a single serving of espresso, it will be appreciated that the present invention considers application of the relevant principles to machines which employ coffee packets for use in brewing multiple cups, which employ coffee packets of various size and shape, which employ various filter media and which contain coffee of various varieties, roasts, and grinds. Furthermore, the packet and methodology described herein may also produce other types of beverages such as tea, cider, and/or any beverage which is produced by mixing various ingredients. The packet and methodology is not limited to hot beverages and may be used to produce cold beverages. Boyd at [0026]: Typically, the filter takes the form of opposing, water-permeable paper sheets, as indicated, but the filter may be formed of stainless steel, or some other filter material configured to define a cavity for containment of coffee grounds while water and brewed coffee beverage pass therethrough. It is desirable, however, that the filter impart no undesirable taste characteristics to the resulting coffee beverage.
[1.h] and radially spaced and vertically oriented drawn grooves,	Boyd discloses, either expressly or inherently, radially spaced and vertically oriented drawn grooves. *See, e.g.*: Boyd at [0015]:

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	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: 

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[1.i] the cavity has radially spaced and vertically oriented drawn ribs.	
4. The beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule.	Boyd discloses, either expressly or inherently, the beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule. 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.

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	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.

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	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:  *See also* [1].

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5. The beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis.	Boyd discloses, either expressly or inherently, the beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis. *See, e.g.*: 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* [4].

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,177 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 '177 Patent under pre-AIA 35 U.S.C. § 102(a). Denisart anticipates and/or renders obvious the Asserted Claims of the '177 Patent (at least as Nespresso understands K-fee's application of the Asserted Claims in an effort to show infringement).

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

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

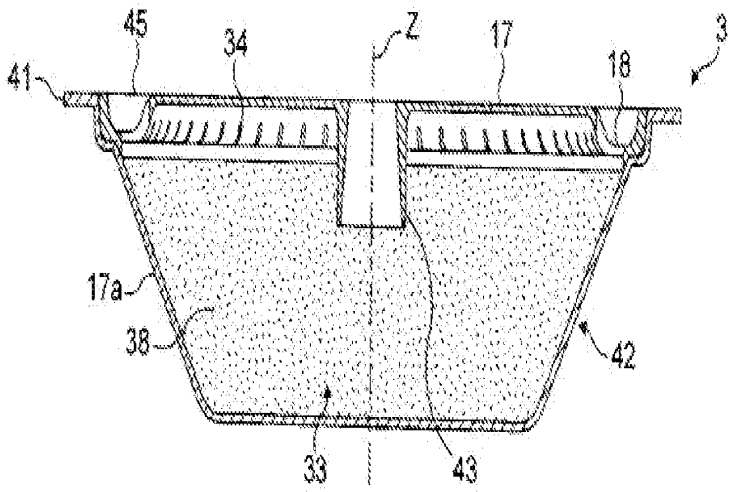
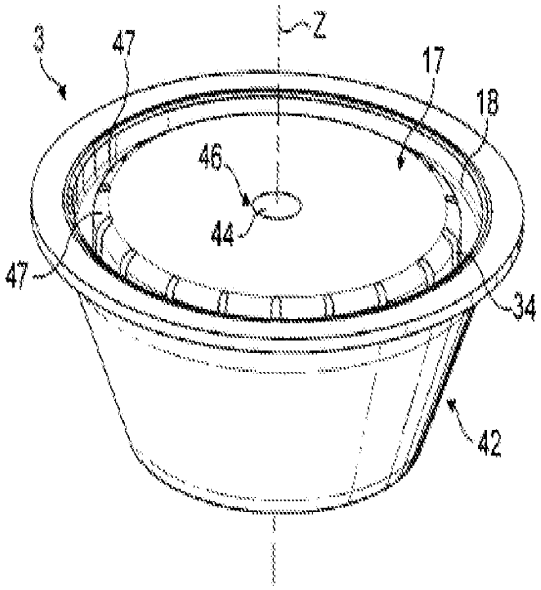
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[1.pre] A beverage system for producing a beverage, comprising:	Denisart discloses, either expressly or inherently, a beverage system for producing a beverage. *See, e.g.*: Denisart at Abstract: The present invention relates to a beverage production 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

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	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] a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided,	Denisart discloses, either expressly or inherently, a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided. *See, e.g.*: 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

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	speed of the driving means during the extraction phase of the beverage production depending on the measured flow rate, or respectively the measured pressure, of the liquid. Denisart at 5:7-12: In a preferred embodiment, the capsule is removably insertable into the centrifugal unit of the device. The centrifugal unit of the device preferably comprises two enclosing members which are movably arranged relatively to each other and which are designed to enclose the capsule within the device. Denisart at 5:27-31: A second enclosing member of the centrifugal unit is preferably a rotary drum which is of complementary shape to the capsule. Hence, a user may insert the capsule into said rotary drum which is held in the drum a stable manner. Denisart at 9:21-33: The single-use capsule to be used with the present invention can be closed before use in a gas impervious manner to maintain freshness of the food ingredients housed therein. The capsule preferably contains a protective atmosphere for the ingredients such as inert gas. The capsule can be closed by a membrane which is pierced or peeled off during the beverage preparation process. The capsule may comprise coding means such as a barcode for example which is 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

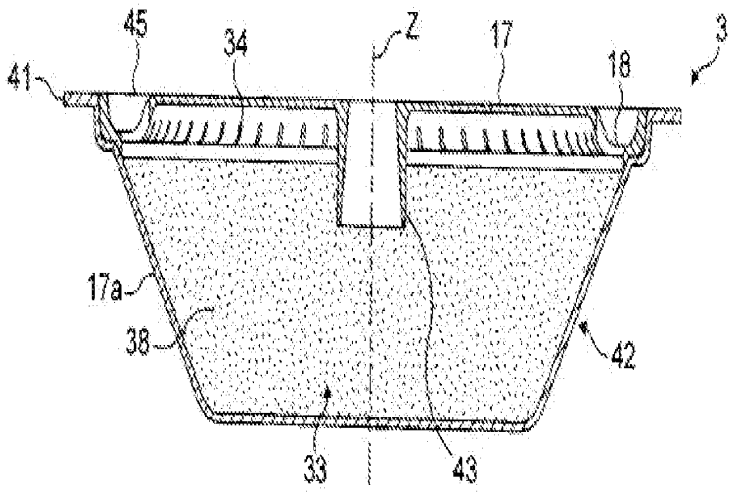
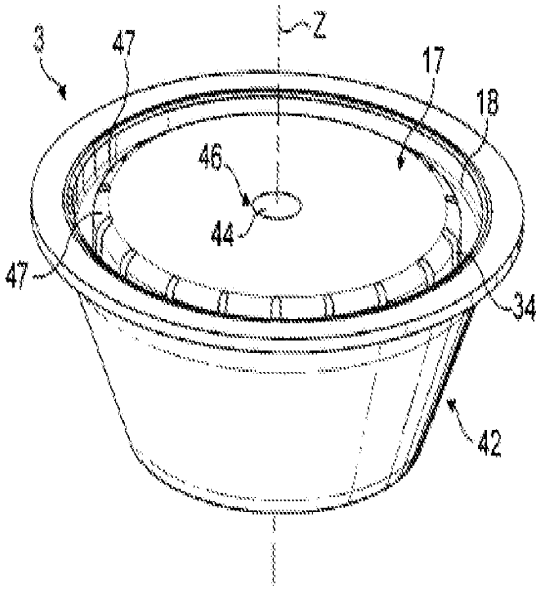
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	portion of the lid. In a possible alternative, the capsule can be capsule permeable to liquid and gas when inserted in the device such as a filter capsule. The capsule preferably contains ground coffee, soluble coffee, tea, cocoa, milk and combinations thereof. Denisart at 34:8-10: The capsule 3 to be used with the device or the system according to the present invention may be any of the capsules described in PCT/EP08/056310 (WO 2008/148646). Denisart at 34:11-27: The capsule 3 as shown in figure 3 is pre-opened before it is inserted in the device, i.e., a sealing foil arranged at an upper face of the capsule is removed by peeling, or a central hole is perforated in the foil of the capsule when the capsule is inserted in the device. The capsule 3 optionally comprises an inner member forming a lid 17 which is inserted in the dished body of the capsule. The lid 17 and body 42 delimit together an internal enclosure 33 for receiving a portioned food substance. The lid 17 comprises outlet openings 34 (see figure 4) at a peripheral section 47 of the lid 17 for filtering the beverage and maintaining the food (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.

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	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 z. Thereby, it should be noted that the capsule may not necessarily have a circular section around axis Z but may take another form such as a square, rectangle or a polygonal form. Thereby, axis Z is preferably aligned to the axis of rotation A when the capsule is inserted in the device. Moreover, the capsule 3 comprises a lid 17 which preferably has the form of a disc of plastic comprising a central portion 46 and a peripheral portion 47. The central portion 46 can be substantially flat and may comprise an inlet port 44 for enabling the fitting or introduction of a water injection member 21 of the beverage production device. Denisart at 40:31-41:7: The upper surface of the capsule 3 may be equipped with a foil 45 which enables sealing of the capsule 3. The foil preferably covers the lid 17 and is welded or adhesively connected onto the peripheral edge 41 of the body of the capsule. The foil can be permanently connected to the edge if the foil is intended to be pierced for forming the inlet and outlets or, alternatively, the connection is peelable. Before the capsule is inserted into the rotary drum 16 of the device, said foil 45 needs to be pierced or removed in order to enable a preparation of the beverage. Denisart at Fig. 5:

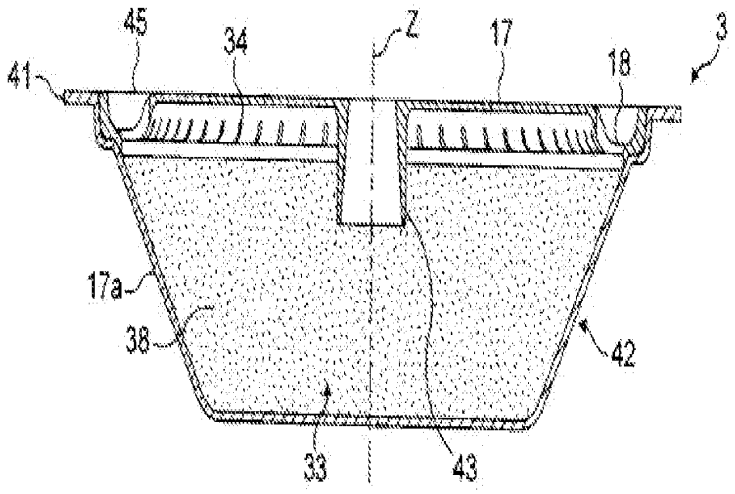
U.S. Patent No. 10,858,177	Disclosure
	 Denisart at Fig. 6: 

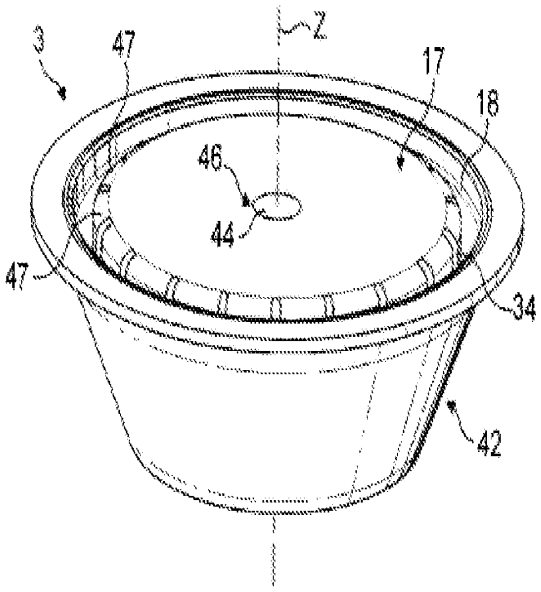
U.S. Patent No. 10,858,177	Disclosure
	See also Denisart at Claims 5-19.
[1.b] the base element comprising a circumferential flange having a top side to which the lid is attached	Denisart discloses, either expressly or inherently, the base element comprising a circumferential flange having a top side to which the lid is attached. *See, e.g.*: Denisart at 8:10-19: However, it may as well be possible that the strength and/or volume are set by identification means arranged within the device which interact with the capsule provided to the device. Such identifications means may be a barcode scanner for example which reads a barcode provided on an outside face of the capsule and which enables a detection of the type of capsule and/or the nature of ingredients provided within the capsule in order to apply a predefined extraction profile for the beverage to be prepared. Denisart at 9:21-33: The single-use capsule to be used with the present invention can be closed before use in a gas impervious manner to maintain freshness of the food ingredients housed therein. The capsule preferably contains a protective atmosphere for the ingredients such as inert gas. The capsule can be closed by a membrane which is pierced or peeled off during the beverage preparation process. The capsule may comprise coding means such as a barcode for example which is read by the machine. Accordingly, corresponding parameters, such as for example the beverage strength, the beverage volume and/or the beverage crema or foam, can be adjusted by the control means. Denisart at 20:6-9: 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.

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	Denisart at 34:8-10: The capsule 3 to be used with the device or the system according to the present invention may be any of the capsules described in PCT/EP08/056310 (WO 2008/148646). Denisart at 38:15-23: The capsule device is opened by moving the two assemblies 20, 32 relatively one another, e.g., by means of a dedicated closing mechanism and separating the two assemblies 20, 32. As a result, a single-use capsule 3 containing a food substance can be inserted in the device, i.e., placed in the cavity of the rotating drum 16. The device is then closed by the assembly 20 being connected back onto the assembly 32 and locked by the closing mechanism. Denisart at 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. 10,858,177	Disclosure
	 Denisart at Fig. 6: 

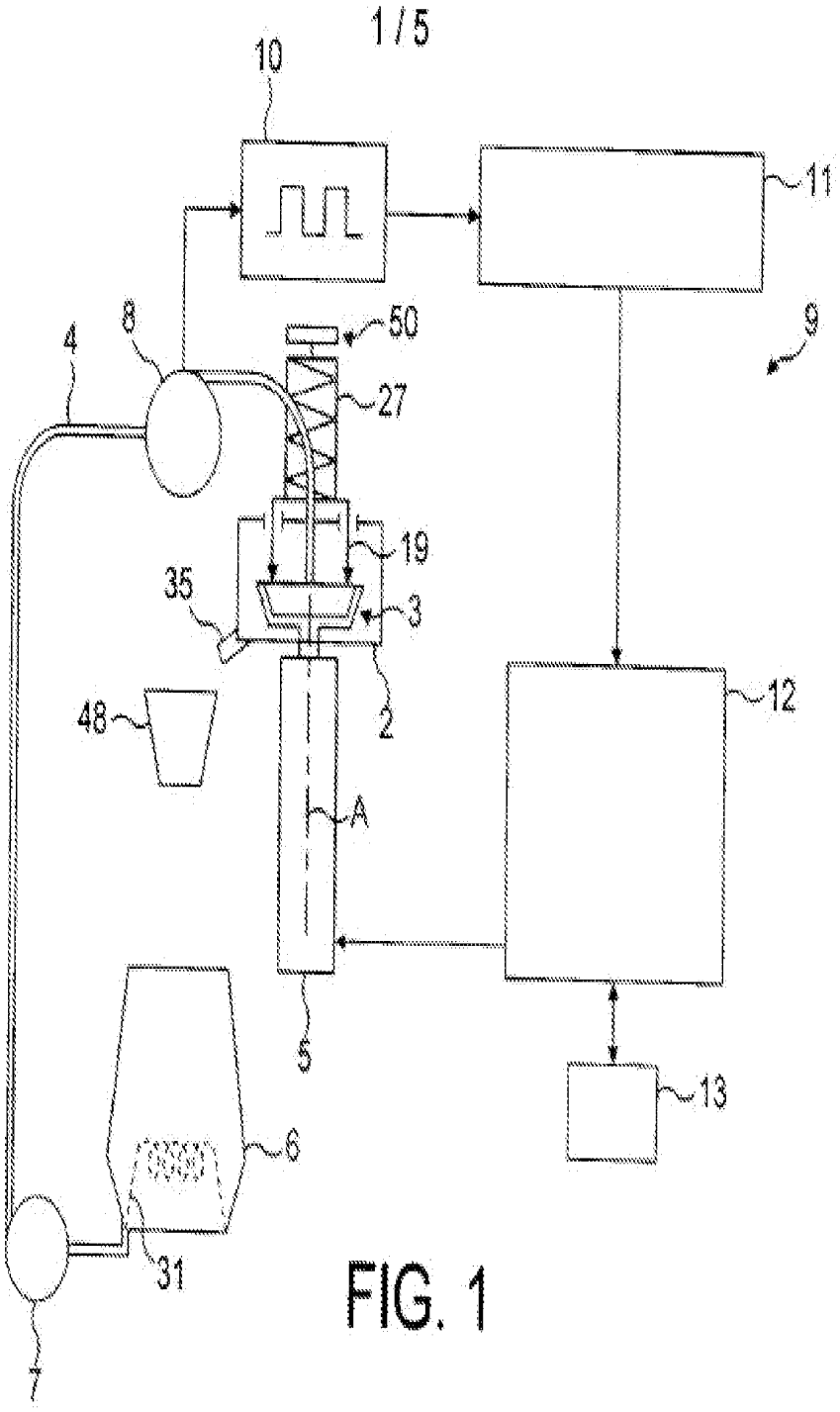
U.S. Patent No. 10,858,177	Disclosure
	See also Denisart at Claims 5-19.
[1.c] and a bottom side with a barcode located on the bottom side, and	Denisart discloses, either expressly or inherently, a bottom side with a barcode located on the bottom side. *See, e.g.*: Denisart at 8:10-19: However, it may as well be possible that the strength and/or volume are set by identification means arranged within the device which interact with the capsule provided to the device. Such identifications means may be a barcode scanner for example which reads a barcode provided on an outside face of the capsule and which enables a detection of the type of capsule and/or the nature of ingredients provided within the capsule in order to apply a predefined extraction profile for the beverage to be prepared. Denisart at 9:21-33: The single-use capsule to be used with the present invention can be closed before use in a gas impervious manner to maintain freshness of the food ingredients housed therein. The capsule preferably contains a protective atmosphere for the ingredients such as inert gas. The capsule can be closed by a membrane which is pierced or peeled off during the beverage preparation process. The capsule may comprise coding means such as a barcode for example which is read by the machine. Accordingly, corresponding parameters, such as for example the beverage strength, the beverage volume and/or the beverage crema or foam, can be adjusted by the control means. Denisart at 20:6-9: 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.

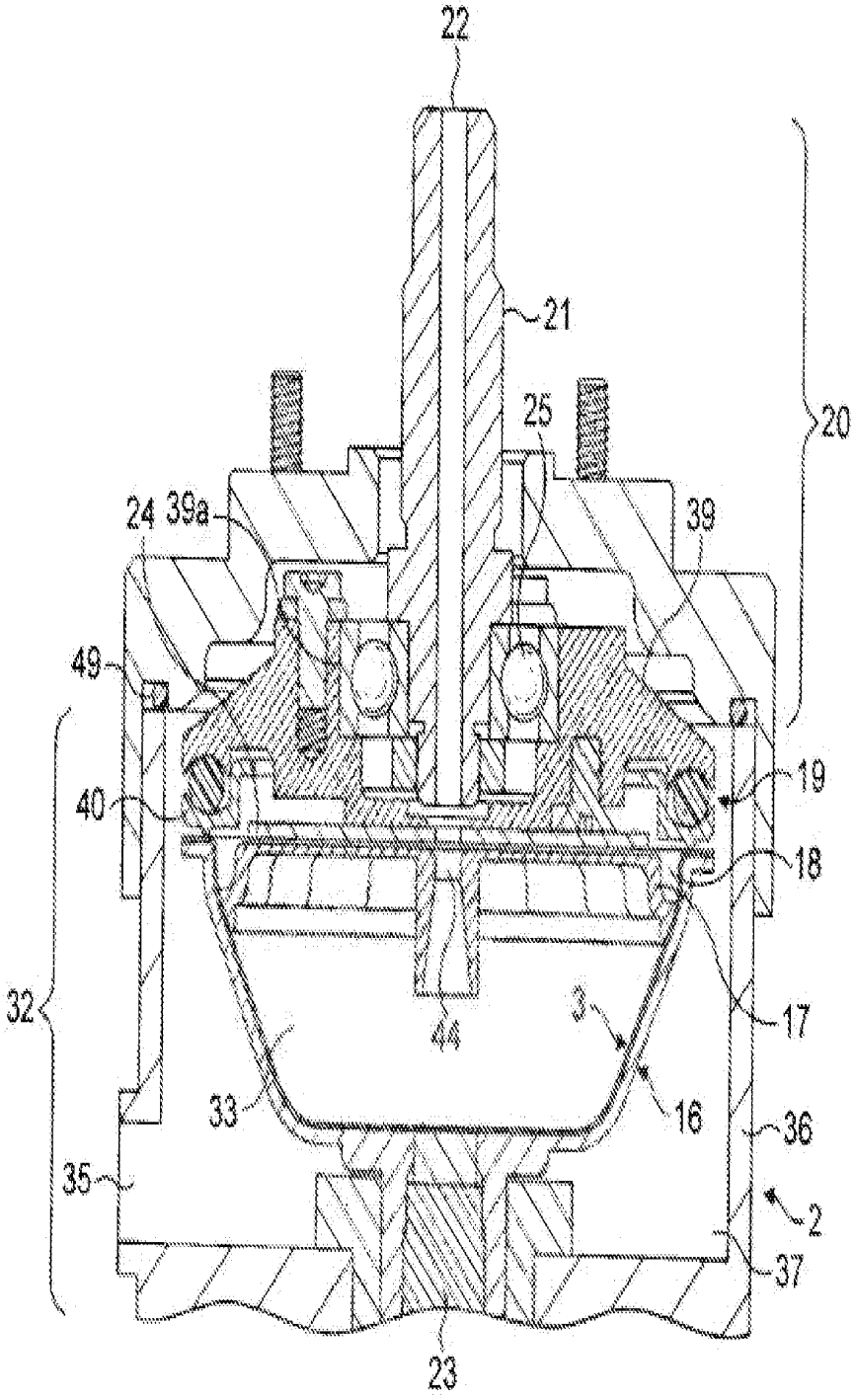
U.S. Patent No. 10,858,177	Disclosure
	Denisart at 34:8-10: The capsule 3 to be used with the device or the system according to the present invention may be any of the capsules described in PCT/EP08/056310 (WO 2008/148646). Denisart at 38:15-23: The capsule device is opened by moving the two assemblies 20, 32 relatively one another, e.g., by means of a dedicated closing mechanism and separating the two assemblies 20, 32. As a result, a single-use capsule 3 containing a food substance can be inserted in the device, i.e., placed in the cavity of the rotating drum 16. The device is then closed by the assembly 20 being connected back onto the assembly 32 and locked by the closing mechanism. Denisart at Fig. 5:  Denisart at Fig. 6:

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	 See also Denisart at Claims 5-19.
[1.d] a beverage machine comprising: a detector to read the barcode,	Denisart discloses, either expressly or inherently, a beverage machine comprising: a detector to read the barcode. 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

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	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 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: 

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	See also Denisart at Claims 5-19. *See also* [1.c].
[1.e] a media chute configured to receive and support the portion capsule,	Denisart discloses, either expressly or inherently, a media chute configured to receive and support the portion capsule. *See, e.g.*: 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 34:29-35:9: The lower enclosing member 32 of the centrifugal unit 2 is a receiving assembly which comprises a liquid duct 35, for example, protruding on a side of the assembly 32 for guiding the centrifuged liquid coming out of the capsule 3 to a receptacle 48 such as a cup or glass (see figure D . The liquid outlet 35 is in communication with a liquid receiver 36 forming a cylindrical wall placed at a short distance about a rotating drum 16 into which the capsule is inserted as illustrated in figure 3. Thereby, the rotary drum 16 is preferably a hollow capsule holder with an internal cavity complementary shaped to receive the capsule. The liquid receiver 36 defines with the drum 16 an intermediate cavity 37 for collecting the liquid.
[1.f] and a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference,	Denisart discloses, either expressly or inherently, a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference. *See, e.g.*: 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

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	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.

