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(54) **CAPSULE FOR BEVERAGES AND BEVERAGE PREPARATION METHOD**

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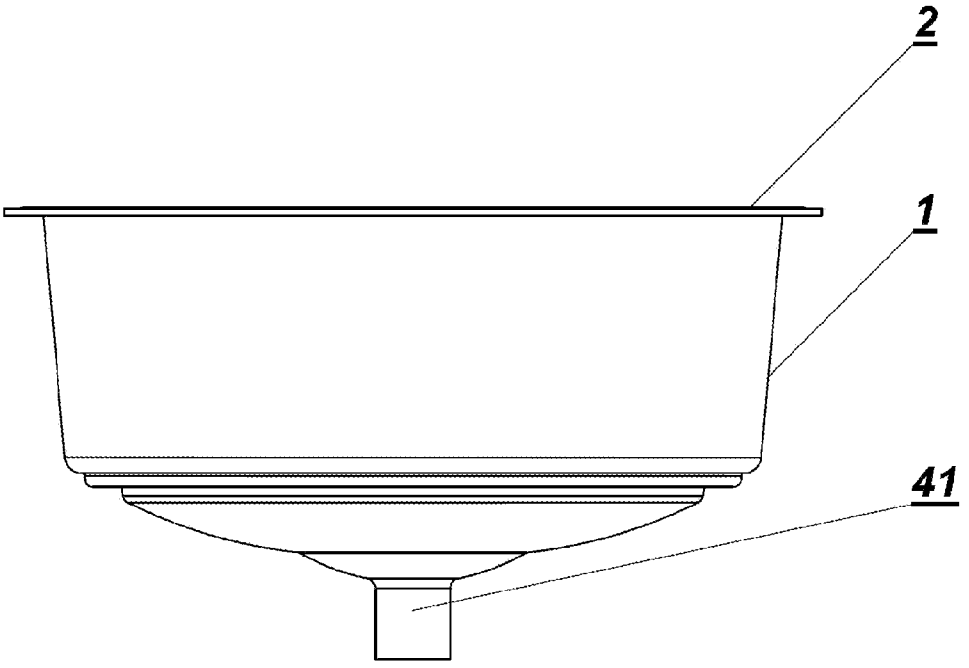
(57) **ABSTRACT**

A capsule and method of mixing a beverage are described. A capsule for beverages includes a casing with a top and a base. The capsule also includes a separator located within the casing with at least one hole wherein the separator is attached to the casing along the separator's perimeter. A substance in an upper part of the capsule casing between the upper barrier and the separator, wherein said substance is subjected to the processes of extracting, dissolving and diluting substance content by injecting liquid under pressure into the casing upper part within an appliance for preparing beverages. The capsule contains a mixing unit located between the separator and the lower barrier which seals an outflow duct.