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	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.

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	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

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	count of impulse data generated by the flow sensing means, which is already stored or storable such as by transfer from a code on the capsule or cell in the memory of the controller 12.
[1.g] wherein the base element has a wall region with an electrically conductive section	Denisart discloses, either expressly or inherently, wherein the base element has a wall region with an electrically conductive section. *See, e.g.*: Denisart at 34:8-10: The capsule 3 to be used with the device or the system according to the present invention may be any of the capsules described in PCT/EP08/056310 (WO 2008/148646). Denisart at 40:31-41:7: The upper surface of the capsule 3 may be equipped with a foil 45 which enables sealing of the capsule 3. The foil preferably covers the lid 17 and is welded or adhesively connected onto the peripheral edge 41 of the body of the capsule. The foil can be permanently connected to the edge if the foil is intended to be pierced for forming the inlet and outlets or, alternatively, the connection is peelable. Before the capsule is inserted into the rotary drum 16 of the device, said foil 45 needs to be pierced or removed in order to enable a preparation of the beverage.
[1.h] and radially spaced and vertically oriented drawn grooves,	
[1.i] the cavity has radially spaced and vertically oriented drawn ribs.	
4. The beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is	Denisart discloses, either expressly or inherently, the beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule. *See, e.g.*:

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perpendicular to the flange of the portion capsule.	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

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	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.

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	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). 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].
5. The beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis.	Denisart discloses, either expressly or inherently, the beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis. *See, e.g.*: 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.

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	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. 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

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	discharged from the collecting recess 18 via the holes which are formed in the sealing foil 52 by the piercing members. *See also* [4].

Exhibit B-4 – Invalidity of U.S. Patent No. 10,858,177 in view of Erlandsson

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,177 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 '177 Patent under pre-AIA 35 U.S.C. § 102(b). Erlandsson anticipates and/or renders obvious the Asserted Claims of the '177 Patent (at least as Nespresso understands K-fee's application of the Asserted Claims in an effort to show infringement).

To the extent K-fee argues that any element below is not disclosed by 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 B-1 to B-9 and in Appendix B.

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

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[1.pre] A beverage system for producing a 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.

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	See also Erlandsson at Claims 1-8.
[1.a] a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided,	Erlandsson discloses, either expressly or inherently, a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided. *See, e.g.*: 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

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	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. 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.

Erlandsson at Fig. 1:

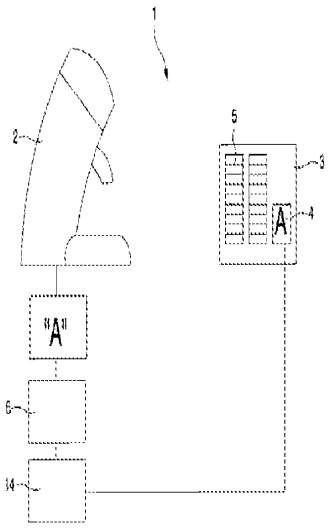
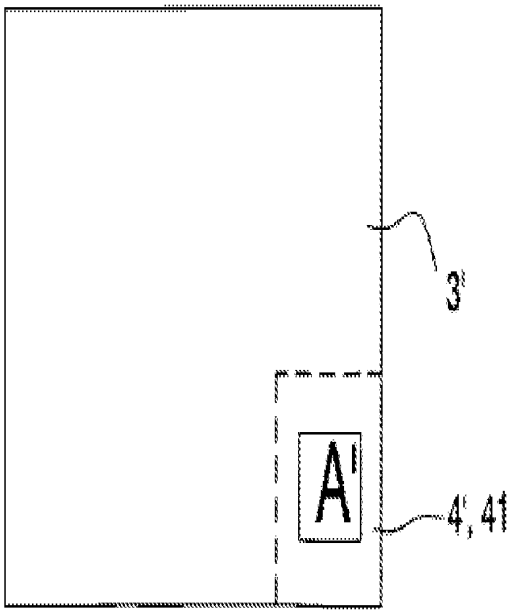
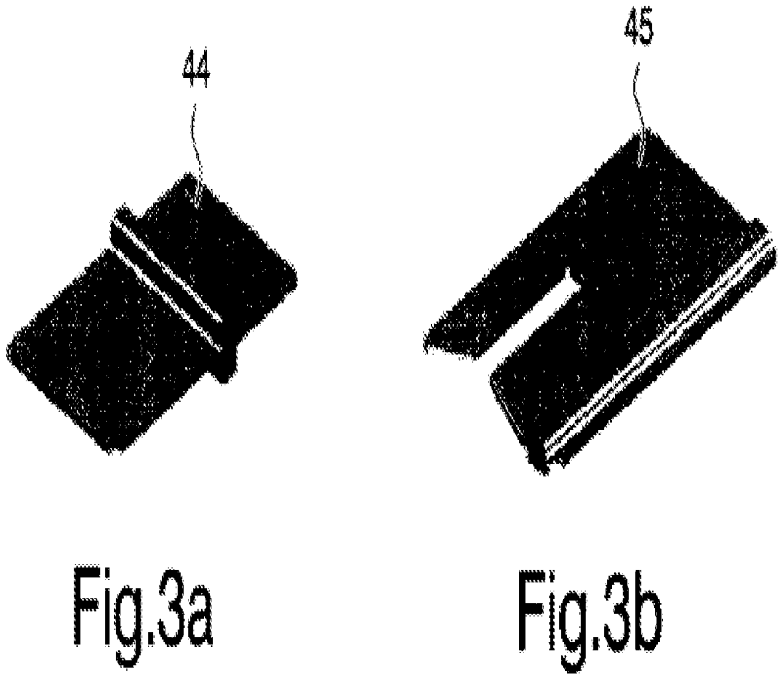


Fig.1

Erlandsson at Fig. 2a:

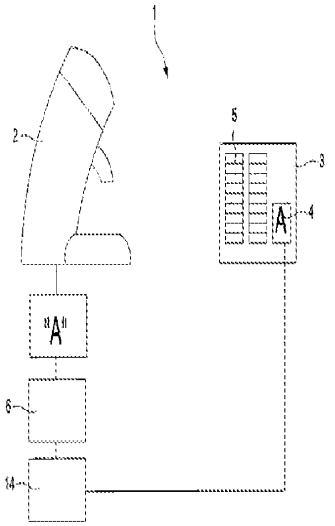


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[1.b] the base element comprising a circumferential flange having a top side to which the lid is attached	Erlandsson discloses, either expressly or inherently, the base element comprising a circumferential flange having a top side to which the lid is attached. *See, e.g.*: 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 Figs. 3a, 3b:

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	 Fig.3a Fig.3b
[1.c] and a bottom side with a barcode located on the bottom side, and	Erlandsson discloses, either expressly or inherently, a bottom side with a 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

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	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 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

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	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. 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

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	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. Erlandsson at Fig. 1:  Fig.1
[1.d] a beverage machine comprising: a detector to read the barcode,	Erlandsson discloses, either expressly or inherently, a beverage machine comprising: a detector to read the barcode. *See, e.g.*: Erlandsson at [0006]-[0008]:

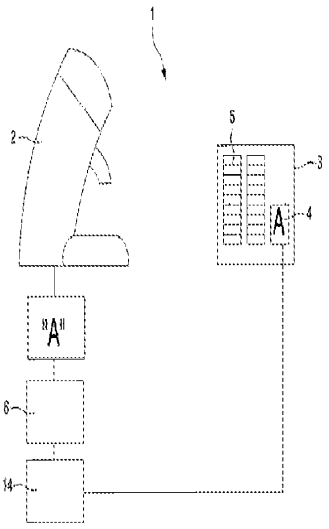
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	To achieve this object, a system according to the invention is characterized in that the container comprises an identifier provided with data, and the apparatus comprises a reader for reading the data in said identifier, and a controller for controlling 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

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	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

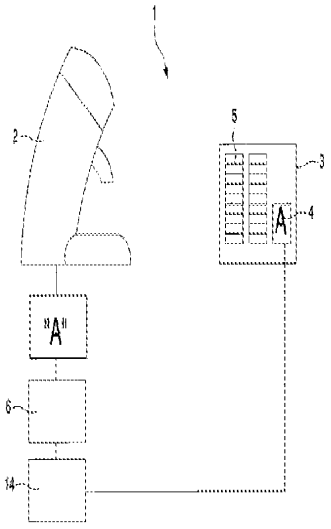
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	store a serial number that identifies a product, and perhaps other information, on a microchip that is attached to an antenna (the chip and the antenna together are called an RFID transponder or an RFID tag). The reader sends out electromagnetic waves 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 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.

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	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. *See also* [1.c].
[1.e] a media chute configured to receive and support the portion capsule,	Erlandsson discloses, either expressly or inherently, a media chute configured to receive and support the portion capsule. *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

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	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 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. Erlandsson at [0027]: 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 pre-determined 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,

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	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. Erlandsson at Fig. 1:  Fig.1
[1.f] and a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference,	Erlandsson discloses, either expressly or inherently, a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference. *See, e.g.*: Erlandsson at [0003]:

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	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 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.

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	Erlandsson at Fig. 1:  Fig.1
[1.g] wherein the base element has a wall region with an electrically conductive section	Erlandsson discloses, either expressly or inherently, wherein the base element has a wall region with an electrically conductive section. *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.

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	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.h] and radially spaced and vertically oriented drawn grooves,	
[1.i] the cavity has radially spaced and vertically oriented drawn ribs.	
4. The beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule.	Erlandsson discloses, either expressly or inherently, the beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule Erlandsson at [0003]:

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	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 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.

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5. The beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis.	

Exhibit B-5 – Invalidity of U.S. Patent No. 10,858,177 in view of Jarisch

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,177 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 '177 Patent's PCT filing date. Jarisch anticipates and/or renders obvious the Asserted Claims of the '177 Patent (at least as Nespresso understands K-fee's application of the Asserted Claims in an effort to show infringement).

To the extent K-fee argues that any element below is not disclosed by 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 B-1 to B-9 and in Appendix B.

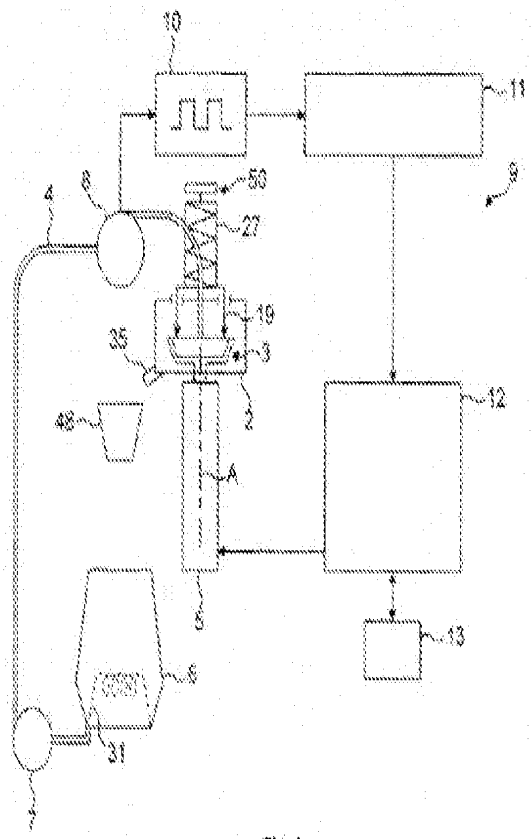
The chart below provides representative examples of where each element of each claim is found within Jarisch. Citations are meant to be exemplary, not exhaustive, and Nespresso reserves the right to identify and discuss additional portions of the reference in support of its contentions and/or to rebut 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.

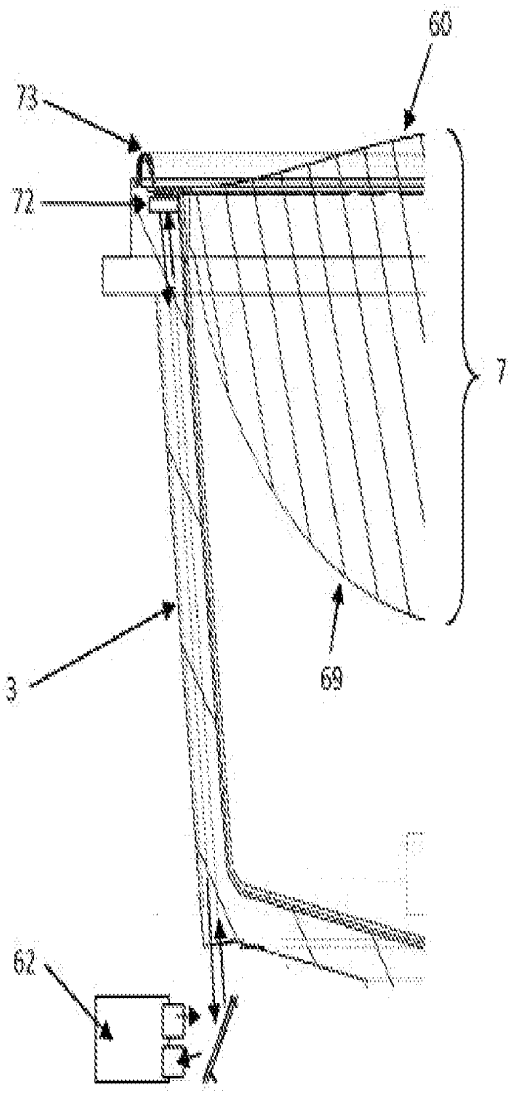
It is Nespresso's position that K-fee's Infringement Contentions have not established that any accused product or service infringes any valid claim. Thus, Nespresso's statements below should not be treated as an admission, implication, or suggestion that Nespresso agrees with K-fee regarding either the 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.

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[1.pre] A beverage system for producing a beverage, comprising:	Jarisch discloses, either expressly or inherently, a beverage system for producing a 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:

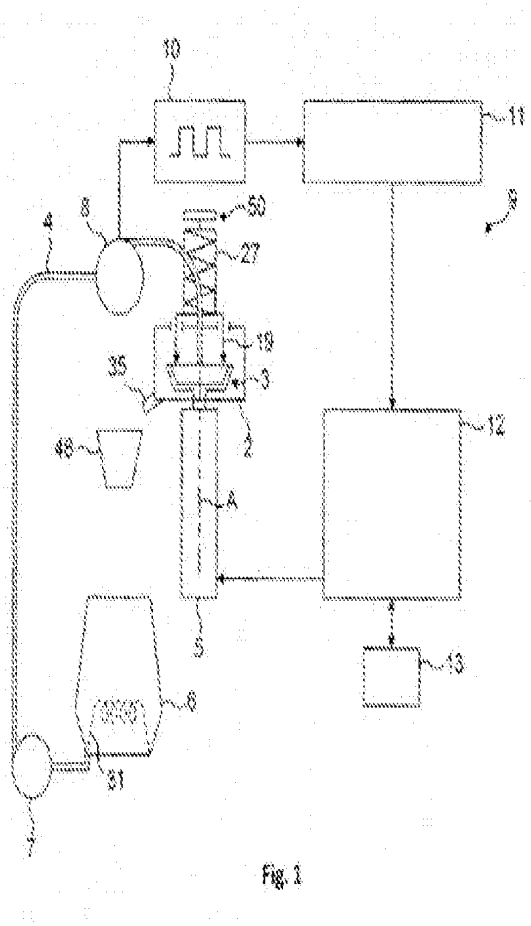
U.S. Patent No. 10,858,177	Disclosure
	 Fig. 1
[1.a] a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided,	Jarisch discloses, either expressly or inherently, a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided. *See, e.g.*: 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.

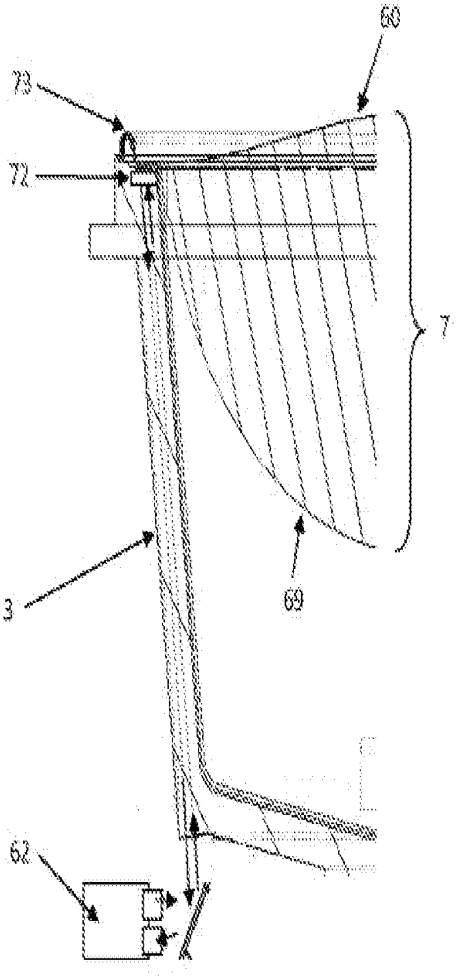
U.S. Patent No. 10,858,177	Disclosure
	See also Jarisch at FIG. 4:  Fig. 4 *See also* Jarisch at FIGS 5-7.

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[1.b] the base element comprising a circumferential flange having a top side to which the lid is attached	Jarisch discloses, either expressly or inherently, the base element comprising a circumferential flange having a top side to which the lid is attached. *See, e.g.*: Jarisch at [0016]: 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. Jarisch at [0036]-[0037]: 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. The capsule is designed for rotating around an axis A. This axis A crosses perpendicularly the center of the membrane which has the form of a disk. This axis A exits at the center of the bottom of the body. This axis A will help to define the notion of "circumference" which is a circular path located on the capsule and having the axis A as reference axis. This circumference can be on the lid, e.g., membrane or on the body part such as on the flange-like rim. The lid may be impervious to liquid before insertion in the device or it may be pervious to liquid by means of small openings or pores provided in the center and/or periphery of the lid. The code is spread along the circumference or a part of the circumference. The code may comprise successive arch-shaped segments. The code may also comprise successive segments which are individually rectilinear but extend along at least a part of the circumference.

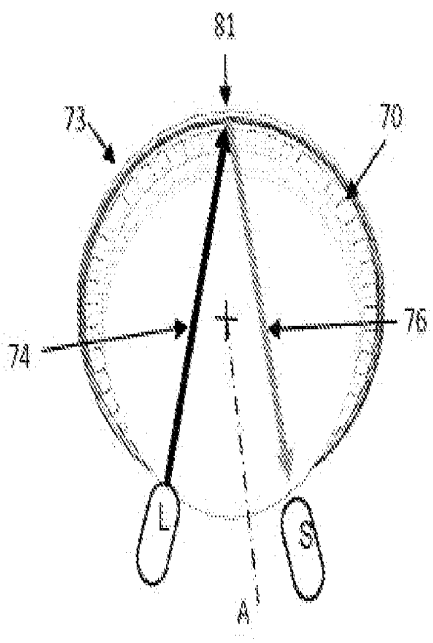
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	According to one embodiment, the sensor cannot read the code without the rotation of the capsule. This is the case where the code is spread along at least a eighth, preferably at least a quarter of the circumference or even more. The fact that the code is placed along an arc-shaped line render the reading by a sweep beam very difficult. This is why the rotation of the capsule plays an important role. In case that the code is located on the body, it is then necessary to rotate the capsule to have access, for the sensor, to the entire set of marks composing the code. The code is further located close to the peripheral edge of the capsule. The peripheral edge is defined as the outermost circular line of the capsule. Preferably, the distance of the code from the peripheral edge is not more than 10 mm, more preferably not more than 8 mm.
[1.c] and a bottom side with a barcode located on the bottom side, and	Jarisch discloses, either expressly or inherently, a bottom side with a 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]:

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	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]: 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]: 2) Optical reading on rim bottom side of capsule (figures 4 to 7):

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	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. *See* Jarisch at FIG. 1:  Fig. 1 Jarisch at FIG. 4:

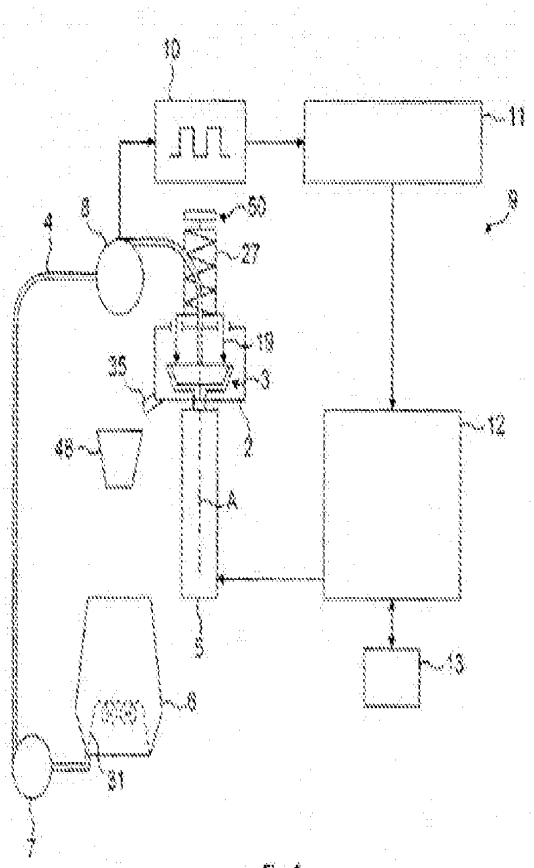
U.S. Patent No. 10,858,177	Disclosure
	 Jarisch at [0022]: In the most preferred embodiment, the code is present on the bottom of the rim of the capsule which is opposed to the lid of the capsule. The bottom of the rim is sufficiently away from the liquid injection and beverage delivery areas so that 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.

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	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

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	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.d] a beverage machine comprising: a detector to read the barcode,	Jarisch discloses, either expressly or inherently, a beverage machine comprising: a detector to read the barcode. *See, e.g.*: Jarisch at [0023]:

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	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 [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. *See also* [1.c].

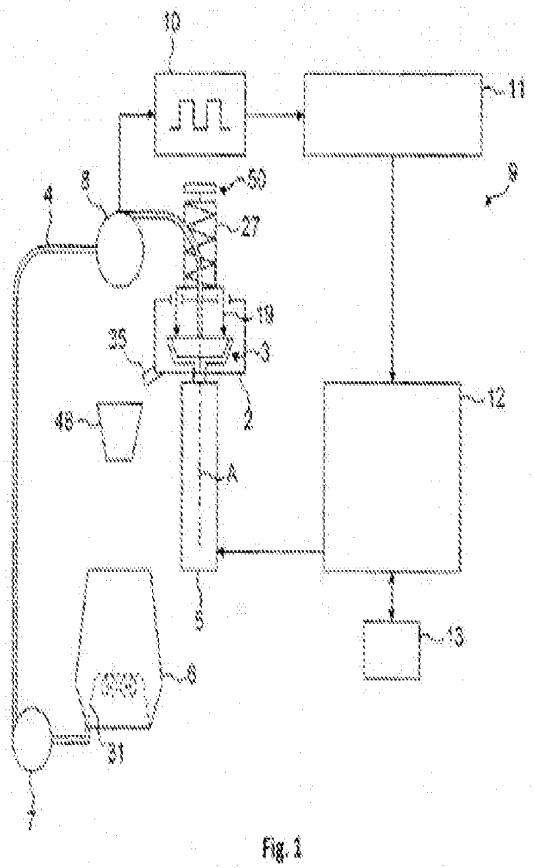
U.S. Patent No. 10,858,177	Disclosure
[1.e] a media chute configured to receive and support the portion capsule,	Jarisch discloses, either expressly or inherently, a media chute configured to receive and support the portion capsule. *See, e.g.*: Jarisch at [0023]: The invention further relates to a system 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. Jarisch at [0035]: The centrifugal unit 2 comprises a centrifugal cell 3. The cell 3 may comprise a capsule holder and a capsule received therein. The centrifugal unit is connected to driving means 5 such as a rotary motor. Jarisch at FIG. 1:

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	 Fig. 1 *See also* Jarisch at FIG. 4.
[1.f] and a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference,	Jarisch discloses, either expressly or inherently, a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference. *See, e.g.*: 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

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	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 [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 [0035]: The centrifugal unit 2 comprises a centrifugal cell 3. The cell 3 may comprise a capsule holder and a capsule received therein. The centrifugal unit is connected to driving means 5 such as a rotary motor. The centrifugal unit comprises a collecting part and an outlet 35. A receptacle 48 can be disposed below the outlet to collect the extracted beverage. The system further comprises liquid supply means such as a water reservoir 6 and a fluid circuit 4. Heating means 31 may also be provided in the reservoir or along the fluid circuit. The liquid supply means may further comprise a pump 7 connected to the reservoir. A flow restriction means 19 is provided to create a restriction to the flow of the centrifuged liquid which leaves the capsule. The system may further comprise a flow meter such as a flow-metering turbine 8 for providing a control of the flow rate of water supplied in the cell 3. The counter 11 can be connected to the flow-metering turbine 8 to enable an analysis of the generated impulse data 10. The analysed data is then transferred to the processor 12. Accordingly, the exact actual flow rate of the liquid within the fluid circuit 4 can be calculated in real-time. A user interface 13 may be provided to allow the user to input information that is transmitted to the control unit 9. Further characteristics of the system can be found in WO2010/026053. Jarisch at [0071]-[0073]: The reader may consist of: • A light source with/without focusing optic, and

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	• 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.g] wherein the base element has a wall region with an electrically conductive section	Jarisch discloses, either expressly or inherently, wherein the base element has a wall region with an electrically conductive section. *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. Jarisch at [0093]-[0095]: <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.

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[1.h] and radially spaced and vertically oriented drawn grooves,	
[1.i] the cavity has radially spaced and vertically oriented drawn ribs.	
4. The beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule.	Jarisch discloses, either expressly or inherently, the beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule. *See, e.g.*: Jarisch at [0035]: The centrifugal unit 2 comprises a centrifugal cell 3. The cell 3 may comprise a capsule holder and a capsule received therein. The centrifugal unit is connected to driving means 5 such as a rotary motor. The centrifugal unit comprises a collecting part and an outlet 35. A receptacle 48 can be disposed below the outlet to collect the extracted beverage. The system further comprises liquid supply means such as a water reservoir 6 and a fluid circuit 4. Heating means 31 may also be provided in the reservoir or along the fluid circuit. The liquid supply means may further comprise a pump 7 connected to the reservoir. A flow restriction means 19 is provided to create a restriction to the flow of the centrifuged liquid which leaves the capsule. The system may further comprise a flow meter such as a flow-metering turbine 8 for providing a control of the flow rate of water supplied in the cell 3. The counter 11 can be connected to the flow-metering turbine 8 to enable an analysis of the generated impulse data 10. The analysed data is then transferred to the processor 12. Accordingly, the exact actual flow rate of the liquid within the fluid circuit 4 can be calculated in real-time. A user interface 13 may be provided to allow the user to input information that is transmitted to the control unit 9. Further characteristics of the system can be found in WO2010/026053. Jarisch at FIG. 1 (showing water line inserting into center of capsule perpendicular to flange location)

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	 Fig. 1 *See also* [1].
5. The beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis.	

INVALIDITY CLAIM CHART
Invalidity of U.S. Patent No. 10,858,177 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 '177 Patent under pre-AIA 35 U.S.C. § 102(b). Panesar anticipates and/or renders obvious the Asserted Claims of the '177 Patent (at least as Nespresso understands K-fee's application of the Asserted Claims in an effort to show infringement).

To the extent K-fee argues that any element below is not disclosed by 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 B-1 to B-9, and in Appendix B.

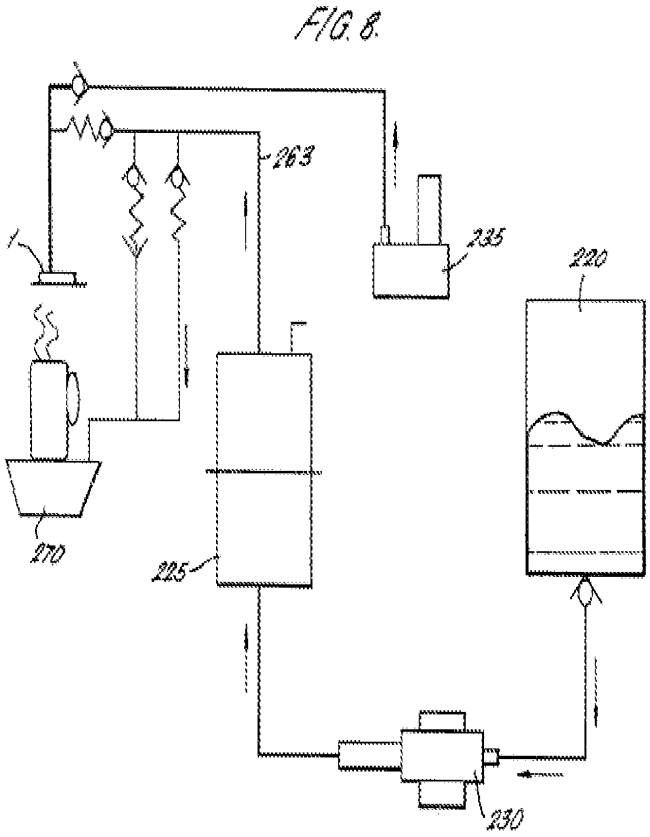
The chart below provides representative examples of where each element of each claim is found within Panesar. Citations are meant to be exemplary, not exhaustive, and Nespresso reserves the right to identify and discuss additional portions of the reference in support of its contentions and/or to rebut 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.

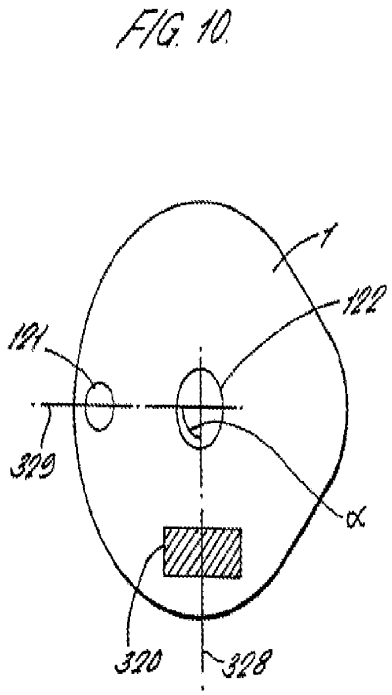
Where Nespresso states that Panesar "discloses" a limitation, that disclosure may be express, implicit, and/or inherent.

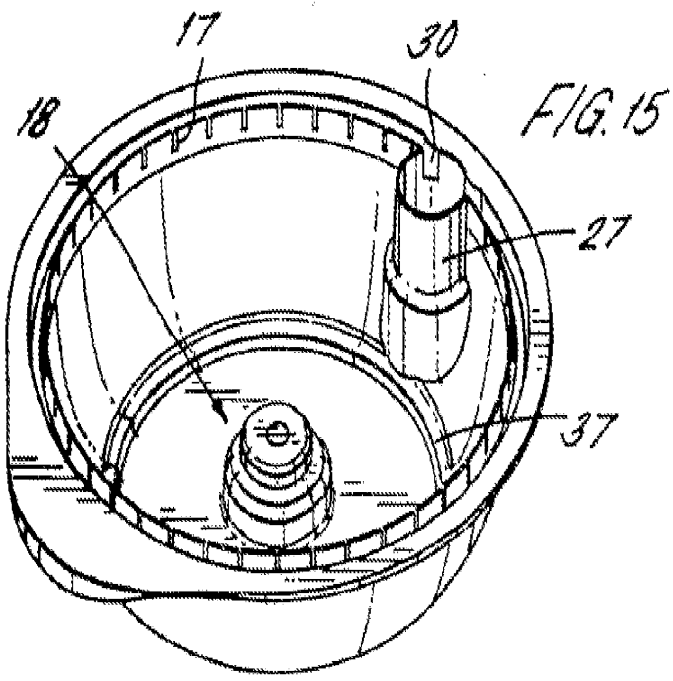
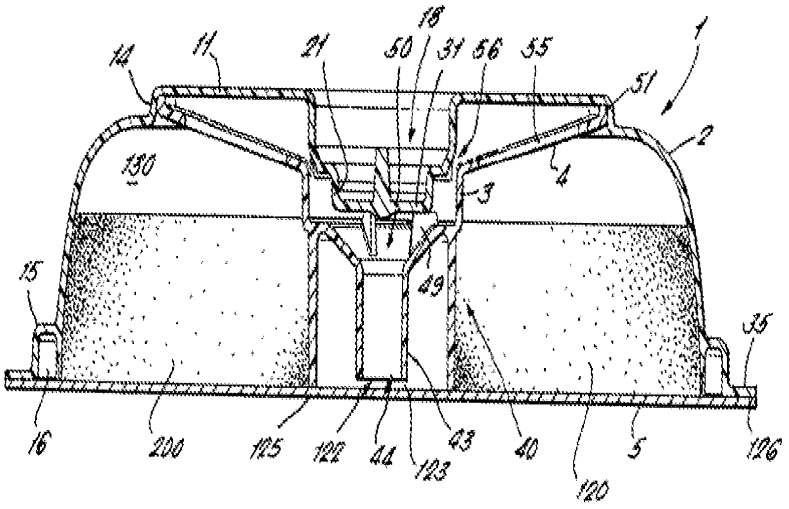
U.S. Patent No. 10,858,177	Disclosure
[1.pre] A beverage system for producing a beverage, comprising:	Panesar discloses, either expressly or inherently, a beverage system for producing a beverage. *See, e.g.*: Panesar at p. 1, ll. 4-5: The present invention relates to an insert, a machine and a system 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; FIG. 8. <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:

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	 Panesar at Claims 23–31.
[1.a] a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided,	Panesar discloses, either expressly or inherently, a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided. *See, e.g.*: Panesar at p. 9, ll. 8–18: <u>Cartridge for use in the system</u> 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

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	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. 38, ll. 15–21: <u>Insert for use in the system</u> As described above, the machine 201 of the present invention may also be used with other inserts not necessarily of a cartridge form. An example of another suitable form of insert will now be described. The insert 400 comprises an upper part 401 and a lower part 402. 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 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. 16, ll. 28-31: 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. 5, ll. 23–32:

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	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. Panesar at p. 9, ll. 24–29: The cartridge 1 is particularly designed for use in dispensing filtered products such as roast and ground coffee or leaf tea. However, the cartridge 1 may be used with other products such as chocolate, coffee, tea, sweeteners, cordials, flavourings, alcoholic beverages, flavoured milk, fruit juices, squashes, sauces and desserts.

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	Panesar at FIGs. 10, 15, 21: 

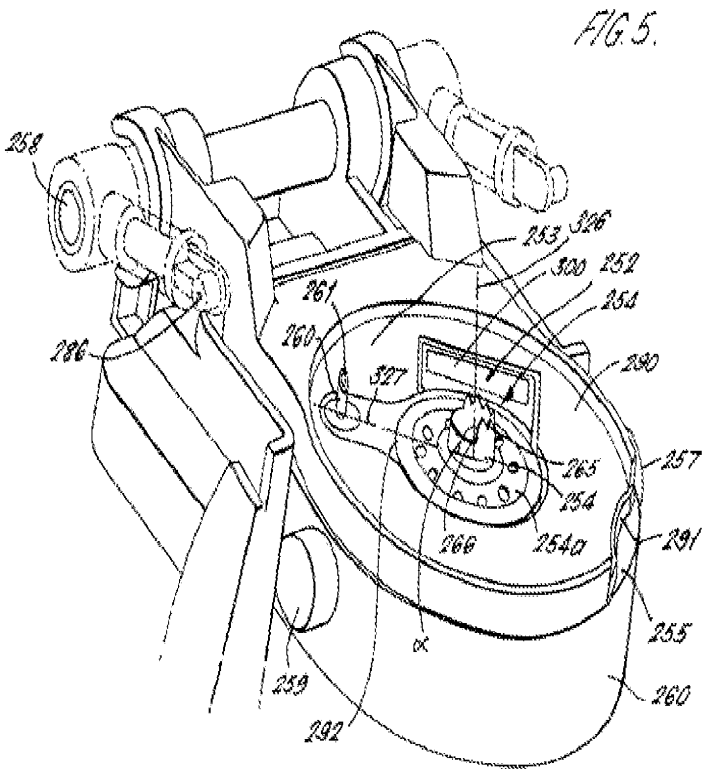
U.S. Patent No. 10,858,177	Disclosure
	 FIG. 15 FIG. 21 

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[1.b] the base element comprising a circumferential flange having a top side to which the lid is attached	Panesar discloses, either expressly or inherently, the base element comprising a circumferential flange having a top side to which the lid is attached. *See, e.g.*: 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. Panesar at FIGs. 10, 15, 21.
[1.c] and a bottom side with a barcode located on the bottom side, and	Panesar discloses, either expressly or inherently, a bottom side with a barcode located on the bottom side. *See, e.g.*: 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:

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	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 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:

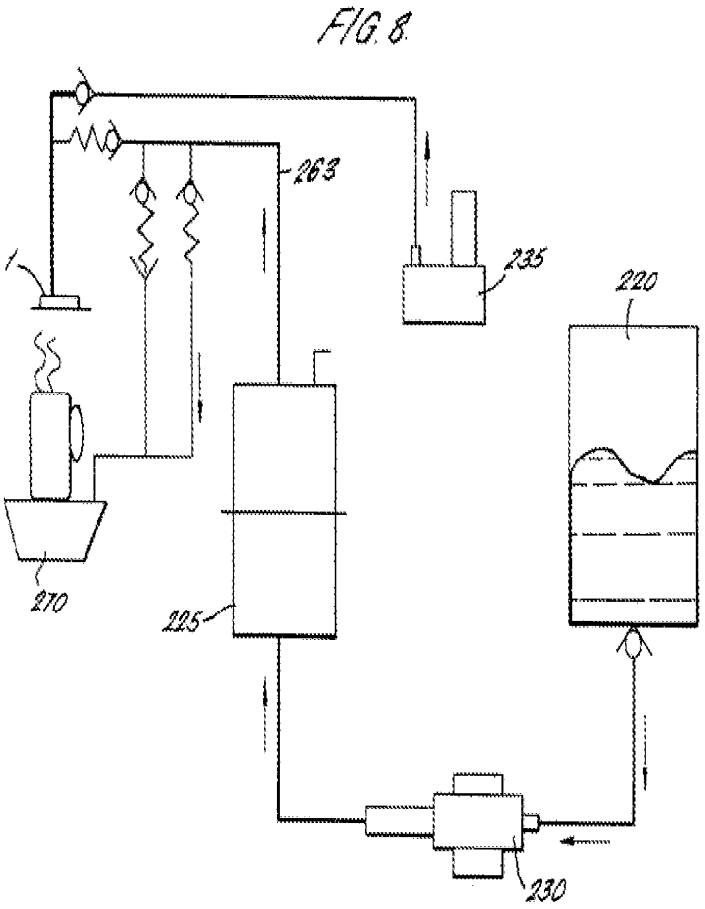
U.S. Patent No. 10,858,177	Disclosure
	To insert the cartridge 1 the holder 251 is opened as described above to expose the cartridge mount 257. The cartridge 1 is then placed on the cartridge mount 257 received within the recess 290 such that the handle 24 of the cartridge is located in the irregularity 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.
[1.d] a beverage machine comprising: a detector to read the barcode,	Panesar discloses, either expressly or inherently, a beverage machine comprising: a detector to read the barcode. *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: 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

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	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 the cartridge 1. Panesar at FIG. 5:

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	 Panesar at Claims 24, 27, 30. *See also* [1.c].
[1.e] a media chute configured to receive and support the portion capsule,	Panesar discloses, either expressly or inherently, a media chute configured to receive and support the portion capsule. *See, e.g.*: Panesar at p. 5, ll. 9–22: The brew head may comprise a mount for receiving the insert so as to prevent relative rotation of the insert and the brew head once the brew head is closed. The mount may comprise a recess or opening for receiving an externally directed handle or tab portion of the insert. The mount may comprise an opening through which the inlet of the brew head, outlet

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	of the brew head and barcode reader or RFID reader window are accessible. The brew head may comprise a cavity for receiving the insert wherein one of the insert and cavity comprises a key and the other of the insert and cavity comprises a recess, wherein interengagement of the key and recess prevents relative rotation of the insert and the brew head once the brew head is closed. 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. 25 at line 29 – p. 26 at line 1: The holder 251 of the brew head 250 comprises a fixed lower part 255, a rotatable upper part 256 and a pivotable cartridge mount 257 positioned in between the fixed lower part 255 and the rotatable upper part 256. Panesar at p. 26, ll. 3–4: Figures 4 to 7 show the holder 251 with some components of the machine 201 omitted for clarity. Panesar at p. 27 at line 32—p. 28 at line 4: The cartridge mount 257 is provided with an aperture 292 for receiving there through the inlet and outlet piercers 253, 254 and a head 300 of the cartridge recognition means 252 when the cartridge mount 257 is moved into the closed position.

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	Panesar at FIG. 5.
[1.f] and a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference,	Panesar discloses, either expressly or inherently, a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference. *See, e.g.*: 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. Panesar at FIG. 8:

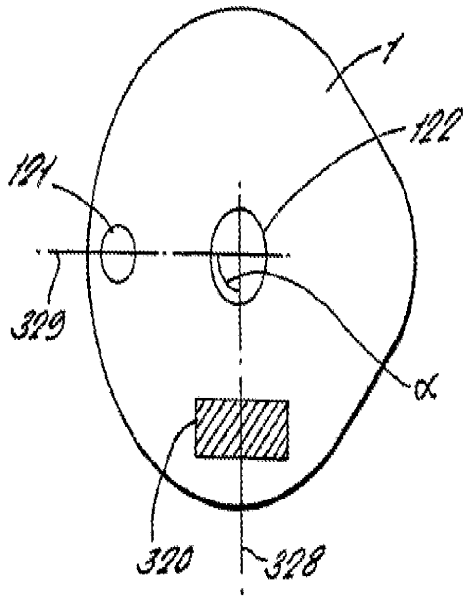
U.S. Patent No. 10,858,177	Disclosure
	 Panesar at p. 25, ll. 8–29: The control processor of the beverage preparation machine 201 comprises a processing module and a memory. The control processor is operatively connected to, and controls operation of, the water heater 225, water pump 230, air compressor 235 and user interface 240. 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

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	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. 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. Panesar at p. 36, ll. 15–31: 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.

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	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 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.
[1.g] wherein the base element has a wall region with an electrically conductive section	Panesar discloses, either expressly or inherently, the base element has a wall region with an electrically conductive section. *See, e.g.*: Panesar at p. 9, ll. 8–23: <u>Cartridge for use in the system</u> 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. The beverage flow path is defined by spatial inter-relationships between the outer

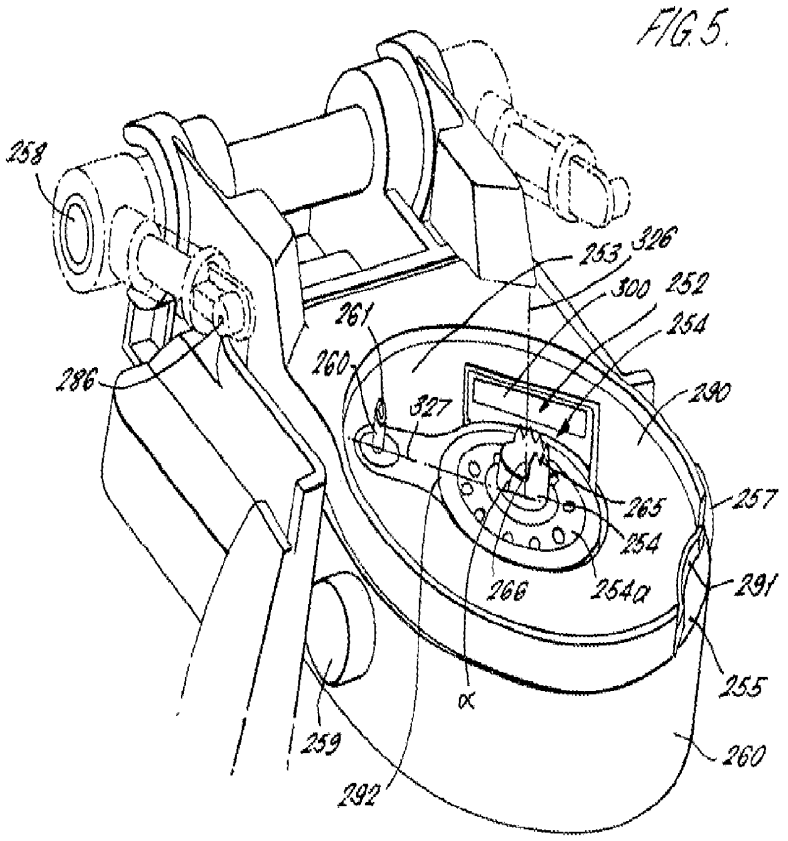
U.S. Patent No. 10,858,177	Disclosure
	member 2, inner member 3 and laminate 5 as discussed below. Other components may optionally be included in the cartridge 1, such as a filter 4, as will be described further below. Panesar at p. 14, ll. 21–32: The laminate 5 is formed from two layers, a first layer of aluminium and a second layer of cast polypropylene. The aluminium layer is between 0.02 and 0.07 mm in thickness. The cast polypropylene layer is between 0.025 and 0.065 mm in thickness. In one embodiment the aluminium layer is 0.06 mm and the polypropylene layer is 0.025 mm 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 5 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. Roll laminate stock may be used instead of die cut stock. The cartridge 1 may be closed by a rigid or semi-rigid lid instead of a flexible laminate. See also Panesar at FIGs. 10-21.
[1.h] and radially spaced and vertically oriented drawn grooves,	
[1.i] the cavity has radially spaced and vertically oriented drawn ribs.	Panesar discloses, either expressly or inherently, the cavity has radially spaced and vertically oriented drawn ribs. *See, e.g.*: *See* [1.h].
4. The beverage system according to claim 1, wherein the water is pushed into the portion capsule along a	Panesar discloses, either expressly or inherently, the beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule. *See, e.g.*:

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central axis that is perpendicular to the flange of the portion capsule.	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. 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 FIG. 10:

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	FIG. 10  . *See also* [1].
5. The beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis.	Panesar discloses, either expressly or inherently, the beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis. *See, e.g.*: Panesar at p. 3, ll. 22–26:

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	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. 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

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	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. Panesar at p. 35 at line 32 – p. 33 at line 3:

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	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:  Panesar at FIG. 4:

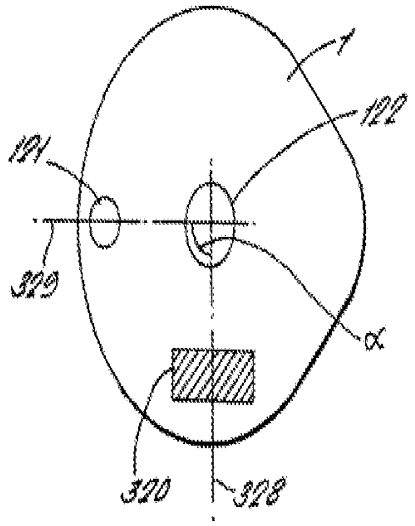
U.S. Patent No. 10,858,177	Disclosure
	FIG. 10  *See also* [4].

Exhibit B-7 – Invalidity of U.S. Patent No. 10,858,177 in view of Ruchonnet

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

According to its cover page, WO 2005/044067 A1 ("Ruchonnet") was published on May 19, 2005 from an application filed on October 26, 2004. Ruchonnet therefore constitutes prior art under at least pre-AIA 35 U.S.C. § 102(b) to the '177 Patent's PCT filing date. Ruchonnet anticipates and/or renders obvious the Asserted Claims of the '177 Patent (at least as Nespresso understands K-fee's application of the Asserted Claims in an effort to show infringement).

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

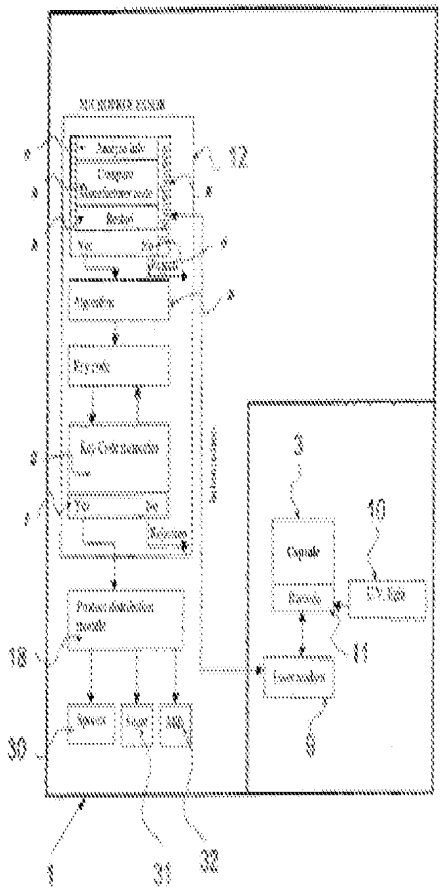
The chart below provides representative examples of where each element of each claim is found within Ruchonnet. Citations are meant to be exemplary, not exhaustive, and Nespresso reserves the right to identify and discuss additional portions of the reference in support of its contentions and/or to rebut 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 Ruchonnet. 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 Ruchonnet "discloses" a limitation, that disclosure may be express, implicit, and/or inherent.

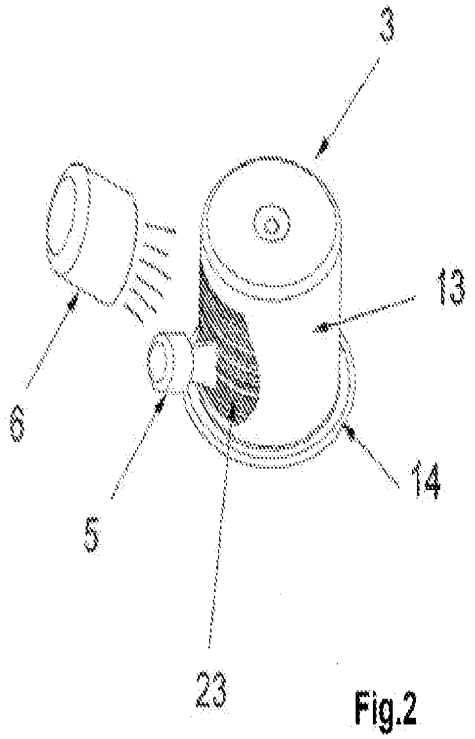
U.S. Patent No. 10,858,177	Disclosure
[1.pre] A beverage system for producing a beverage, comprising:	Ruchonnet discloses, either expressly or inherently, a beverage system for producing a beverage. *See, e.g.*: Ruchonnet at Abstract: (57) Abstract: The aim of the present invention is to provide an apparatus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

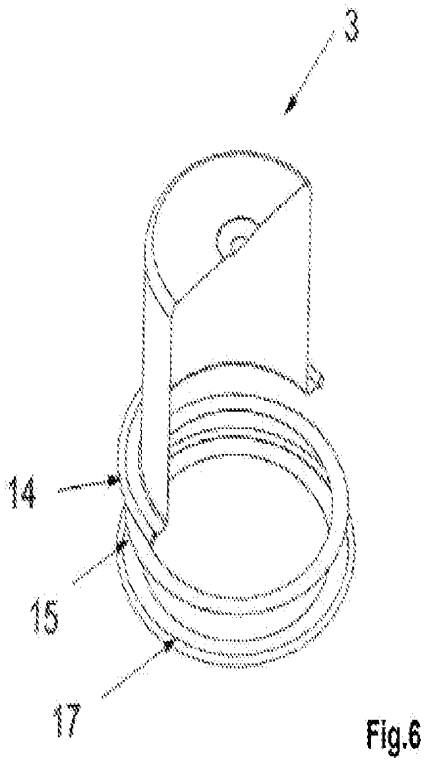
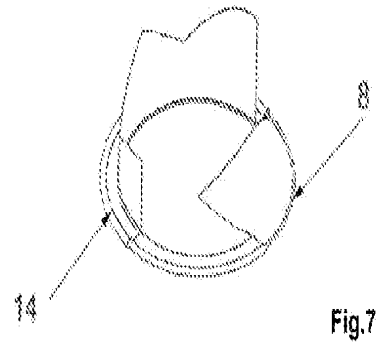
U.S. Patent No. 10,858,177	Disclosure
	 Fig.1 Ruchonnet at 1:3-9: This invention relates to the field of containers, more particularly containers enabling the storage or transport of substances intended to flavor beverages. A container is a receptacle that receives its contents from various sources. Traceability is the ability to identify the origin of a product while reconstructing its itinerary, from its production to its diffusion.

U.S. Patent No. 10,858,177	Disclosure
	It is known to use apparatuses to obtain coffee by infusion, the coffee being kept in a receptacle called a capsule. Ruchonnet at 2:6-19: This purpose is achieved by an apparatus that makes it possible to establish the traceability of the contents in a receptacle and the origin of said receptacle on which readable information is displayed, by means of an optical and/or magnetic reader but invisible to the naked eye, said receptacle being of the type comprising an upper part that can be perforated for the injection of liquid into the receptacle and a lower membrane that can be perforated under pressure for the release of said liquid flavored by the contents of the receptacle, the apparatus comprising an optical and/or magnetic reader for reading said information on a receptacle introduced into the apparatus, and a microprocessor that makes it possible to encrypt/decrypt, analyze, compare, approve/reject and store information read on a receptacle, and arranged to selectively start or not start a cycle of operations including perforating the upper part of the receptacle and injecting the liquid, as well as to store the information read in order to be ready to start a new cycle. Ruchonnet at 4:20-5:5: In one embodiment, illustrated in Figures 1, 2 and 3, a system enabling the traceability of the contents in a receptacle (3) and the origin of that receptacle comprises: - a support medium (1), - a microprocessor (12), - a product distribution module (18), - a laser reading device (9), - a U.V. light emission device (10), and - a receptacle (3) comprising the traceability/origin information (11).

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	The support medium (1) is in particular a coffee machine enabling liquid to be injected into the receptacle (3). Ruchonnet at 5:19-6:6: The product distribution module (18) comprises electronics to control the openings, particularly of the liquid to be injected into the receptacle (3), of ingredients, such as sugar (31) and milk (32), to be added to said flavored liquid delivered by the receptacle (3) and of devices such as spoons (30) that make it possible to stir the ingredients into the liquid and, by simple numbering of the latter devices, to identify the recipient. The laser reading device (9) is equipped with a reading head (5 - Fig. 2) through which information (11) is distributed to the microprocessor (12). The laser reading head (5) is attached to the support medium (1) and located in such a way as to enable the information (11) on a receptacle (3) to be read when it is introduced into the support medium (1). Ruchonnet at 6:7-20: The receptacle (3) comprises a support medium (13) that is, in particular, a cylinder or a conical trunk on which, during its packaging, the information (11) has been affixed to its edge, a circular base (14) that makes it possible to hold the substance, especially coffee, that is to be filtered. This base (14) can be perforated under the pressure of the liquid so as to allow the liquid to pass through to filter and be flavored. The information (11) is in the form of an invisible barcode (23 - Fig. 2) written with ink that is reactive to ultra-violet (U.V.) light. The barcode (23) is visible when placed under a source (6 - Fig. 2) of ultraviolet (U.V.) light. The information (11) comprises all of the indications relative to the traceability of the product contained in the receptacle (3) and the origin of the receptacle.

U.S. Patent No. 10,858,177	Disclosure
	The receptacle (3) bearing the barcode (23), is moved under the laser reading head (5). The barcode (23) is subjected to the U.V. light emitted by the source (6). Ruchonnet at Claims 1, 4, 15.
[1.a] a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided,	Ruchonnet discloses, either expressly or inherently, a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided. *See, e.g.*: Ruchonnet at Abstract: (57) Abstract: The aim of the present invention is to provide an apparatus for determining the traceability of the contents of a container (3) as well as the origin of said container (3), wherein information (11) provided on said container can be read out using an optical and/or magnetic reader but is invisible to the naked eye. Said container (3) comprises a pierceable upper portion for injecting a liquid into the container (3), and a pressure-pierce-able lower diaphragm for discharging the liquid flavoured by the contents of the container (3). The apparatus includes an optical and/or magnetic reader (9) for reading said information (11) off a container (3) placed inside the apparatus, a microprocessor for encrypting and decrypting, processing, comparing, approving or rejecting and storing the information (11) read off a container (3), and for selectively initiating or not initiating an operative cycle which includes piercing the upper portion of the container (3) and injecting the liquid, as well as for storing (11) said information to ensure readiness for the initiation of a fresh cycle. Ruchonnet at Figures 2, 6, 7:

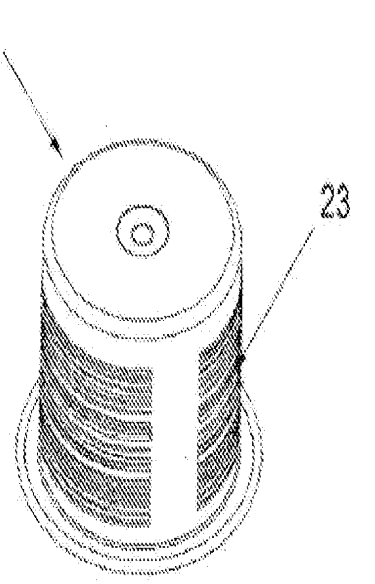
U.S. Patent No. 10,858,177	Disclosure
	 Fig.2

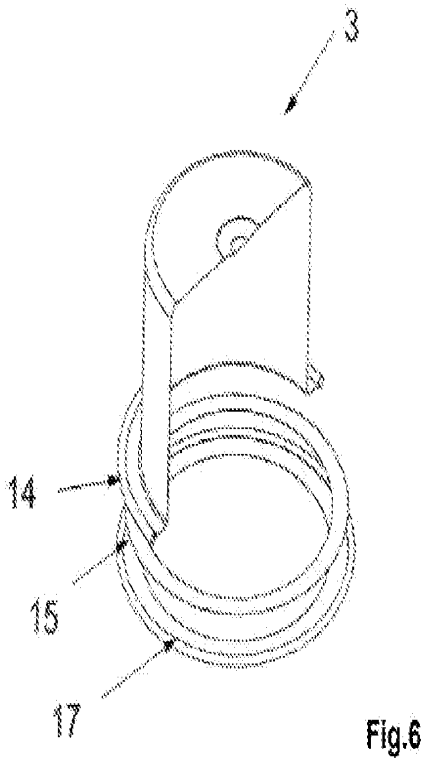
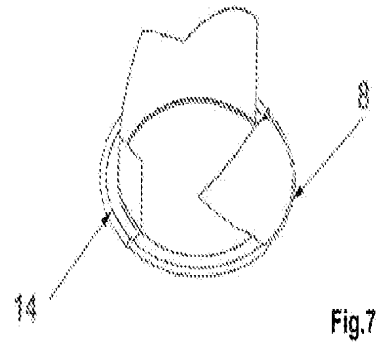
U.S. Patent No. 10,858,177	Disclosure
	 Fig.6  Fig.7 Ruchonnet at 1:3-9: This invention relates to the field of containers, more particularly containers enabling the storage or transport of substances intended to flavor beverages.

U.S. Patent No. 10,858,177	Disclosure
	A container is a receptacle that receives its contents from various sources. Traceability is the ability to identify the origin of a product while reconstructing its itinerary, from its production to its diffusion. It is known to use apparatuses to obtain coffee by infusion, the coffee being kept in a receptacle called a capsule. Ruchonnet at 2:6-19: This purpose is achieved by an apparatus that makes it possible to establish the traceability of the contents in a receptacle and the origin of said receptacle on which readable information is displayed, by means of an optical and/or magnetic reader but invisible to the naked eye, said receptacle being of the type comprising an upper part that can be perforated for the injection of liquid into the receptacle and a lower membrane that can be perforated under pressure for the release of said liquid flavored by the contents of the receptacle, the apparatus comprising an optical and/or magnetic reader for reading said information on a receptacle introduced into the apparatus, and a microprocessor that makes it possible to encrypt/decrypt, analyze, compare, approve/reject and store information read on a receptacle, and arranged to selectively start or not start a cycle of operations including perforating the upper part of the receptacle and injecting the liquid, as well as to store the information read in order to be ready to start a new cycle. Ruchonnet at 3:9-18: In one embodiment, the information on the receptacle is indicated in the form of a U.V. barcode located in particular around the outer lateral surface of the receptacle. In this case, the device advantageously comprises a reading device with a three-dimensional laser head. The U.V. barcode is inscribed using colorless ink, visible only when exposed to ultraviolet (U.V.) light.

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	In another embodiment, the receptacle is made of anti-magnetic material and the information is on a circular ribbon inside said receptacle. Lastly, another variant of the invention presents a receptacle in which the magnetic code is placed between the lid and the body of the receptacle. In this case the information is stored in a flexible, ring-shaped magnetic strip. Ruchonnet at 4:20-5:5: In one embodiment, illustrated in Figures 1, 2 and 3, a system enabling the traceability of the contents in a receptacle (3) and the origin of that receptacle comprises: - a support medium (1), - a microprocessor (12), - a product distribution module (18), - a laser reading device (9), - a U.V. light emission device (10), and - a receptacle (3) comprising the traceability/origin information (11). The support medium (1) is in particular a coffee machine enabling liquid to be injected into the receptacle (3). Ruchonnet at 6:7-20: The receptacle (3) comprises a support medium (13) that is, in particular, a cylinder or a conical trunk on which, during its packaging, the information (11) has been affixed to its edge, a circular base (14) that makes it possible to hold the substance, especially coffee, that is to be filtered. This base (14) can be perforated under the pressure of the liquid so as to allow the liquid to pass through to filter and be flavored. The information (11) is in the form of an invisible barcode (23 - Fig. 2) written with ink that is reactive to ultra-violet (U.V.) light. The barcode (23) is visible when placed under a source

U.S. Patent No. 10,858,177	Disclosure
	(6 - Fig. 2) of ultraviolet (U.V.) light. The information (11) comprises all of the indications relative to the traceability of the product contained in the receptacle (3) and the origin of the receptacle. The receptacle (3) bearing the barcode (23), is moved under the laser reading head (5). The barcode (23) is subjected to the U.V. light emitted by the source (6). Ruchonnet at 7:6-14: Figures 4 and 5 illustrate an embodiment in which the receptacle (3) is made of anti-magnetic material (10) and the information (11) is on a tape, in particular a circular magnetic tape (20) inside said receptacle (3). Figure 6 illustrates a variant of the invention that presents a receptacle (3) in which the information (11) is placed on a ring (15) between a perforable lid (17) and the base (14) of the receptacle (3). 15 Figure 7 illustrates a variant in which a wire is housed (8) in the base (14) of the receptacle (3) in such a way that the information (11) is recorded in magnetic format. Ruchonnet at Claims 1, 6.
[1.b] the base element comprising a circumferential flange having a top side to which the lid is attached	Ruchonnet discloses, either expressly or inherently, the base element comprising a circumferential flange having a top side to which the lid is attached. *See, e.g.*: Ruchonnet at Figures 3, 6, 7:

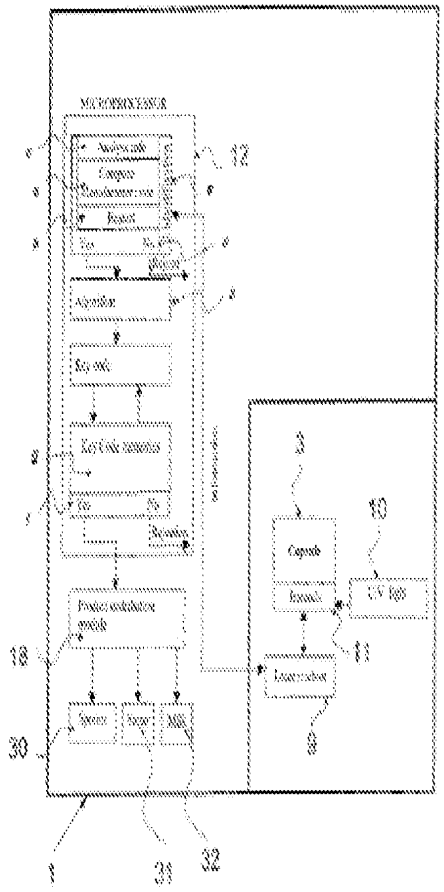
U.S. Patent No. 10,858,177	Disclosure
	 Fig.3

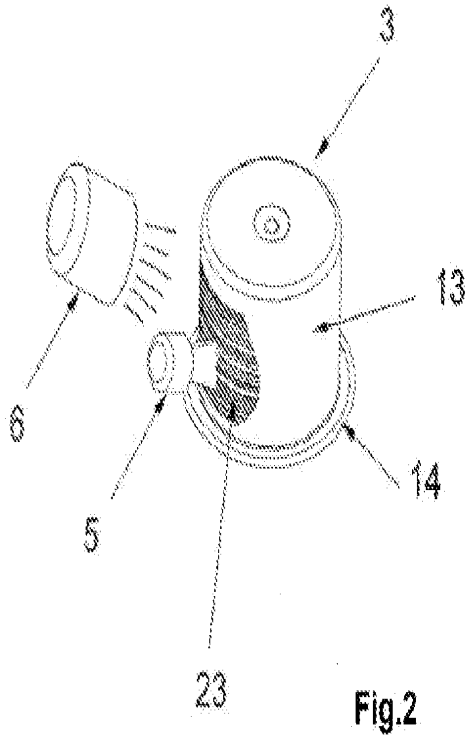
U.S. Patent No. 10,858,177	Disclosure
	 Fig.6  Fig.7 Ruchonnet at 2:6-19: This purpose is achieved by an apparatus that makes it possible to establish the traceability of the contents in a receptacle and the origin of said receptacle on which readable information is displayed, by means of an optical and/or magnetic reader but invisible to the naked eye, said receptacle being of the type comprising an upper part that can be perforated for the injection

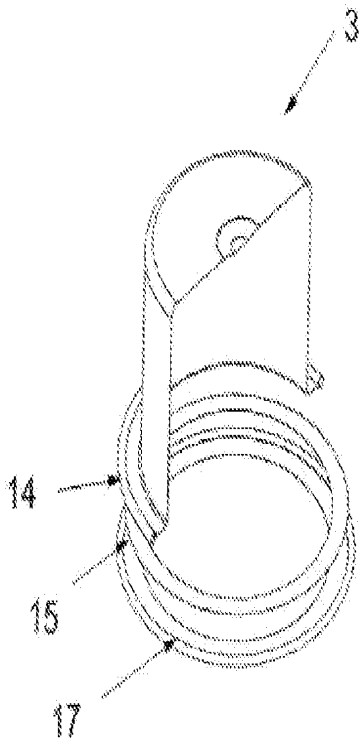
U.S. Patent No. 10,858,177	Disclosure
	of liquid into the receptacle and a lower membrane that can be perforated under pressure for the release of said liquid flavored by the contents of the receptacle, the apparatus comprising an optical and/or magnetic reader for reading said information on a receptacle introduced into the apparatus, and a microprocessor that makes it possible to encrypt/decrypt, analyze, compare, approve/reject and store information read on a receptacle, and arranged to selectively start or not start a cycle of operations including perforating the upper part of the receptacle and injecting the liquid, as well as to store the information read in order to be ready to start a new cycle. Ruchonnet at 3:9-18: In one embodiment, the information on the receptacle is indicated in the form of a U.V. barcode located in particular around the outer lateral surface of the receptacle. In this case, the device advantageously comprises a reading device with a three-dimensional laser head. The U.V. barcode is inscribed using colorless ink, visible only when exposed to ultraviolet (U.V.) light. In another embodiment, the receptacle is made of anti-magnetic material and the information is on a circular ribbon inside said receptacle. Lastly, another variant of the invention presents a receptacle in which the magnetic code is placed between the lid and the body of the receptacle. In this case the information is stored in a flexible, ring-shaped magnetic strip. Ruchonnet at 6:7-20: The receptacle (3) comprises a support medium (13) that is, in particular, a cylinder or a conical trunk on which, during its packaging, the information (11) has been affixed to its edge, a circular base (14) that makes it possible to hold the substance, especially coffee, that is to be filtered. This base (14) can be perforated under the pressure of the liquid so as to allow the liquid to pass through to filter and be flavored.

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	The information (11) is in the form of an invisible barcode (23 - Fig. 2) written with ink that is reactive to ultra-violet (U.V.) light. The barcode (23) is visible when placed under a source (6 - Fig. 2) of ultraviolet (U.V.) light. The information (11) comprises all of the indications relative to the traceability of the product contained in the receptacle (3) and the origin of the receptacle. The receptacle (3) bearing the barcode (23), is moved under the laser reading head (5). The barcode (23) is subjected to the U.V. light emitted by the source (6). Ruchonnet at 7:6-14: Figures 4 and 5 illustrate an embodiment in which the receptacle (3) is made of anti-magnetic material (10) and the information (11) is on a tape, in particular a circular magnetic tape (20) inside said receptacle (3). Figure 6 illustrates a variant of the invention that presents a receptacle (3) in which the information (11) is placed on a ring (15) between a perforable lid (17) and the base (14) of the receptacle (3). 15 Figure 7 illustrates a variant in which a wire is housed (8) in the base (14) of the receptacle (3) in such a way that the information (11) is recorded in magnetic format. Ruchonnet at Claims 1, 8.
[1.c] and a bottom side with a barcode located on the bottom side, and	Ruchonnet discloses, either expressly or inherently, a bottom side with a barcode located on the bottom side. *See, e.g.*: Ruchonnet at Abstract: (57) Abstract: The aim of the present invention is to provide an apparatus for determining the traceability of the contents of a container (3) as well as the origin of said container (3), wherein information (11) provided on said container can be read out using an optical and/or

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	magnetic reader but is invisible to the naked eye. Said container (3) comprises a pierceable upper portion for injecting a liquid into the container (3), and a pressure-pierce-able lower diaphragm for discharging the liquid flavoured by the contents of the container (3). The apparatus includes an optical and/or magnetic reader (9) for reading said information (11) off a container (3) placed inside the apparatus, a microprocessor for encrypting and decrypting, processing, comparing, approving or rejecting and storing the information (11) read off a container (3), and for selectively initiating or not initiating an operative cycle which includes piercing the upper portion of the container (3) and injecting the liquid, as well as for storing (11) said information to ensure readiness for the initiation of a fresh cycle. Ruchonnet at Figures 1-2, 6:

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	 Fig.1

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	 Fig.2

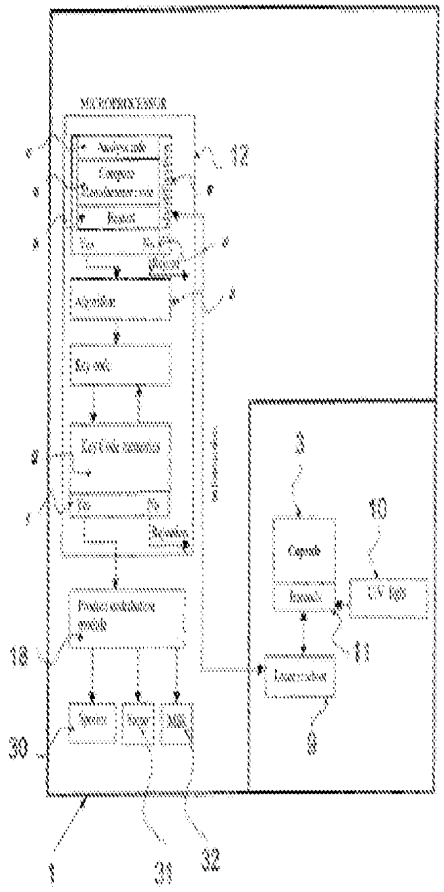
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	 Fig.6 Ruchonnet at 1:3-9: This invention relates to the field of containers, more particularly containers enabling the storage or transport of substances intended to flavor beverages. A container is a receptacle that receives its contents from various sources. Traceability is the ability to identify the origin of a product while reconstructing its itinerary, from its production to its diffusion. It is known to use apparatuses to obtain coffee by infusion, the coffee being kept in a receptacle called a capsule. Ruchonnet at 2:6-19:

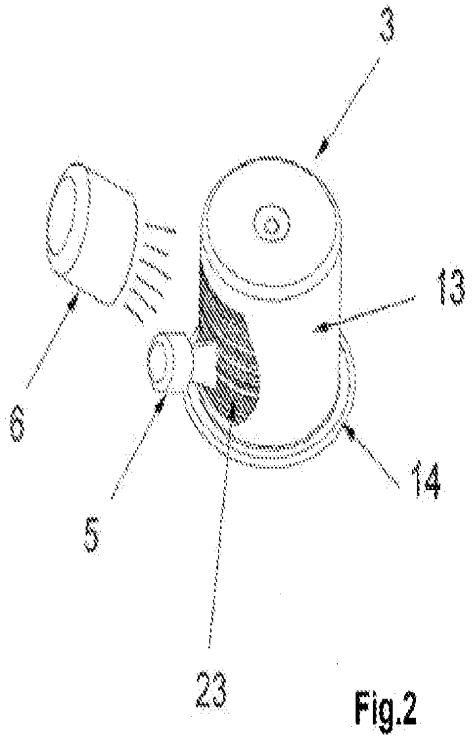
U.S. Patent No. 10,858,177	Disclosure
	This purpose is achieved by an apparatus that makes it possible to establish the traceability of the contents in a receptacle and the origin of said receptacle on which readable information is displayed, by means of an optical and/or magnetic reader but invisible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

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	In another embodiment, the receptacle is made of anti-magnetic material and the information is on a circular ribbon inside said receptacle. Lastly, another variant of the invention presents a receptacle in which the magnetic code is placed between the lid and the body of the receptacle. In this case the information is stored in a flexible, ring-shaped magnetic strip. Ruchonnet at 4:20-5:5: In one embodiment, illustrated in Figures 1, 2 and 3, a system enabling the traceability of the contents in a receptacle (3) and the origin of that receptacle comprises: - a support medium (1), - a microprocessor (12), - a product distribution module (18), - a laser reading device (9), - a U.V. light emission device (10), and - a receptacle (3) comprising the traceability/origin information (11). The support medium (1) is in particular a coffee machine enabling liquid to be injected into the receptacle (3). Ruchonnet at 5:19-6:6: The product distribution module (18) comprises electronics to control the openings, particularly of the liquid to be injected into the receptacle (3), of ingredients, such as sugar (31) and milk (32), to be added to said flavored liquid delivered by the receptacle (3) and of devices such as spoons (30) that make it possible to stir the ingredients into the liquid and, by simple numbering of the latter devices, to identify the recipient. The laser reading device (9) is equipped with a reading head (5 - Fig. 2) through which information (11) is distributed to the microprocessor (12). The laser reading head (5) is

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	attached to the support medium (1) and located in such a way as to enable the information (11) on a receptacle (3) to be read when it is introduced into the support medium (1). Ruchonnet at 6:7-20: The receptacle (3) comprises a support medium (13) that is, in particular, a cylinder or a conical trunk on which, during its packaging, the information (11) has been affixed to its edge, a circular base (14) that makes it possible to hold the substance, especially coffee, that is to be filtered. This base (14) can be perforated under the pressure of the liquid so as to allow the liquid to pass through to filter and be flavored. The information (11) is in the form of an invisible barcode (23 - Fig. 2) written with ink that is reactive to ultra-violet (U.V.) light. The barcode (23) is visible when placed under a source (6 - Fig. 2) of ultraviolet (U.V.) light. The information (11) comprises all of the indications relative to the traceability of the product contained in the receptacle (3) and the origin of the receptacle. The receptacle (3) bearing the barcode (23), is moved under the laser reading head (5). The barcode (23) is subjected to the U.V. light emitted by the source (6). Ruchonnet at 7:6-14: Figures 4 and 5 illustrate an embodiment in which the receptacle (3) is made of anti-magnetic material (10) and the information (11) is on a tape, in particular a circular magnetic tape (20) inside said receptacle (3). Figure 6 illustrates a variant of the invention that presents a receptacle (3) in which the information (11) is placed on a ring (15) between a perforable lid (17) and the base (14) of the receptacle (3).

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	15 Figure 7 illustrates a variant in which a wire is housed (8) in the base (14) of the receptacle (3) in such a way that the information (11) is recorded in magnetic format. Ruchonnet at Claims 1-3, 5-6, 8-9, 13.
[1.d] a beverage machine comprising: a detector to read the barcode,	Ruchonnet discloses, either expressly or inherently, a beverage machine comprising: a detector to read the barcode. *See, e.g.*: Ruchonnet at Abstract: (57) Abstract: The aim of the present invention is to provide an apparatus for determining the traceability of the contents of a container (3) as well as the origin of said container (3), wherein information (11) provided on said container can be read out using an optical and/or magnetic reader but is invisible to the naked eye. Said container (3) comprises a pierceable upper portion for injecting a liquid into the container (3), and a pressure-pierce-able lower diaphragm for discharging the liquid flavoured by the contents of the container (3). The apparatus includes an optical and/or magnetic reader (9) for reading said information (11) off a container (3) placed inside the apparatus, a microprocessor for encrypting and decrypting, processing, comparing, approving or rejecting and storing the information (11) read off a container (3), and for selectively initiating or not initiating an operative cycle which includes piercing the upper portion of the container (3) and injecting the liquid, as well as for storing (11) said information to ensure readiness for the initiation of a fresh cycle. Ruchonnet at Figures 1-2:

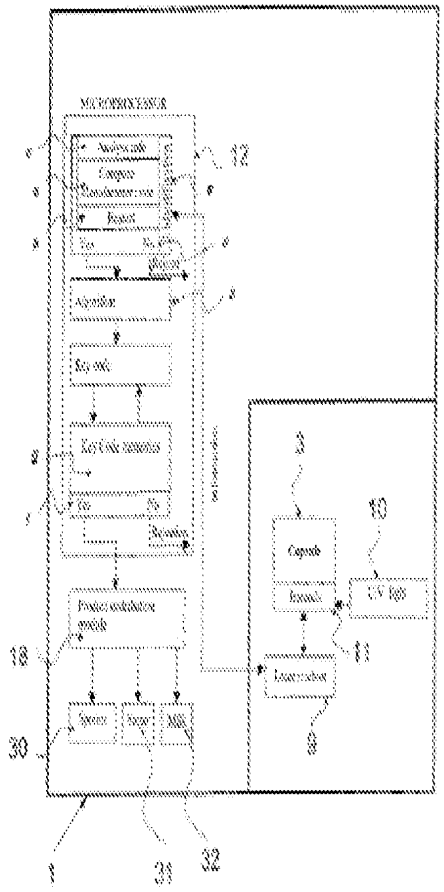
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	 Fig.1

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	 Fig.2 Ruchonnet at 2:6-19: This purpose is achieved by an apparatus that makes it possible to establish the traceability of the contents in a receptacle and the origin of said receptacle on which readable information is displayed, by means of an optical and/or magnetic reader but invisible to the naked eye, said receptacle being of the type comprising an upper part that can be perforated for the injection of liquid into the receptacle and a lower membrane that can be perforated under pressure for the release of said liquid flavored by the contents of the receptacle, the apparatus comprising an optical and/or magnetic reader for reading said information on a receptacle introduced into the apparatus, and a microprocessor that makes it possible to encrypt/decrypt, analyze, compare, approve/reject and store information read on a receptacle, and arranged to selectively start or not start a cycle of operations including perforating the upper part of the receptacle and injecting the liquid, as well as to store the information read in order to be ready to start a new cycle.

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	Ruchonnet at 3:9-18: In one embodiment, the information on the receptacle is indicated in the form of a U.V. barcode located in particular around the outer lateral surface of the receptacle. In this case, the device advantageously comprises a reading device with a three-dimensional laser head. The U.V. barcode is inscribed using colorless ink, visible only when exposed to ultraviolet (U.V.) light. In another embodiment, the receptacle is made of anti-magnetic material and the information is on a circular ribbon inside said receptacle. Lastly, another variant of the invention presents a receptacle in which the magnetic code is placed between the lid and the body of the receptacle. In this case the information is stored in a flexible, ring-shaped magnetic strip. Ruchonnet at 4:20-5:5: In one embodiment, illustrated in Figures 1, 2 and 3, a system enabling the traceability of the contents in a receptacle (3) and the origin of that receptacle comprises: - a support medium (1), - a microprocessor (12), - a product distribution module (18), - a laser reading device (9), - a U.V. light emission device (10), and - a receptacle (3) comprising the traceability/origin information (11). The support medium (1) is in particular a coffee machine enabling liquid to be injected into the receptacle (3). Ruchonnet at 5:19-6:6:

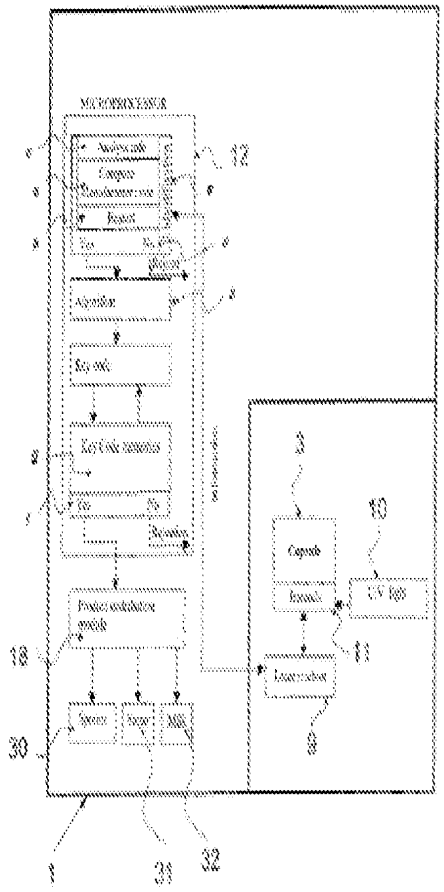
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	The product distribution module (18) comprises electronics to control the openings, particularly of the liquid to be injected into the receptacle (3), of ingredients, such as sugar (31) and milk (32), to be added to said flavored liquid delivered by the receptacle (3) and of devices such as spoons (30) that make it possible to stir the ingredients into the liquid and, by simple numbering of the latter devices, to identify the recipient. The laser reading device (9) is equipped with a reading head (5 - Fig. 2) through which information (11) is distributed to the microprocessor (12). The laser reading head (5) is attached to the support medium (1) and located in such a way as to enable the information (11) on a receptacle (3) to be read when it is introduced into the support medium (1). Ruchonnet at 6:7-20: The receptacle (3) comprises a support medium (13) that is, in particular, a cylinder or a conical trunk on which, during its packaging, the information (11) has been affixed to its edge, a circular base (14) that makes it possible to hold the substance, especially coffee, that is to be filtered. This base (14) can be perforated under the pressure of the liquid so as to allow the liquid to pass through to filter and be flavored. The information (11) is in the form of an invisible barcode (23 - Fig. 2) written with ink that is reactive to ultra-violet (U.V.) light. The barcode (23) is visible when placed under a source (6 - Fig. 2) of ultraviolet (U.V.) light. The information (11) comprises all of the indications relative to the traceability of the product contained in the receptacle (3) and the origin of the receptacle. The receptacle (3) bearing the barcode (23), is moved under the laser reading head (5). The barcode (23) is subjected to the U.V. light emitted by the source (6). Ruchonnet at 6:21-7:1: The information (11) is read and transmitted to the microprocessor (12) which activates, if the information is positively recognized, the aforementioned operations and, in the event of

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	negative recognition, rejects the information (11) and stops the procedure for activating the distribution module (18) to interrupt the perforation of the upper part of the receptacle (3) and extraction of the products (30, 31, 32). It should be noted that the microprocessor (12) emits a key, recalculated by an algorithm, in the form of numbers and letters, which represents the indication compared to the manufacturer's data. All keys, after processing, are stored in the internal memory of the microprocessor (12). Ruchonnet at Claims 1-3, 5-6. *See also* [1.c].
[1.e] a media chute configured to receive and support the portion capsule,	Ruchonnet discloses, either expressly or inherently, a media chute configured to receive and support the portion capsule. *See, e.g.*: Ruchonnet at Figure 1:

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	 Fig.1 Ruchonnet at 2:6-19: This purpose is achieved by an apparatus that makes it possible to establish the traceability of the contents in a receptacle and the origin of said receptacle on which readable information is displayed, by means of an optical and/or magnetic reader but invisible to the naked eye, said receptacle being of the type comprising an upper part that can be perforated for the injection of liquid into the receptacle and a lower membrane that can be perforated under pressure for the release of said liquid flavored by the contents of the receptacle, the apparatus comprising an optical and/or magnetic reader for reading said information on a receptacle introduced into the apparatus, and a microprocessor that makes it possible to encrypt/decrypt, analyze, compare, approve/reject and store information read on a receptacle, and arranged to

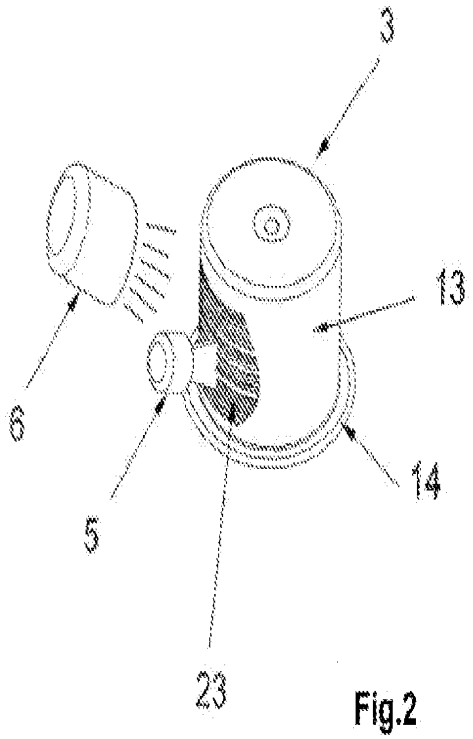
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	selectively start or not start a cycle of operations including perforating the upper part of the receptacle and injecting the liquid, as well as to store the information read in order to be ready to start a new cycle. Ruchonnet at 4:20-5:5: In one embodiment, illustrated in Figures 1, 2 and 3, a system enabling the traceability of the contents in a receptacle (3) and the origin of that receptacle comprises: - a support medium (1), - a microprocessor (12), - a product distribution module (18), - a laser reading device (9), - a U.V. light emission device (10), and - a receptacle (3) comprising the traceability/origin information (11). The support medium (1) is in particular a coffee machine enabling liquid to be injected into the receptacle (3). Ruchonnet at 5:19-6:6: The product distribution module (18) comprises electronics to control the openings, particularly of the liquid to be injected into the receptacle (3), of ingredients, such as sugar (31) and milk (32), to be added to said flavored liquid delivered by the receptacle (3) and of devices such as spoons (30) that make it possible to stir the ingredients into the liquid and, by simple numbering of the latter devices, to identify the recipient. The laser reading device (9) is equipped with a reading head (5 - Fig. 2) through which information (11) is distributed to the microprocessor (12). The laser reading head (5) is attached to the support medium (1) and located in such a way as to enable the information (11) on a receptacle (3) to be read when it is introduced into the support medium (1).

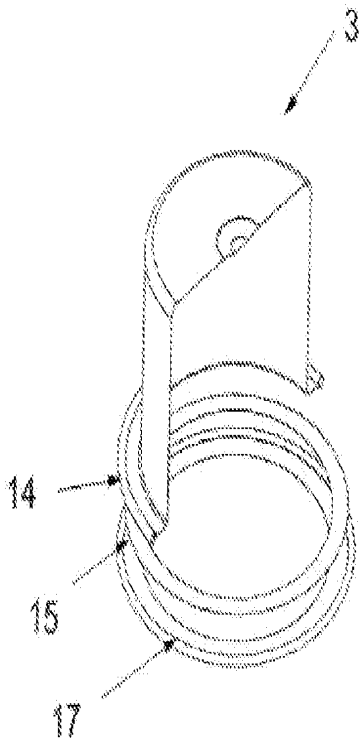
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	Ruchonnet at Claim 1.
[1.f] and a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference,	Ruchonnet discloses, either expressly or inherently, a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference. *See, e.g.*: Ruchonnet at Abstract: (57) Abstract: The aim of the present invention is to provide an apparatus for determining the traceability of the contents of a container (3) as well as the origin of said container (3), wherein information (11) provided on said container can be read out using an optical and/or magnetic reader but is invisible to the naked eye. Said container (3) comprises a pierceable upper portion for injecting a liquid into the container (3), and a pressure-pierce-able lower diaphragm for discharging the liquid flavoured by the contents of the container (3). The apparatus includes an optical and/or magnetic reader (9) for reading said information (11) off a container (3) placed inside the apparatus, a microprocessor for encrypting and decrypting, processing, comparing, approving or rejecting and storing the information (11) read off a container (3), and for selectively initiating or not initiating an operative cycle which includes piercing the upper portion of the container (3) and injecting the liquid, as well as for storing (11) said information to ensure readiness for the initiation of a fresh cycle. Ruchonnet at Figure 1:

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	 Fig.1 Ruchonnet at 2:6-19: This purpose is achieved by an apparatus that makes it possible to establish the traceability of the contents in a receptacle and the origin of said receptacle on which readable information is displayed, by means of an optical and/or magnetic reader but invisible to the naked eye, said receptacle being of the type comprising an upper part that can be perforated for the injection of liquid into the receptacle and a lower membrane that can be perforated under pressure for the release of said liquid flavored by the contents of the receptacle, the apparatus comprising an optical and/or magnetic reader for reading said information on a receptacle introduced into the apparatus, and a microprocessor that makes it possible to encrypt/decrypt, analyze, compare, approve/reject and store information read on a receptacle, and arranged to

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	selectively start or not start a cycle of operations including perforating the upper part of the receptacle and injecting the liquid, as well as to store the information read in order to be ready to start a new cycle. Ruchonnet at 2:20-26: This results in a system that identifies a receptacle, compares the information it carries to the manufacturer's code contained in a system memory, accepts or refuses the information, memorizes it so as to prevent its recovery, authorizes the distribution of products and starts a new work cycle. It should be noted that the information contains the data on the product traceability but also the data on the origin of the receptacle and is affixed to the latter by the manufacturer at the time of the its production. Ruchonnet at 2:30-3:4: Acceptance/refusal is determined by a microprocessor which, after encrypting the original information, compares it to the manufacturer's key codes in order to enable/refuse product distribution. Memorization is provided by the manufacturer in particular by means of electronic chips that are installed on the device. Ruchonnet at 6:21-7:1: The information (11) is read and transmitted to the microprocessor (12) which activates, if the information is positively recognized, the aforementioned operations and, in the event of negative recognition, rejects the information (11) and stops the procedure for activating the distribution module (18) to interrupt the perforation of the upper part of the receptacle (3) and extraction of the products (30, 31, 32). It should be noted that the microprocessor (12) emits a key, recalculated by an algorithm, in the form of numbers and letters, which represents the indication compared to the

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	manufacturer's data. All keys, after processing, are stored in the internal memory of the microprocessor (12). Ruchonnet at 7:2-5: A key is advantageously assigned to a single barcode (23) which allows the receptacle (3) to be used only once. A receptacle (3) without a barcode (23) is automatically rejected, as is an erroneous barcode (23), and the reuse of a used barcode (23) is rejected by comparison of the keys. Ruchonnet at Claims 1, 15.
[1.g] wherein the base element has a wall region with an electrically conductive section	
[1.h] and radially spaced and vertically oriented drawn grooves,	
[1.i] the cavity has radially spaced and vertically oriented drawn ribs.	
4. The beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule.	Ruchonnet discloses, either expressly or inherently, the beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule. *See, e.g.*: Ruchonnet at Abstract: (57) Abstract: The aim of the present invention is to provide an apparatus for determining the traceability of the contents of a container (3) as well as the origin of said container (3),

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	wherein information (11) provided on said container can be read out using an optical and/or magnetic reader but is invisible to the naked eye. Said container (3) comprises a pierceable upper portion for injecting a liquid into the container (3), and a pressure-pierce-able lower diaphragm for discharging the liquid flavoured by the contents of the container (3). The apparatus includes an optical and/or magnetic reader (9) for reading said information (11) off a container (3) placed inside the apparatus, a microprocessor for encrypting and decrypting, processing, comparing, approving or rejecting and storing the information (11) read off a container (3), and for selectively initiating or not initiating an operative cycle which includes piercing the upper portion of the container (3) and injecting the liquid, as well as for storing (11) said information to ensure readiness for the initiation of a fresh cycle. Ruchonnet at Figures 2, 6:  Fig.2

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	 Fig.6 Ruchonnet at 2:6-19: This purpose is achieved by an apparatus that makes it possible to establish the traceability of the contents in a receptacle and the origin of said receptacle on which readable information is displayed, by means of an optical and/or magnetic reader but invisible to the naked eye, said receptacle being of the type comprising an upper part that can be perforated for the injection of liquid into the receptacle and a lower membrane that can be perforated under pressure for the release of said liquid flavored by the contents of the receptacle, the apparatus comprising an optical and/or magnetic reader for reading said information on a receptacle introduced into the apparatus, and a microprocessor that makes it possible to encrypt/decrypt, analyze, compare, approve/reject and store information read on a receptacle, and arranged to selectively start or not start a cycle of operations including perforating the upper part of the

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	receptacle and injecting the liquid, as well as to store the information read in order to be ready to start a new cycle. Ruchonnet at 4:20-5:5: In one embodiment, illustrated in Figures 1, 2 and 3, a system enabling the traceability of the contents in a receptacle (3) and the origin of that receptacle comprises: - a support medium (1), - a microprocessor (12), - a product distribution module (18), - a laser reading device (9), - a U.V. light emission device (10), and - a receptacle (3) comprising the traceability/origin information (11). The support medium (1) is in particular a coffee machine enabling liquid to be injected into the receptacle (3). Ruchonnet at 6:7-20: The receptacle (3) comprises a support medium (13) that is, in particular, a cylinder or a conical trunk on which, during its packaging, the information (11) has been affixed to its edge, a circular base (14) that makes it possible to hold the substance, especially coffee, that is to be filtered. This base (14) can be perforated under the pressure of the liquid so as to allow the liquid to pass through to filter and be flavored. The information (11) is in the form of an invisible barcode (23 - Fig. 2) written with ink that is reactive to ultra-violet (U.V.) light. The barcode (23) is visible when placed under a source (6 - Fig. 2) of ultraviolet (U.V.) light. The information (11) comprises all of the indications relative to the traceability of the product contained in the receptacle (3) and the origin of the receptacle.

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	The receptacle (3) bearing the barcode (23), is moved under the laser reading head (5). The barcode (23) is subjected to the U.V. light emitted by the source (6). Ruchonnet at 6:21-7:1: The information (11) is read and transmitted to the microprocessor (12) which activates, if the information is positively recognized, the aforementioned operations and, in the event of negative recognition, rejects the information (11) and stops the procedure for activating the distribution module (18) to interrupt the perforation of the upper part of the receptacle (3) and extraction of the products (30, 31, 32). It should be noted that the microprocessor (12) emits a key, recalculated by an algorithm, in the form of numbers and letters, which represents the indication compared to the manufacturer's data. All keys, after processing, are stored in the internal memory of the microprocessor (12). Ruchonnet at 7:6-14: Figures 4 and 5 illustrate an embodiment in which the receptacle (3) is made of anti-magnetic material (10) and the information (11) is on a tape, in particular a circular magnetic tape (20) inside said receptacle (3). Figure 6 illustrates a variant of the invention that presents a receptacle (3) in which the information (11) is placed on a ring (15) between a perforable lid (17) and the base (14) of the receptacle (3). 15 Figure 7 illustrates a variant in which a wire is housed (8) in the base (14) of the receptacle (3) in such a way that the information (11) is recorded in magnetic format. Ruchonnet at Claims 1, 6, 15. *See also* [1].

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[redacted]	
5. The beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis.	Ruchonnet discloses, either expressly or inherently, the beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis. *See, e.g.*: *See* [4].

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

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

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

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

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

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

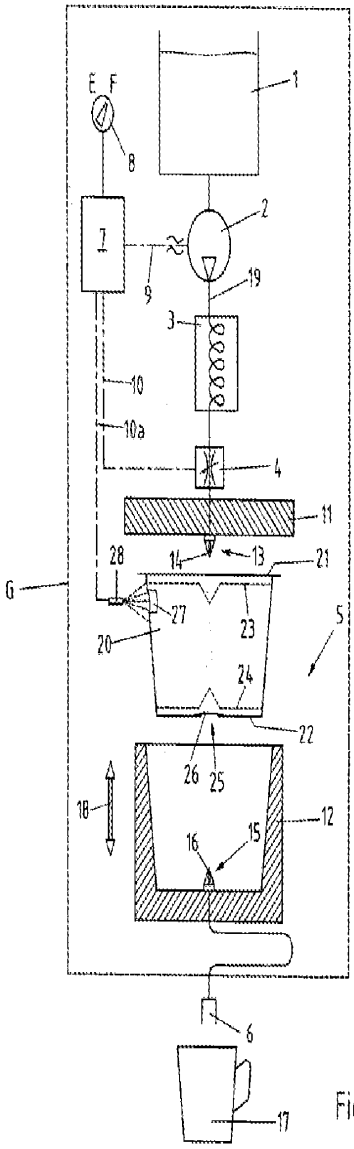
K-fee has yet to identify any limitation of the Asserted Claims that it contends is not anticipated and/or rendered obvious by Schifferle. Nespresso therefore expressly reserves the right to respond to any such contention, including by identifying additional obviousness combinations, if K-fee makes any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

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

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[1.pre] A beverage system for producing a beverage, comprising:	Schifferle discloses, either expressly or inherently, a beverage system for producing a beverage. *See, e.g.*: Schifferle at Abstract: The coffee maker for brewing powder coffee contained in a cartridge comprises a brewing chamber adapted to receive the cartridge, at least one punching member for punching the cartridge and a pump for feeding brewing water into the brewing chamber. In order to avoid that the prepared coffee shows froth at its surface, the coffee maker comprises means for restricting the amount of water fed by the pump into the brewing chamber per unit of time. This means ensures that the brewing water flows through the cartridge essentially unpressurized. Schifferle at [0001]: The present invention refers to a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive a coffee powder cartridge, at least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Schifferle at [0010]-[0012]: It is an object of the present invention to provide a coffee maker for brewing coffee powder contained in a cartridge by means of which not only an espresso coffee beverage, but also a normal coffee beverage can be prepared, the latter one not having froth on its surface and corresponding in taste to a normal filter coffee. To meet this and other objects, the invention provides a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive the coffee powder cartridge, at least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Further, means are provided for restricting the amount of brewing water fed into the brewing chamber per unit of time to

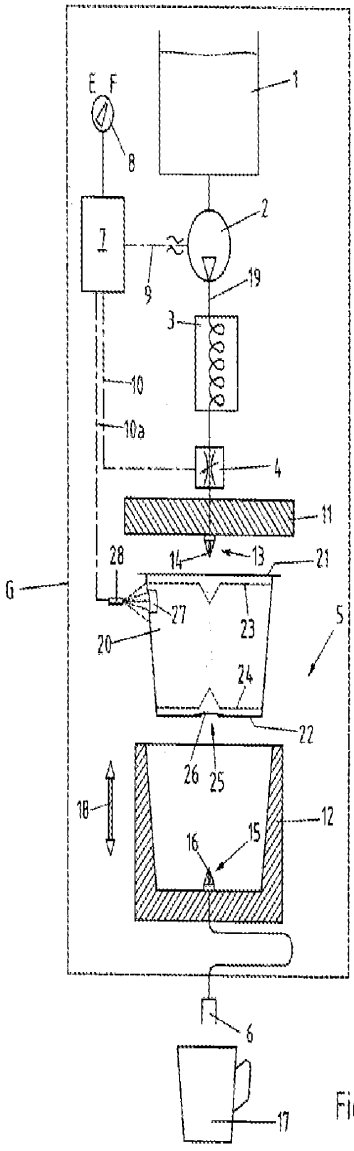
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	such an extent that the brewing water flows through the powder coffee cartridge received in the brewing chamber essentially unpressurized. Due to the fact that means are provided for restricting the amount of brewing water fed into the brewing chamber per unit of time to such an extent that the brewing water flows through the powder coffee cartridge received in the brewing chamber essentially unpressurized, the formation of froth on the surface of the coffee beverage can be essentially avoided. Preferably, both the cover and the bottom of the cartridge are punched before the brewing operation is initiated. Schifferle at [0020]-[0021]: The brewing operation using a cartridge designated for preparing a froth-less coffee beverage, a so-called filter coffee, takes place as follows: The selector switch 8 is manually rotated into the position "F" and the cartridge 20 is inserted into the cartridge retainer 12. Then, the retainer 12 is moved upwards towards the closing plate member 11. Upon completion of this upwards movement (see FIG. 2), both the cartridge cover 21 and the bottom 22 of the cartridge 20, i.e. the foil 26, are punched. Once the upper end position is reached, the closing plate member 11 not only closes the brewing chamber 5, but also presses the cartridge cover 21 against the top end face of the cartridge retainer 12 along an annular contact area, thereby hydraulically sealing the upper portion of the cartridge 20 against the bottom 22 of the cartridge 20. As soon as the brewing chamber 5 is closed, the pump 2 is operated. The amount of brewing water fed into the brewing chamber 5 per unit of time is restricted, as compared to the brewing operation of an espresso coffee, to such an extent that the brewing water flows through the cartridge 20 essentially unpessurized. The flow restriction rate is determined either by a pre-selected, stored value or on the basis of a code contained in the label or marking 27 of the cartridge 20. The flow restriction can be realized either by reducing the flow rate of the pump 2 or by adjusting the throttle valve 4. For reducing the flow rate of the pump 2, in the case of an AC operated pump, a phase controlled modulator or a wave packet controller can be used. As an alternative, the operating frequency of the pump 2 can be changed. It is understood that in

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	practice only one of the measures for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time is provided, i.e. either means are provided for reducing the flow rate of the pump 2, or a throttle valve 4 is provided for reducing the effective flow cross sectional area. It is further understood that other means for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time could be provided. Schifferle at [0029]: The coffee maker according to the invention is known under the designation "espresso machine"; it is suitable both for preparing a filter coffee beverage and particularly an espresso coffee beverage. The coffee maker can be designed as a manually operated machine, with a cartridge holder to be manually inserted into the machine, or as a semi- or fully-automatic coffee maker.
[1.a] a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided,	Schifferle discloses, either expressly or inherently, a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided. *See, e.g.*: Schifferle at Fig. 1:

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	 Fig.1 Schifferle at [0016]: Schematically shown in FIGS. 1 and 2 are the essential elements of the coffee maker according to the invention, namely a fresh water tank 1, a pump 2, a boiler 3, a throttle valve

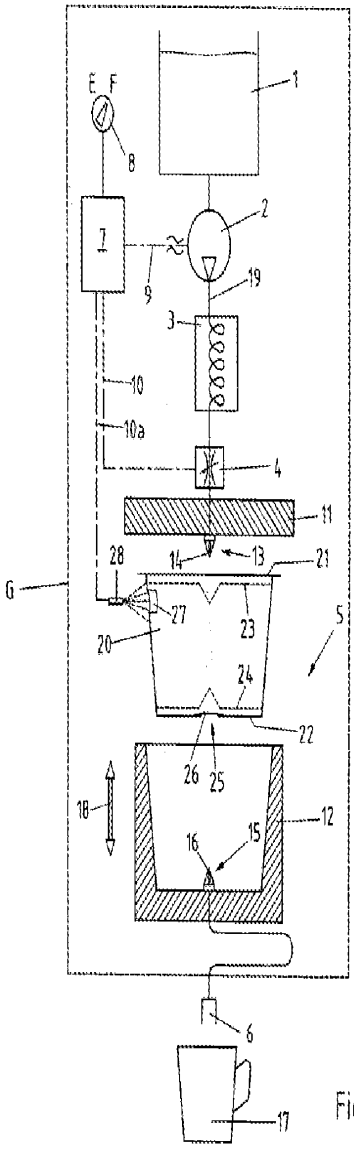
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	4, a brewing chamber 5, a beverage outlet 6, a control unit 7 and a selector switch 8. All these elements are mounted inside a schematically indicated housing G. Located below the beverage outlet 6, there is shown a coffee mug 17 for receiving the prepared coffee beverage. The cartridge to be put into the brewing chamber 5 and containing ground coffee is designated by reference numeral 20. In the present example, the bottom 22 of the cartridge 20 is provided with an aperture 25 which is covered by a foil 26 provided at the inside of the bottom 22 of the cartridge 20. Since such a cartridge is primarily suitable for preparing filter coffee, it is designated, in the following, as a filter cartridge 20, while a conventional cartridge having a continuous bottom without any opening is designated as an espresso cartridge. Schifferle at [0020]-[0021]: The brewing operation using a cartridge designated for preparing a froth-less coffee beverage, a so-called filter coffee, takes place as follows: The selector switch 8 is manually rotated into the position "F" and the cartridge 20 is inserted into the cartridge retainer 12. Then, the retainer 12 is moved upwards towards the closing plate member 11. Upon completion of this upwards movement (see FIG. 2), both the cartridge cover 21 and the bottom 22 of the cartridge 20, i.e. the foil 26, are punched. Once the upper end position is reached, the closing plate member 11 not only closes the brewing chamber 5, but also presses the cartridge cover 21 against the top end face of the cartridge retainer 12 along an annular contact area, thereby hydraulically sealing the upper portion of the cartridge 20 against the bottom 22 of the cartridge 20. As soon as the brewing chamber 5 is closed, the pump 2 is operated. The amount of brewing water fed into the brewing chamber 5 per unit of time is restricted, as compared to the brewing operation of an espresso coffee, to such an extent that the brewing water flows through the cartridge 20 essentially unpessurized. The flow restriction rate is determined either by a pre-selected, stored value or on the basis of a code contained in the label or marking 27 of the cartridge 20. The flow restriction can be realized either by reducing the flow rate of the pump 2 or by adjusting the throttle valve 4. For reducing the flow rate of the pump 2, in the case of an AC operated pump, a phase controlled modulator or a wave packet controller can be used. As an alternative, the operating

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	frequency of the pump 2 can be changed. It is understood that in practice only one of the measures for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time is provided, i.e. either means are provided for reducing the flow rate of the pump 2, or a throttle valve 4 is provided for reducing the effective flow cross sectional area. It is further understood that other means for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time could be provided. Schifferle at [0024]: As can be further seen in the drawings, the filter cartridge 20 is provided with an upper filter element 23 and a lower filter element 24. Such filter elements 23, 24 favor a consistent flow of the brewing water through the filter cartridge 20 and prevent the coffee powder contained in the cartridge 20 from escaping through the punched out apertures. The filter elements 23, 24 are provided each with a recess directed towards the interior of the cartridge 20 and located in the area where the cover 21 and the bottom 22, respectively, of the cartridge 20 are punched and into which the punching members 13, 15 extend once the cartridge cover 21 and bottom 22 are punched. In order to ensure that the bottom 22 of the cartridge 20 is reliably punched upon closing the brewing chamber 5, a foil 26 is provided which has a low ductility and a low tensile strength as compared to the material of the cartridge itself, such that it easily tears apart under the influence of the lower punching member 15 located at the bottom of the cartridge retainer 12. Schifferle at Claims 13-14.
[1.b] the base element comprising a circumferential flange having a top side to which the lid is attached	Schifferle discloses, either expressly or inherently, the base element comprising a circumferential flange having a top side to which the lid is attached. *See, e.g.*: Schifferle at Fig. 1:

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	 Fig.1 Schifferle at [0016]: Schematically shown in FIGS. 1 and 2 are the essential elements of the coffee maker according to the invention, namely a fresh water tank 1, a pump 2, a boiler 3, a throttle valve 4, a brewing chamber 5, a beverage outlet 6, a control unit 7 and a selector switch 8. All these elements are mounted inside a schematically indicated housing G. Located below the

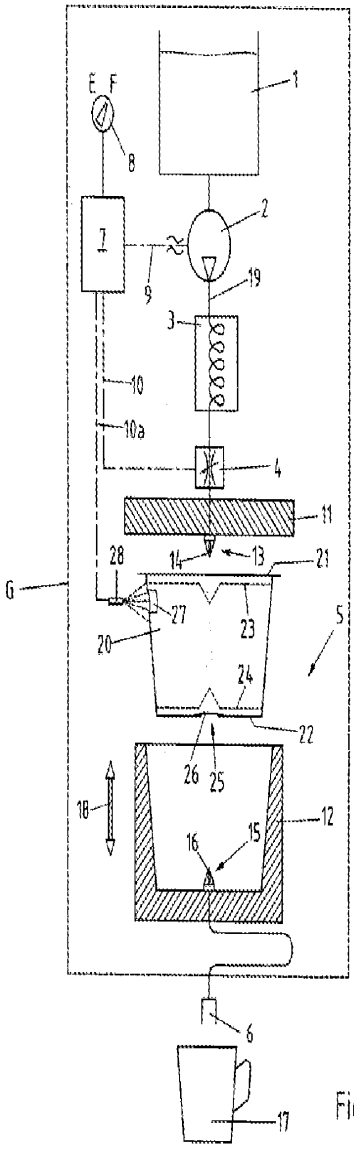
U.S. Patent No. 10,858,177	Disclosure
	beverage outlet 6, there is shown a coffee mug 17 for receiving the prepared coffee beverage. The cartridge to be put into the brewing chamber 5 and containing ground coffee is designated by reference numeral 20. In the present example, the bottom 22 of the cartridge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

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	sectional area. It is further understood that other means for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time could be provided. Schifferle at [0024]: As can be further seen in the drawings, the filter cartridge 20 is provided with an upper filter element 23 and a lower filter element 24. Such filter elements 23, 24 favor a consistent flow of the brewing water through the filter cartridge 20 and prevent the coffee powder contained in the cartridge 20 from escaping through the punched out apertures. The filter elements 23, 24 are provided each with a recess directed towards the interior of the cartridge 20 and located in the area where the cover 21 and the bottom 22, respectively, of the cartridge 20 are punched and into which the punching members 13, 15 extend once the cartridge cover 21 and bottom 22 are punched. In order to ensure that the bottom 22 of the cartridge 20 is reliably punched upon closing the brewing chamber 5, a foil 26 is provided which has a low ductility and a low tensile strength as compared to the material of the cartridge itself, such that it easily tears apart under the influence of the lower punching member 15 located at the bottom of the cartridge retainer 12.
[1.c] and a bottom side with a barcode located on the bottom side, and	Schifferle discloses, either expressly or inherently, a bottom side with a barcode located on the bottom side. *See, e.g.*: Schifferle at Fig. 1:

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

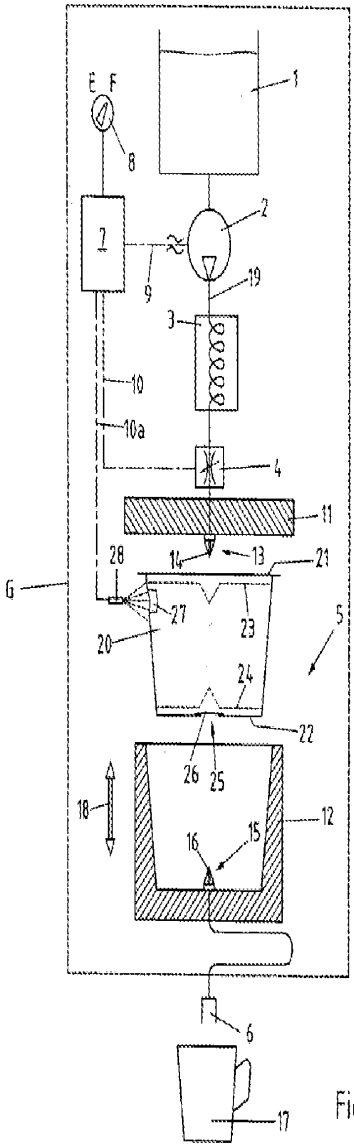
U.S. Patent No. 10,858,177	Disclosure
	inserted into a brewing water conduit 19 running from the pump 2 to the closing plate member 11. Moreover, there is provided a sensor 28, electrically connected to the control unit 7 by means of a conductor 10 a. The sensor 28 serves for detecting and reading a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

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

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

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

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

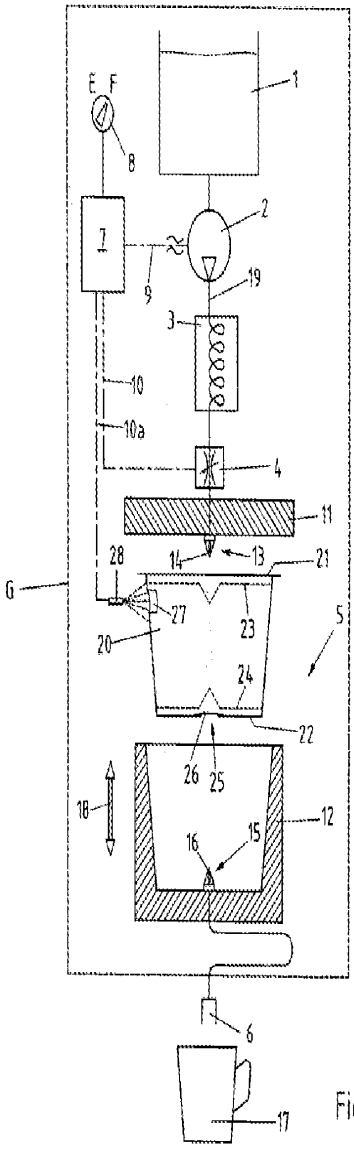
U.S. Patent No. 10,858,177	Disclosure
	 Fig.1 Schifferle at [0001]: The present invention refers to a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive a coffee powder cartridge, at

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	least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Schifferle at [0003]: For brewing the coffee powder contained in the cartridge, either manually operated or semi-automatic as well as fully automatic coffee makers are used. Usually, in a manually operated coffee maker, the cartridge is inserted into a cartridge holder that in turn is inserted into the coffee maker. In the semi-automatic coffee makers, the cartridge is inserted into a cartridge retainer or directly into the brewing chamber of the machine, whereby the brewing chamber is manually closed by means of a central lever mechanism. In a fully automatic coffee maker, however, the cartridge is removed from a cartridge magazine and automatically inserted into the brewing chamber; after the brewing operation, the cartridge is removed from the brewing chamber and discarded into a trash receptacle without any intervention of the operator. Schifferle at [0011]-[0012]: To meet this and other objects, the invention provides a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive the coffee powder cartridge, at least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Further, means are provided for restricting the amount of brewing water fed into the brewing chamber per unit of time to such an extent that the brewing water flows through the powder coffee cartridge received in the brewing chamber essentially unpressurized. Due to the fact that means are provided for restricting the amount of brewing water fed into the brewing chamber per unit of time to such an extent that the brewing water flows through the powder coffee cartridge received in the brewing chamber essentially unpressurized, the formation of froth on the surface of the coffee beverage can be essentially avoided. Preferably, both the cover and the bottom of the cartridge are punched before the brewing operation is initiated.

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	Schifferle at [0016]-[0017]: Schematically shown in FIGS. 1 and 2 are the essential elements of the coffee maker according to the invention, namely a fresh water tank 1, a pump 2, a boiler 3, a throttle valve 4, a brewing chamber 5, a beverage outlet 6, a control unit 7 and a selector switch 8. All these elements are mounted inside a schematically indicated housing G. Located below the beverage outlet 6, there is shown a coffee mug 17 for receiving the prepared coffee beverage. The cartridge to be put into the brewing chamber 5 and containing ground coffee is designated by reference numeral 20. In the present example, the bottom 22 of the cartridge 20 is provided with an aperture 25 which is covered by a foil 26 provided at the inside of the bottom 22 of the cartridge 20. Since such a cartridge is primarily suitable for preparing filter coffee, it is designated, in the following, as a filter cartridge 20, while a conventional cartridge having a continuous bottom without any opening is designated as an espresso cartridge. The brewing chamber 5 comprises an upper closing plate member 11 and a lower cartridge retainer 12. The inner contour of the cartridge retainer 12 essentially corresponds to the outer contour of the filter cartridge 20. In the drawings, both the closing plate member 11 and the cartridge retainer 12 are shown in a cross sectional view. The cartridge retainer 12 is movable in vertical direction, as shown by the double-arrow 18. The means for moving the cartridge retainer up and down, as well as possibly provided means for feeding and removing a cartridge, are not shown since the design thereof is well within the skill of a professional person. Schifferle at [0021]: The selector switch 8 is manually rotated into the position “F” and the cartridge 20 is inserted into the cartridge retainer 12. Then, the retainer 12 is moved upwards towards the closing plate member 11. Upon completion of this upwards movement (see FIG. 2), both the cartridge cover 21 and the bottom 22 of the cartridge 20, i.e. the foil 26, are punched. Once the upper end position is reached, the closing plate member 11 not only closes the brewing chamber 5, but also presses the cartridge cover 21 against the top end face of the cartridge

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	retainer 12 along an annular contact area, thereby hydraulically sealing the upper portion of the cartridge 20 against the bottom 22 of the cartridge 20. As soon as the brewing chamber 5 is closed, the pump 2 is operated. The amount of brewing water fed into the brewing chamber 5 per unit of time is restricted, as compared to the brewing operation of an espresso coffee, to such an extent that the brewing water flows through the cartridge 20 essentially unpessurized. The flow restriction rate is determined either by a pre-selected, stored value or on the basis of a code contained in the label or marking 27 of the cartridge 20. The flow restriction can be realized either by reducing the flow rate of the pump 2 or by adjusting the throttle valve 4. For reducing the flow rate of the pump 2, in the case of an AC operated pump, a phase controlled modulator or a wave packet controller can be used. As an alternative, the operating frequency of the pump 2 can be changed. It is understood that in practice only one of the measures for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time is provided, i.e. either means are provided for reducing the flow rate of the pump 2, or a throttle valve 4 is provided for reducing the effective flow cross sectional area. It is further understood that other means for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time could be provided. Schifferle at [0029]: The coffee maker according to the invention is known under the designation “espresso machine”; it is suitable both for preparing a filter coffee beverage and particularly an espresso coffee beverage. The coffee maker can be designed as a manually operated machine, with a cartridge holder to be manually inserted into the machine, or as a semi- or fully-automatic coffee maker. Schifferle at Claims 1, 4, 11.
[1.f] and a pump controlled to push water into the portion capsule only upon a determination that the read	Schifferle discloses, either expressly or inherently, a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference. *See, e.g.*:

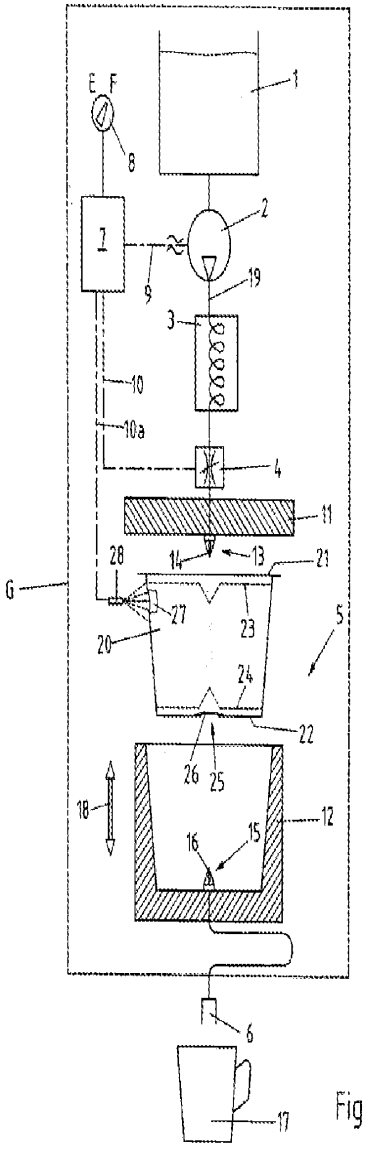
U.S. Patent No. 10,858,177	Disclosure
barcode agrees with a stored reference,	Schifferle at Abstract: The coffee maker for brewing powder coffee contained in a cartridge comprises a brewing chamber adapted to receive the cartridge, at least one punching member for punching the cartridge and a pump for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

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	 Fig.1 Schifferle at [0001]: The present invention refers to a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive a coffee powder cartridge, at

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	least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Schifferle at [0016]: Schematically shown in FIGS. 1 and 2 are the essential elements of the coffee maker according to the invention, namely a fresh water tank 1, a pump 2, a boiler 3, a throttle valve 4, a brewing chamber 5, a beverage outlet 6, a control unit 7 and a selector switch 8. All these elements are mounted inside a schematically indicated housing G. Located below the beverage outlet 6, there is shown a coffee mug 17 for receiving the prepared coffee beverage. The cartridge to be put into the brewing chamber 5 and containing ground coffee is designated by reference numeral 20. In the present example, the bottom 22 of the cartridge 20 is provided with an aperture 25 which is covered by a foil 26 provided at the inside of the bottom 22 of the cartridge 20. Since such a cartridge is primarily suitable for preparing filter coffee, it is designated, in the following, as a filter cartridge 20, while a conventional cartridge having a continuous bottom without any opening is designated as an espresso cartridge. Schifferle at [0019]: The selector switch 8 serves for selecting the coffee beverage to be prepared. The letter "E" denotes espresso coffee, while the letter "F" denotes filter coffee. The selector switch is electrically connected to the control unit 7. The control unit is operationally connected to the pump 2 via a conductor 9 and to a throttle valve 4 via a conductor 10. The throttle valve is inserted into a brewing water conduit 19 running from the pump 2 to the closing plate member 11. Moreover, there is provided a sensor 28, electrically connected to the control unit 7 by means of a conductor 10 a. The sensor 28 serves for detecting and reading a label or marking 27, provided on the cartridge 20 and containing information about the kind and/or content of the cartridge 20. Such a label or marking 27 can consist, for example, of a barcode printed onto the cartridge 20; however, other kinds of markings are possible, for example in electronic form. It is understood that the sensor 28 and the label or marking 27 are matched to each other to enable the sensor 28 to read the label or marking 28 and to forward the

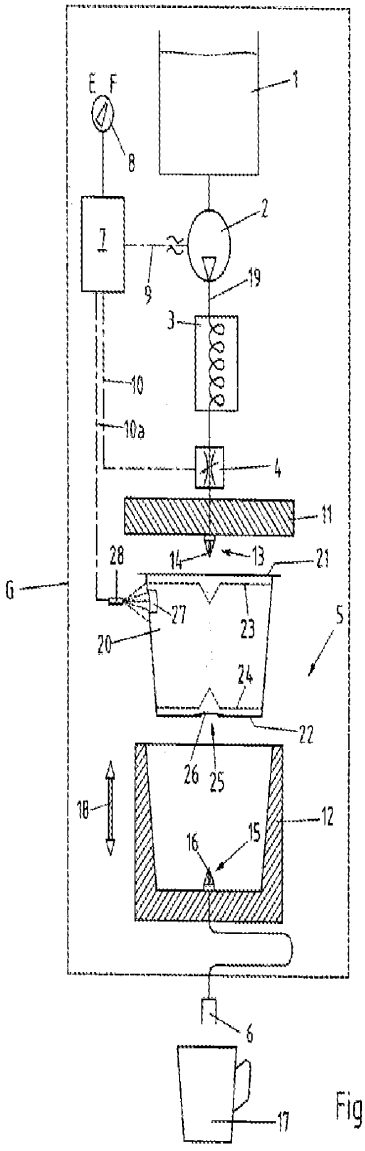
U.S. Patent No. 10,858,177	Disclosure
	information contained therein to the control unit 7. In the case where exclusively cartridges 20 are used that are provided with such a label or marking 28, the selector switch 8 can be omitted since the kind of cartridge 20 is automatically recognized by the sensor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

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	Schifferle at [0025]-[0027]: For preparing a conventional espresso coffee, the selector switch 8 is manually rotated into the position marked "E". In this mode of operation, the brewing water flows through a conventional espresso cartridge under high pressure. In the present case, the expression "espresso coffee" shall mean a coffee beverage that is provided with a froth layer at its top, independent of the amount of brewing water used for preparing the coffee beverage. Preferably, for preparing a filter coffee, different cartridges are used than for preparing espresso coffee. Besides the different design of the bottom of the cartridge, also the coffee powder blend, the amount of coffee powder and/or the degree of grinding can be different. Moreover, in the case of a filter coffee cartridge, the apertures in the filter elements 23, 24 are larger and/or their number is increased, such that these filter elements 23, 24 do not constitute a hydraulic resistance to the brewing water flowing there trough. As an alternative to the embodiment discussed herein before, the coffee maker can incorporate more extensive features: For example, means can be provided to punch the bottom of the cartridge later than the cover of the cartridge, depending on the kind of coffee beverage to be prepared. In case an espresso coffee is to be prepared, the bottom of the espresso cartridge is punched only after a certain hydraulic pressure has been built up in the interior of the cartridge, because this measure favors the formation of froth, as is well known. Alternatively, in the case of an espresso cartridge, its bottom can be punched by the lower punching member in a first phase only partially, i.e. to such an extent that the tip of the punching member just penetrates the bottom of the cartridge, but only so far that the slots 16 of the punching member 15 do not communicate with the interior of the espresso cartridge. In this way, a hydraulic overpressure can be built up in the interior of the espresso cartridge during a first phase of the brewing operation. Schifferle at Claims 1, 8-9, 12.

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[1.g] wherein the base element has a wall region with an electrically conductive section	Schifferle discloses, either expressly or inherently, wherein the base element has a wall region with an electrically conductive section. *See, e.g.*: Schifferle at Fig. 1:  Fig.1

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	Schifferle at [0019]: The selector switch 8 serves for selecting the coffee beverage to be prepared. The letter "E" denotes espresso coffee, while the letter "F" denotes filter coffee. The selector switch is electrically connected to the control unit 7. The control unit is operationally connected to the pump 2 via a conductor 9 and to a throttle valve 4 via a conductor 10. The throttle valve is inserted into a brewing water conduit 19 running from the pump 2 to the closing plate member 11. Moreover, there is provided a sensor 28, electrically connected to the control unit 7 by means of a conductor 10 a. The sensor 28 serves for detecting and reading a label or marking 27, provided on the cartridge 20 and containing information about the kind and/or content of the cartridge 20. Such a label or marking 27 can consist, for example, of a barcode printed onto the cartridge 20; however, other kinds of markings are possible, for example in electronic form. It is understood that the sensor 28 and the label or marking 27 are matched to each other to enable the sensor 28 to read the label or marking 28 and to forward the information contained therein to the control unit 7. In the case where exclusively cartridges 20 are used that are provided with such a label or marking 28, the selector switch 8 can be omitted since the kind of cartridge 20 is automatically recognized by the sensor 27, and the control unit, consequently, influences certain operating parameters of the coffee maker, e.g. the delivery rate of the pump 2, the adjustment of the throttle valve 4 et cetera.
[1.h] and radially spaced and vertically oriented drawn grooves,	
[1.i] the cavity has radially spaced and vertically oriented drawn ribs.	
4. The beverage system according to claim 1, wherein the water is pushed into the portion capsule along a	Schifferle discloses, either expressly or inherently, the beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule. *See, e.g.*:

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central axis that is perpendicular to the flange of the portion capsule.	Schifferle at Abstract: The coffee maker for brewing powder coffee contained in a cartridge comprises a brewing chamber adapted to receive the cartridge, at least one punching member for punching the cartridge and a pump for feeding brewing water into the brewing chamber. In order to avoid that the prepared coffee shows froth at its surface, the coffee maker comprises means for restricting the amount of water fed by the pump into the brewing chamber per unit of time. This means ensures that the brewing water flows through the cartridge essentially unpressurized. Schifferle at Fig. 1:

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	 Fig.1 Schifferle at [0011]: To meet this and other objects, the invention provides a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive the coffee powder cartridge, at least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Further, means are provided for

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	restricting the amount of brewing water fed into the brewing chamber per unit of time to such an extent that the brewing water flows through the powder coffee cartridge received in the brewing chamber essentially unpressurized. Schifferle at [0016]: Schematically shown in FIGS. 1 and 2 are the essential elements of the coffee maker according to the invention, namely a fresh water tank 1, a pump 2, a boiler 3, a throttle valve 4, a brewing chamber 5, a beverage outlet 6, a control unit 7 and a selector switch 8. All these elements are mounted inside a schematically indicated housing G. Located below the beverage outlet 6, there is shown a coffee mug 17 for receiving the prepared coffee beverage. The cartridge to be put into the brewing chamber 5 and containing ground coffee is designated by reference numeral 20. In the present example, the bottom 22 of the cartridge 20 is provided with an aperture 25 which is covered by a foil 26 provided at the inside of the bottom 22 of the cartridge 20. Since such a cartridge is primarily suitable for preparing filter coffee, it is designated, in the following, as a filter cartridge 20, while a conventional cartridge having a continuous bottom without any opening is designated as an espresso cartridge. Schifferle at [0018]: Both the lower surface of the closing plate member 11 and the bottom of the cartridge retainer 12 are provided with a punching member 13 and 15, respectively. Thereby, the upper punching member 13 serves for punching the cover 21 of the cartridge 20, while the lower punching member 15 serves for punching the bottom 22 of the cartridge 20. Both punching members 13 and 15, respectively, are located centrally on the closing plate member 11 and the bottom of the cartridge retainer 12, respectively. Moreover, both punching members 13 and 15, respectively, comprise a conically shaped front portion comprising a number of slots 14 and 16, respectively, through which the brewing water can flow into the cartridge 20 and the prepared coffee beverage can flow out of the cartridge 20, respectively.

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	Schifferle at [0020]-[0021]: The brewing operation using a cartridge designated for preparing a froth-less coffee beverage, a so-called filter coffee, takes place as follows: The selector switch 8 is manually rotated into the position "F" and the cartridge 20 is inserted into the cartridge retainer 12. Then, the retainer 12 is moved upwards towards the closing plate member 11. Upon completion of this upwards movement (see FIG. 2), both the cartridge cover 21 and the bottom 22 of the cartridge 20, i.e. the foil 26, are punched. Once the upper end position is reached, the closing plate member 11 not only closes the brewing chamber 5, but also presses the cartridge cover 21 against the top end face of the cartridge retainer 12 along an annular contact area, thereby hydraulically sealing the upper portion of the cartridge 20 against the bottom 22 of the cartridge 20. As soon as the brewing chamber 5 is closed, the pump 2 is operated. The amount of brewing water fed into the brewing chamber 5 per unit of time is restricted, as compared to the brewing operation of an espresso coffee, to such an extent that the brewing water flows through the cartridge 20 essentially unpessurized. The flow restriction rate is determined either by a pre-selected, stored value or on the basis of a code contained in the label or marking 27 of the cartridge 20. The flow restriction can be realized either by reducing the flow rate of the pump 2 or by adjusting the throttle valve 4. For reducing the flow rate of the pump 2, in the case of an AC operated pump, a phase controlled modulator or a wave packet controller can be used. As an alternative, the operating frequency of the pump 2 can be changed. It is understood that in practice only one of the measures for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time is provided, i.e. either means are provided for reducing the flow rate of the pump 2, or a throttle valve 4 is provided for reducing the effective flow cross sectional area. It is further understood that other means for reducing the flow rate of the brewing water flowing through the brewing chamber 5 per unit of time could be provided. Schifferle at Claims 5-6. *See also* [1].

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5. The beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis.	Schifferle discloses, either expressly or inherently, the beverage system according to claim 4, wherein the beverage machine comprises a mandrel that pierces the lid in a region that is offset from the central axis. *See, e.g.*: Schifferle at Abstract: The coffee maker for brewing powder coffee contained in a cartridge comprises a brewing chamber adapted to receive the cartridge, at least one punching member for punching the cartridge and a pump for feeding brewing water into the brewing chamber. In order to avoid that the prepared coffee shows froth at its surface, the coffee maker comprises means for restricting the amount of water fed by the pump into the brewing chamber per unit of time. This means ensures that the brewing water flows through the cartridge essentially unpressurized. Schifferle at [0001]: The present invention refers to a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive a coffee powder cartridge, at least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Schifferle at [0011]-[0012]: To meet this and other objects, the invention provides a coffee maker for brewing coffee powder contained in a cartridge, comprising a brewing chamber adapted to receive the coffee powder cartridge, at least one means for punching the coffee powder cartridge, and a pump for feeding hot brewing water into the brewing chamber. Further, means are provided for restricting the amount of brewing water fed into the brewing chamber per unit of time to such an extent that the brewing water flows through the powder coffee cartridge received in the brewing chamber essentially unpressurized.

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

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	punched and into which the punching members 13, 15 extend once the cartridge cover 21 and bottom 22 are punched. In order to ensure that the bottom 22 of the cartridge 20 is reliably punched upon closing the brewing chamber 5, a foil 26 is provided which has a low ductility and a low tensile strength as compared to the material of the cartridge itself, such that it easily tears apart under the influence of the lower punching member 15 located at the bottom of the cartridge retainer 12. Schifferle at Claims 1, 4-6. *See also* [4].

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

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

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

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

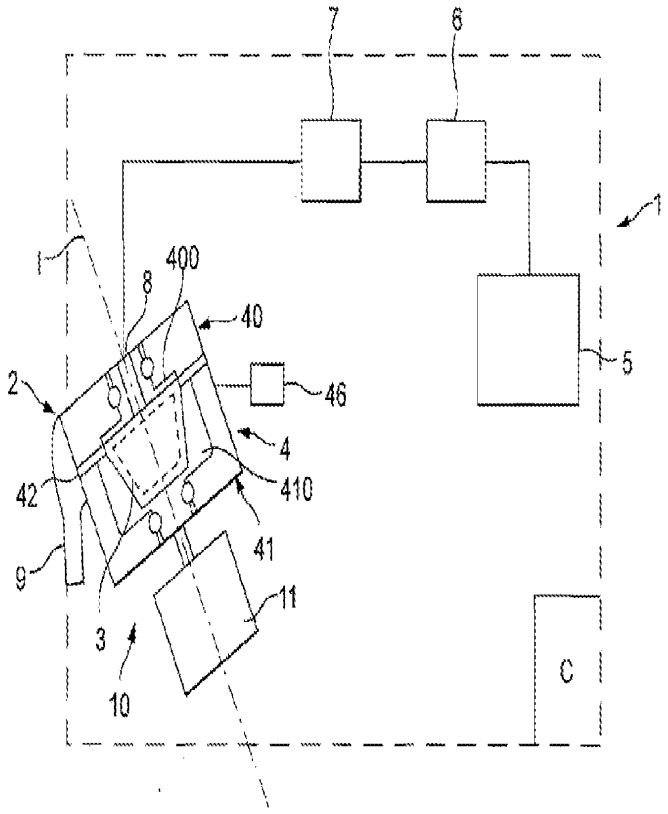
It is Nespresso's position that K-fee's Infringement Contentions have not established that any accused product or service infringes any valid claim. Thus, Nespresso's statements below should not be treated as an admission, implication, or suggestion that Nespresso agrees with K-fee regarding either the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

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

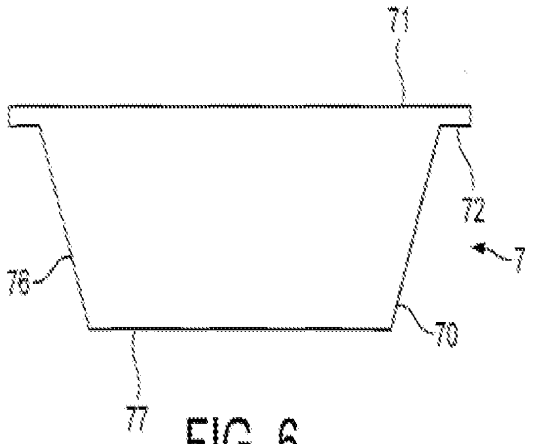
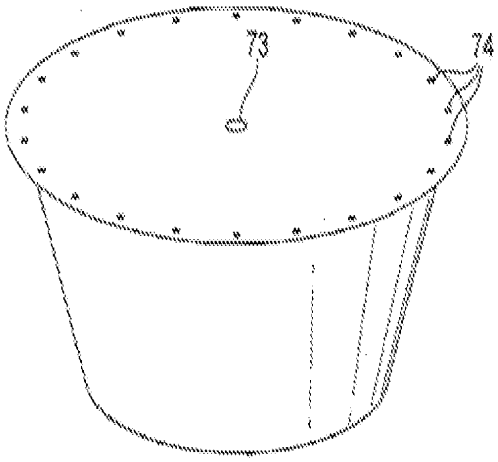
Where Nespresso states that Yoakim "discloses" a limitation, that disclosure may be express, implicit, and/or inherent.

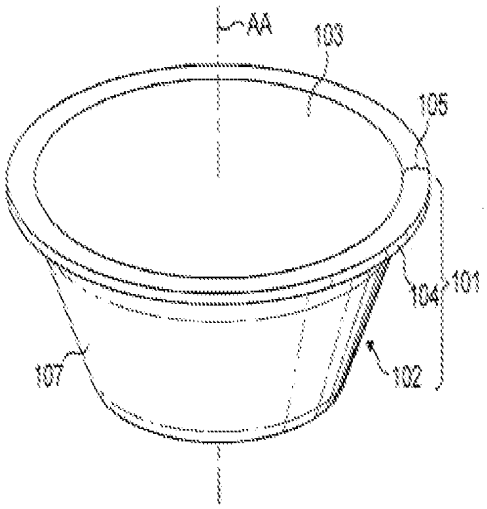
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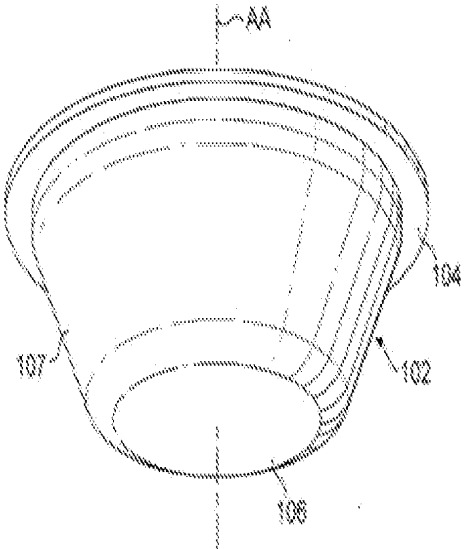
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[1.pre] A beverage system for producing a beverage, comprising:	Yoakim discloses, either expressly or inherently, a beverage system for producing a beverage. *See, e.g.*: Yoakim at [0002]: The present invention relates to a capsule, device, system, and method for preparing a beverage or food liquid from a food substance which is brewed or extracted by using centrifugal forces exerted on a capsule which contains the substance. Yoakim at [0139]-[0144]: The invention also concerns a system for preparing a beverage or food liquid from a food substance contained in a filtering receptacle by passing water through the substance using centrifugal forces . . . wherein the system further comprises referencing means for positioning and referencing the capsule in a removable manner in the device and in operational relationship with the water feed means and along an axis of rotation along the driving means. Yoakim at [0180]:The system 1 of the invention is illustrated in FIG. 1 in the more general sense. The system comprises a device 2 and a capsule 3. The device has a brewing module 4 into which the capsule can be inserted for being brewed and is removed after use for being discarded (e.g., for waste or recycling). The module is in fluid communication with a water reservoir 5 containing fresh or, alternatively heated water. A fluid transport means such as a low pressure pump 6 can be provided in the water circuit to transport water from the reservoir to the module. A water heater 7 is further provided to heat water to the desired temperature. It can be noted that water could be heated in the reservoir itself and water could be transported from the reservoir by effect of vaporization. Water can be fed into the module 4 at low or substantially no pressure. For example, a pressure between 0 and 2 bars above atmospheric pressure can be envisaged at the inlet 8 of the module. Yoakim at FIG. 1:

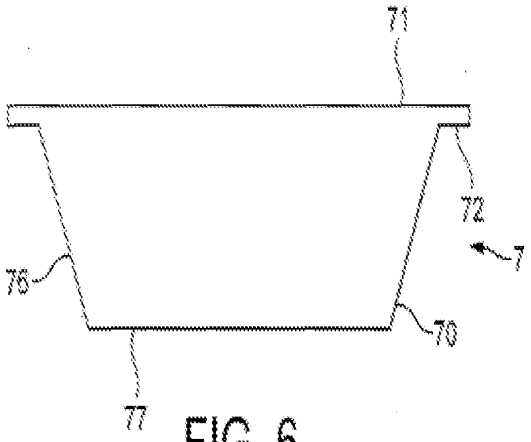
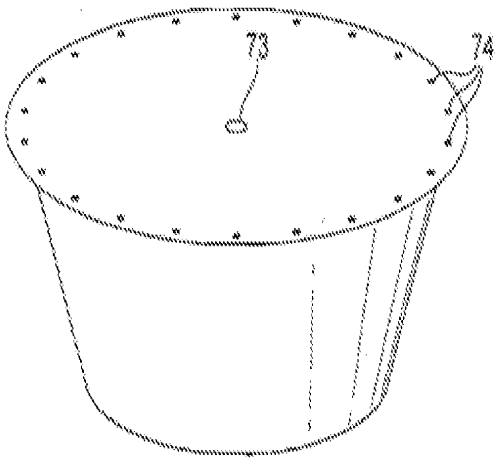
U.S. Patent No. 10,858,177	Disclosure
	 FIG. 1
[1.a] a portion capsule comprising: a foil lid sealed to a base element having a cavity within which a beverage raw material is provided,	Yoakim discloses, either expressly or inherently, a portion capsule comprising: a foil lid sealed to a base element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

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	The capsule can comprise a sealing lid. The sealing lid can comprise a flexible membrane. The membrane can comprise gas barrier and support layers made of polymers, aluminium, and/or aluminium alloys. Yoakim at [0129]: The capsule can also comprise a cup-shaped body onto which the sealing lid is sealed. The cup-shaped body may also comprise gas barrier materials, such as metal, e.g., thin aluminium and/or plastic. Yoakim at [0197]: FIGS. 6 and 7 illustrate a capsule that can suit the device according to the different embodiments of FIGS. 2 to 5. In FIG. 6, the capsule 7 comprises a cup-shaped body 70 with upwardly oriented sidewall 76 and a bottom wall 77. The sidewall forms a portion of cone which promotes the collection of the brewed liquid internally. The body terminates by an upper edge 72 raising outwards onto which is sealed a lid 71. The lid may be a flexible pierceable membrane of several microns in aluminium and/or plastic. The lid can be welded on the upper edges 72 of the body. It can be pointed out that the membrane and body preferably comprise gas barrier layers such as aluminium and/or EVOH. Yoakim at [0198]: The capsule contains a substance chosen among the list consisting of ground coffee, soluble coffee, tea, a whitener such as dairy or non-dairy ingredient(s), herbal tea, nutritional substance, culinary ingredients and a mixture thereof. Yoakim at FIGS. 6-7:

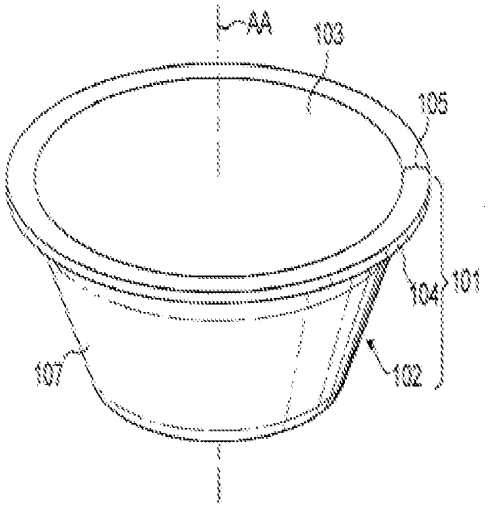
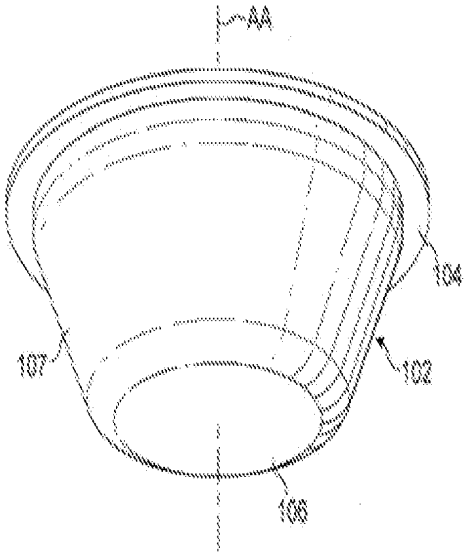
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	 FIG. 6  FIG. 7 Yoakim at [0414]: As shown in FIGS. 26 and 27, a preferred capsule 101 of the invention generally comprises a dished body 102 onto which is sealed a sealing foil 103. The sealing foil 103 is sealed onto a peripheral rim 104 of the body at a sealing annular portion 105. The rim 104 can extend outwards forming a small annular portion, e.g., of about 2-5mm. The dished body comprises

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	a bottom wall 106 and a side wall 107 which preferably widens in direction of the large open end of the body opposed to the bottom wall. The dished body is preferably rigid or semi-rigid. It can be formed of a food grade plastics, e.g., polypropylene, with a gas barrier layer such as EVOH and the like or aluminium alloy or a complex of plastic and aluminium alloy. The sealing foil 103 can be made of a thinner material such as a plastic laminate also including a barrier layer or aluminium alloy or a combination of plastic and aluminium alloy. The sealing foil is usually of a thickness between 30 and 250 microns, for example. The sealing foil membrane can be pierced for creating the water inlet and the beverage outlet(s) as will be described later in the description. Yoakim at FIGS. 26 and 27:  FIG. 26

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	 FIG. 27
[1.b] the base element comprising a circumferential flange having a top side to which the lid is attached	Yoakim discloses, either expressly or inherently, the base element comprising a circumferential flange having a top side to which the lid is attached. Yoakim at [0129]: The capsule can also comprise a cup-shaped body onto which the sealing lid is sealed. The cup-shaped body may also comprise gas barrier materials, such as metal, e.g., thin aluminium and/or plastic. Yoakim at [0197]: FIGS. 6 and 7 illustrate a capsule that can suit the device according to the different embodiments of FIGS. 2 to 5. In FIG. 6, the capsule 7 comprises a cup-shaped body 70 with upwardly oriented sidewall 76 and a bottom wall 77. The sidewall forms a portion of cone which promotes the collection of the brewed liquid internally. The body terminates by an upper edge 72 raising outwards onto which is sealed a lid 71. The lid may be a flexible pierceable

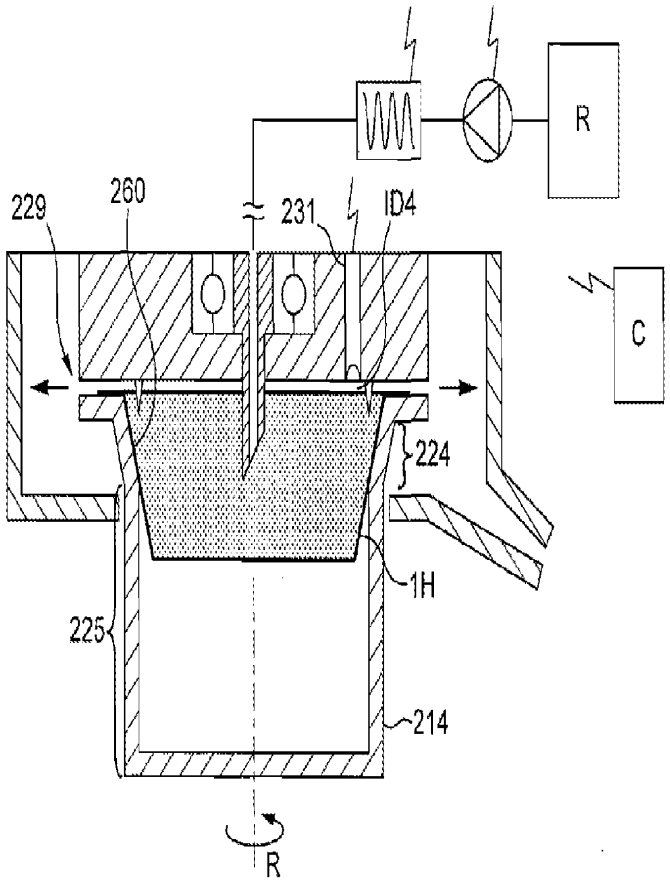
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	membrane of several microns in aluminium and/or plastic. The lid can be welded on the upper edges 72 of the body. It can be pointed out that the membrane and body preferably comprise gas barrier layers such as aluminium and/or EVOH. Yoakim at FIGS. 6-7:  FIG. 6  FIG. 7

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	Yoakim at [0414]: As shown in FIGS. 26 and 27, a preferred capsule 101 of the invention generally comprises a dished body 102 onto which is sealed a sealing foil 103. The sealing foil 103 is sealed onto a peripheral rim 104 of the body at a sealing annular portion 105. The rim 104 can extend outwards forming a small annular portion, e.g., of about 2-5mm. The dished body comprises a bottom wall 106 and a side wall 107 which preferably widens in direction of the large open end of the body opposed to the bottom wall. The dished body is preferably rigid or semi-rigid. It can be formed of a food grade plastics, e.g., polypropylene, with a gas barrier layer such as EVOH and the like or aluminium alloy or a complex of plastic and aluminium alloy. The sealing foil 103 can be made of a thinner material such as a plastic laminate also including a barrier layer or aluminium alloy or a combination of plastic and aluminium alloy. The sealing foil is usually of a thickness between 30 and 250 microns, for example. The sealing foil membrane can be pierced for creating the water inlet and the beverage outlet(s) as will be described later in the description. Yoakim at FIGS. 26 and 27:

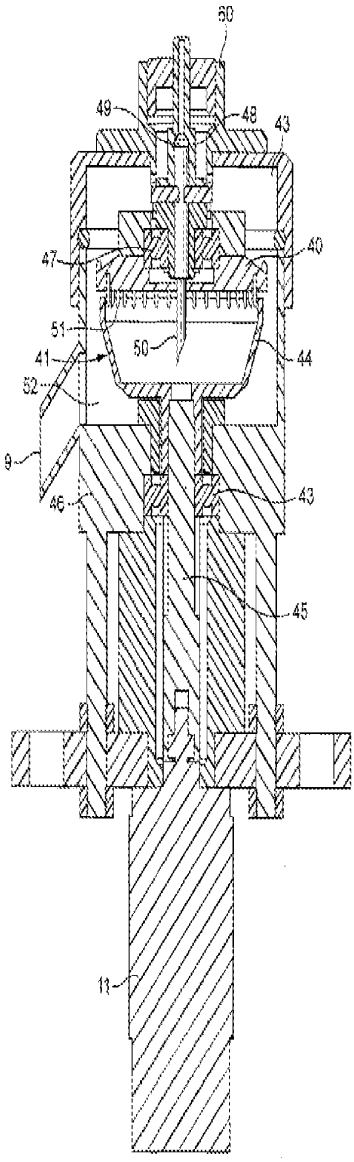
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	 FIG. 26  FIG. 27

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[1.c] and a bottom side with a barcode located on the bottom side, and	Yoakim discloses, either expressly or inherently, a bottom side with a barcode located on the bottom side. *See, e.g.*: Yoakim at [0477]: The capsule system further comprises an identification means associated to the different capsules in the set for identifying each capsule and adjusting brewing parameters accordingly. Yoakim at [0496]: The recognition means can be differentiable by a visual code such as a barcode, a colour, a sign, a logo, etc., or by a radio-frequency code (RFID), a magnetic element or by an identifiable shape.
[1.d] a beverage machine comprising: a detector to read the barcode,	Yoakim discloses, either expressly or inherently, a beverage machine comprising: a detector to read the barcode. *See, e.g.*: Yoakim at [0025]: The device is useful for preparing beverages from a plurality of different capsules, in which case it further comprises identification means for identifying the different capsules, and control means capable of operating the device in centrifugation for any of the different capsules according to predetermined liquid food preparation parameters including the flow rate and the volume of liquid to be injected into the capsule, with the identification means comprising capsule recognition means which are recognized by sensing means connected to the control means of the device to control the preparation parameters accordingly. Yoakim at [0192]: Therefore, as much as two, three, four or even more different flow rates and/or speed ranges can be provided in function of the types of coffee to be delivered. Therefore, depending on the types of beverage to be brewed, the control unit can be programmed to adjust the optical

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	centrifugal conditions. For instance, the control unit may be associated to a capsule recognition system enabling to recognize the types of capsules, i.e., espresso, lungo, cappuccino, long coffee (e.g., 180-400 ml), latte, tea, etc., and to adjust the speed and/or other brewing parameters (e.g., water temperature) according the capsule which is inserted in the device. A recognition system uses a code on the capsule and recognized by the device, such as a color, a barcode, an RFID, a magnetic code, ferromagnetic micro-wires or labels, shapes and combinations thereof. Yoakim at [0477]: The capsule system further comprises an identification means associated to the different capsules in the set for identifying each capsule and adjusting brewing parameters accordingly. The adjustable parameters can be the rotational speed, the back-pressure at the outlet of the capsule, and/or the volume of liquid fed in the capsule. The identification means participates to deliver a wider range of beverages having differentiated characteristics (volume, taste, strength, crema, colour, etc.). The identification means are associated to control means placed in the centrifugal brewing device which controls the adjustment of the said parameters, by controlling the rotational motor driving the capsule holder or/and the pump supplying liquid in the capsule. Yoakim at [0494]-[0496]: The identification means can be sensed by sensing means connected to the control means for an active control of the parameters or can be passive identification means, e.g., selective flow restriction means. In particular, the identification means comprises capsule recognition means which are recognized by the sensing means connected to the control means of the brewing device which controls the brewing parameters accordingly. The recognition means can be differentiable by a visual code such as a barcode, a colour, a sign, a logo, etc., or by a radio-frequency (RFID), a magnetic element or by an identifiable shape. Yoakim at [0525]:

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	In an alternative illustrated in FIGS. 61 and 62, the identification means are directly associated to the different capsules. In this case, the identification means ID4 and ID5 are capsule recognition means attached to or embedded in the capsules. The recognition means can be any mechanical, optical, magnetic, or radio-frequency recognition means capable of delivering information to the brewing device, via a sensing device 231, as to which type of capsule is inserted in the device. For example, the recognition means is a barcode, a colour code, a RFID tag, a magnetically sensitive element, or a mechanical key or shape. Yoakim at FIG. 61:  FIG. 61

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	See also [1.c].
[1.e] a media chute configured to receive and support the portion capsule,	Yoakim discloses, either expressly or inherently, a media chute configured to receive and support the portion capsule. *See, e.g.*: Yoakim at [0187]: The system comprises a capsule holder 41 which is associated to a central rotating rod 45 mounted along a lower bearing 43, which is supported on a support 46.

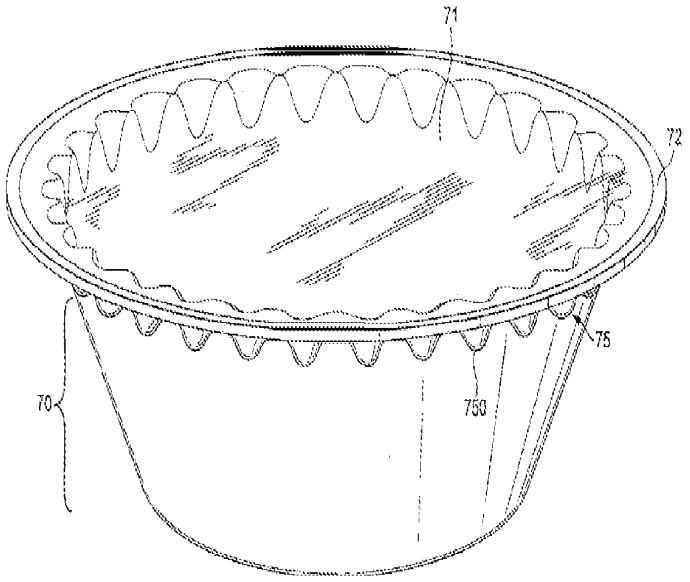
U.S. Patent No. 10,858,177	Disclosure
	Yoakim at FIG. 4:  FIG. 4 Yoakim at [0433]:

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	In relation to FIGS. 34 and 35, the rotary drum 134 is shaped as a hollow capsule holder with an internal cavity 136 complementary shaped to receive the capsule. ; FIG. 34. Yoakim at [0194]: The brewed liquid is collected in a collecting chamber 52 of the support 46 and drained through a collecting tube 9. Yoakim at [0195]: The capsule holder comprises a cavity 550 for receiving the capsule. Yoakim at [0204]: The capsule 8 of FIGS. 8 to 15 according to this embodiment can further include means 840 for gripping the bottom of the capsule and so enabling the capsule to be properly driven in rotational motion by the device. For this, the means 840 comprises a small tubular portion protruding in the bottom of the capsule and into which can be inserted a complementary tubular portion 450 of the rotational driving means of the device. Yoakim at [0205]: The driving means of the device further comprise a drive shaft 45 associated to a support 451 for holding the bottom of the capsule. Of course, the shape of the gripping means can take many other variations without departing from the scope of the present invention. FIGS. 12 and 13 show a gripping structure 840 having a central recess 841 and four arched recesses 842,843, 844,845 extending from the central recess 841. This gripping structure forms a lock into which is fitted a complementary engaging structure 450, i.e., a key, of the capsule holder 451. The complementary shapes of the capsule and capsule holder enable to fulfill both the gearing function for driving the capsule at high speeds in rotation and a safety function for ensuring that only capsules adapted to the system can be used and brewed successfully.

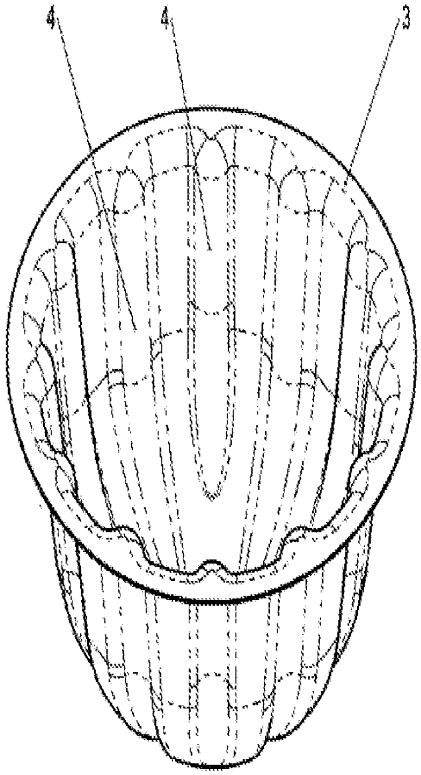
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	Yoakim at [0478]: In another feature of the invention, the brewing device comprises a rotary capsule holder with a support surface arranged for supporting a portion of the body of the capsules in the set; said portion of sidewall comprising a referencing diameter matching the insertion diameter of the capsules. Yoakim at [0479]: As a result, the risk of producing vibrations during centrifugation is reduced because all the capsules of the set are snugly fitted in the device with limited possible relative movement between each capsule and the device during rotation, i.e., capsule holder.
[1.f] and a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference,	Yoakim discloses, either expressly or inherently, a pump controlled to push water into the portion capsule only upon a determination that the read barcode agrees with a stored reference. *See, e.g.*: Yoakim at [0025]: The device is useful for preparing beverages from a plurality of different capsules, in which case it further comprises identification means for identifying the different capsules, and control means capable of operating the device in centrifugation for any of the different capsules according to predetermined liquid food preparation parameters including the flow rate and the volume of liquid to be injected into the capsule, with the identification means comprising capsule recognition means which are recognized by sensing means connected to the control means of the device to control the preparation parameters accordingly. Yoakim at [0192]: Therefore, as much as two, three, four or even more different flow rates and/or speed ranges can be provided in function of the types of coffee to be delivered. Therefore, depending on the

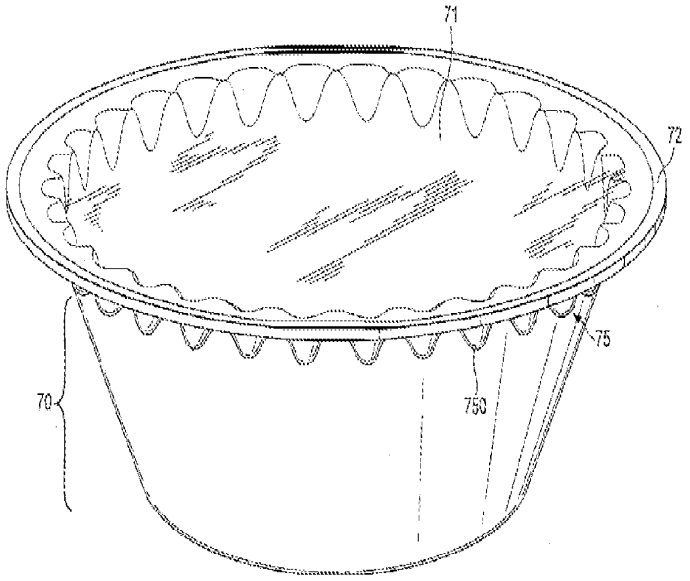
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	types of beverage to be brewed, the control unit can be programmed to adjust the optical centrifugal conditions. For instance, the control unit may be associated to a capsule recognition system enabling to recognize the types of capsules, i.e., espresso, lungo, cappuccino, long coffee (e.g., 180-400 ml), latte, tea, etc., and to adjust the speed and/or other brewing parameters (e.g., water temperature) according the capsule which is inserted in the device. A recognition system uses a code on the capsule and recognized by the device, such as a color, a barcode, an RFID, a magnetic code, ferromagnetic micro-wires or labels, shapes and combinations thereof. Yoakim at [0477]: The capsule system further comprises an identification means associated to the different capsules in the set for identifying each capsule and adjusting brewing parameters accordingly. The adjustable parameters can be the rotational speed, the back-pressure at the outlet of the capsule, and/or the volume of liquid fed in the capsule. The identification means participates to deliver a wider range of beverages having differentiated characteristics (volume, taste, strength, crema, colour, etc.). The identification means are associated to control means placed in the centrifugal brewing device which controls the adjustment of the said parameters, by controlling the rotational motor driving the capsule holder or/and the pump supplying liquid in the capsule.
[1.g] wherein the base element has a wall region with an electrically conductive section	Yoakim discloses, either expressly or inherently, wherein the base element has a wall region with an electrically conductive section. *See, e.g.*: Yoakim at [0129]: The capsule can also comprise a cup-shaped body onto which the sealing lid is sealed. The cup-shaped body may also comprise gas barrier materials, such as metal, e.g., thin aluminium and/or plastic. Yoakim at [0215]:

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	The body of the capsule can be made of plastic and/or aluminium or aluminium alloy. For example, it can be moulded by injection of plastic or deep drawn in aluminium. Yoakim at [0461]: FIGS. 45 to 50 are other variants of capsules according to the invention. For example, the capsule of FIG. 45 has a cylindrical side wall 700, an upper wall 701 and a lower wall 702 both sealed or connected to the sidewall 700. The capsule is gastight by choosing materials for the walls, e.g., aluminium and/or suitable plastics, which have gas barrier properties. *See also, e.g.* Yoakim at [0414].
[1.h] and radially spaced and vertically oriented drawn grooves,	Yoakim discloses, either expressly or inherently, radially spaced and vertically oriented drawn grooves. *See, e.g.*: Yoakim at [0161]: In yet another embodiment, the surface of the capsule comprises a toothed structure. Yoakim at [0215]: FIG. 23 illustrates another capsule of the invention. The capsule comprises means for connecting it to the external rotational driving means of the device. For this, capsule has a toothed structure 75 on at least one of its outer surface. The capsule has a body 70 comprising an upper edge 72 which can be closed by an upper membrane 71. The toothed structure comprises a series of teeth which is positioned below the edge or rim 72 of the body of the capsule. The teeth are placed along the whole periphery of the body of the capsule. The body of the capsule can be made of plastic and/or aluminium or aluminium alloy. For example, it can be moulded byinjection of plastic or deep drawn in aluminium. For example, the shape of the teeth could be slightly triangular, oval, rectangular or pyramidal. It should be noticed that

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	the teeth could be replaced by other equivalent structures such as series of elements in relief and/or hollow. For example, slits, pins or small needles can be envisaged. Yoakim at [0216]: The device itself that receives the capsule of FIG.23 comprises a toothed surface of complementary shape. FIG. 24 shows a capsule holder 44 adapted to receive the capsule of FIG. 23. The capsule holder has a cavity into which are provided hollow teeth 440. The hollow teeth are arranged to fit the teeth 750 on the outer surface of the capsule. *See, e.g.*, [0216]. Yoakim at FIG. 23:  FIG. 23

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[1.i] the cavity has radially spaced and vertically oriented drawn ribs.	Yoakim discloses, either expressly or inherently, the cavity has radially spaced and vertically oriented drawn ribs. *See, e.g.*: Yoakim at [0161]: In yet another embodiment, the surface of the capsule comprises a toothed structure. Yoakim at [0215]: FIG. 23 illustrates another capsule of the invention. The capsule comprises means for connecting it to the external rotational driving means of the device. For this, capsule has a toothed structure 75 on at least one of its outer surface. The capsule has a body 70 comprising an upper edge 72 which can be closed by an upper membrane 71. The toothed structure comprises a series of teeth which is positioned below the edge or rim 72 of the body of the capsule. The teeth are placed along the whole periphery of the body of the capsule. The body of the capsule can be made of plastic and/or aluminium or aluminium alloy. For example, it can be moulded byinjection of plastic or deep drawn in aluminium. For example, the shape of the teeth could be slightly triangular, oval, rectangular or pyramidal. It should be noticed that the teeth could be replaced by other equivalent structures such as series of elements in relief and/or hollow. For example, slits, pins or small needles can be envisaged. Yoakim at [0216]: The device itself that receives the capsule of FIG.23 comprises a toothed surface of complementary shape. FIG. 24 shows a capsule holder 44 adapted to receive the capsule of FIG. 23. The capsule holder has a cavity into which are provided hollow teeth 440. The hollow teeth are arranged to fit the teeth 750 on the outer surface of the capsule.

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	Yoakim at FIG. 6:  Yoakim at FIG. 23:

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	 FIG. 23 *See also* [1.h].
4. The beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule.	Yoakim discloses, either expressly or inherently, the beverage system according to claim 1, wherein the water is pushed into the portion capsule along a central axis that is perpendicular to the flange of the portion capsule. *See, e.g.*: Yoakim at [0019]: The enclosure is typically thermoformed of a food grade plastic and includes a top wall or lid that includes at least one inlet port defining a passage for receiving a liquid that is to be introduced into the capsule, with the inlet port aligned with the central axis of the capsule, wherein the liquid to be injected into the capsule is water and wherein the extractable or infusible ingredient(s) is ground coffee, soluble coffee, a dairy based powder, a dairy or non-