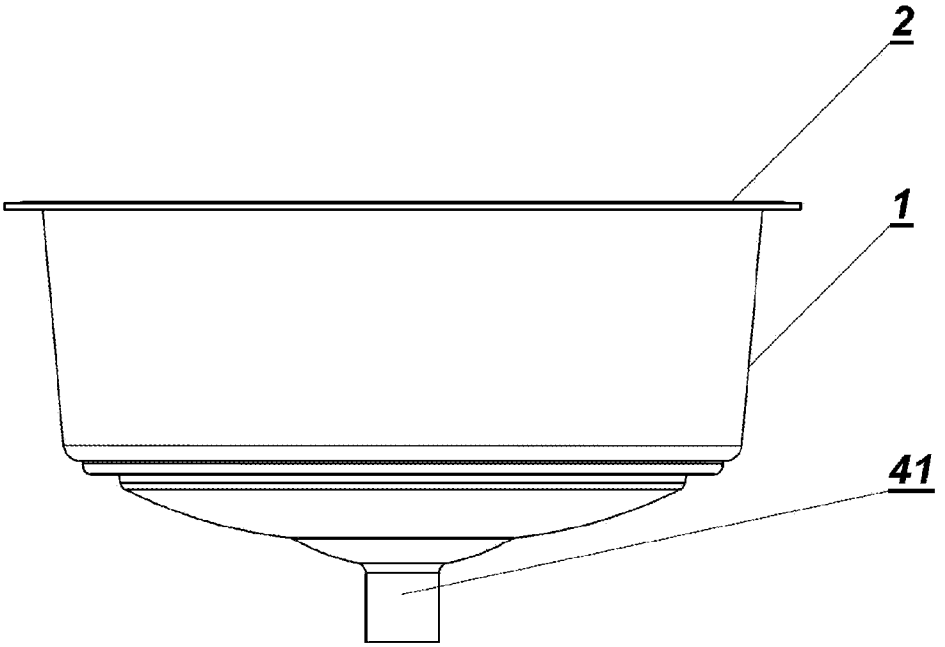


Fig. 1

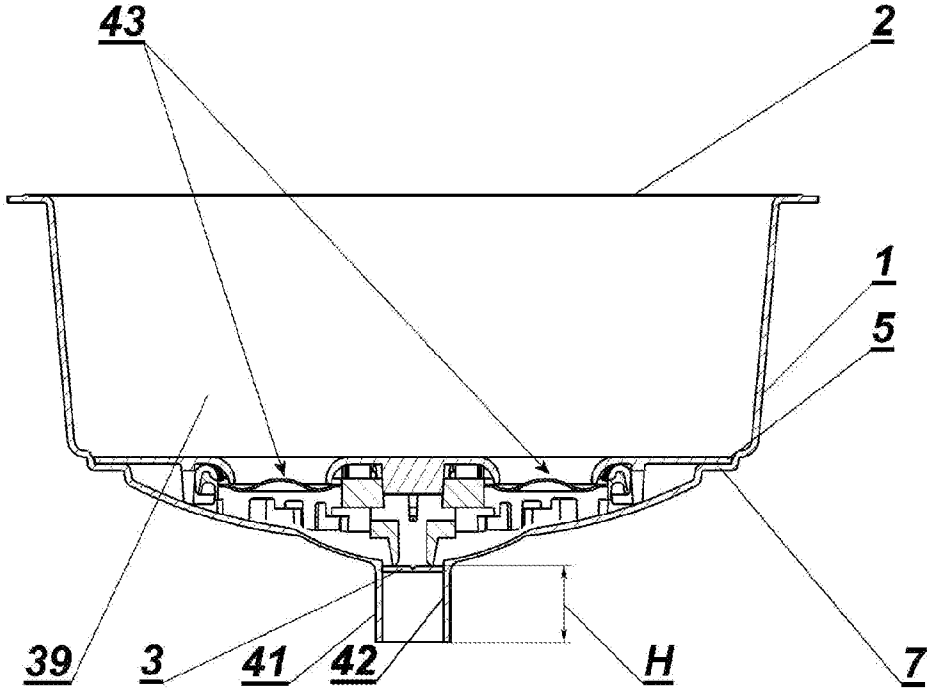


Fig. 2

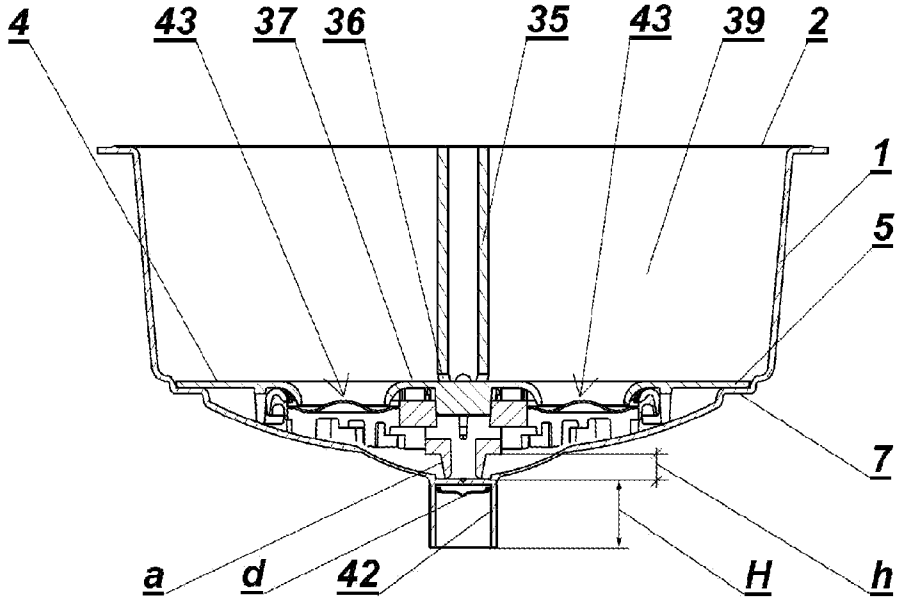


Fig. 3

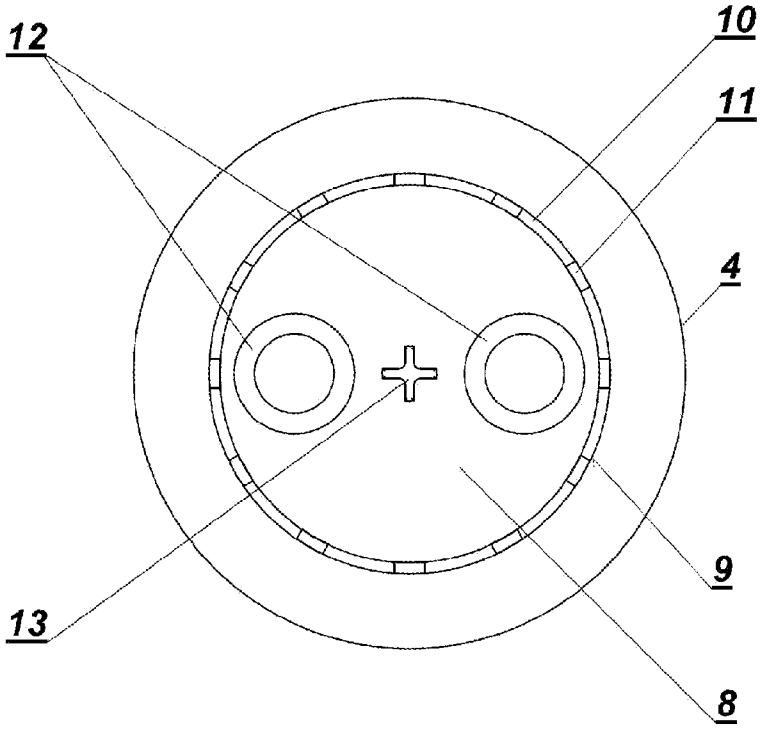


Fig. 4

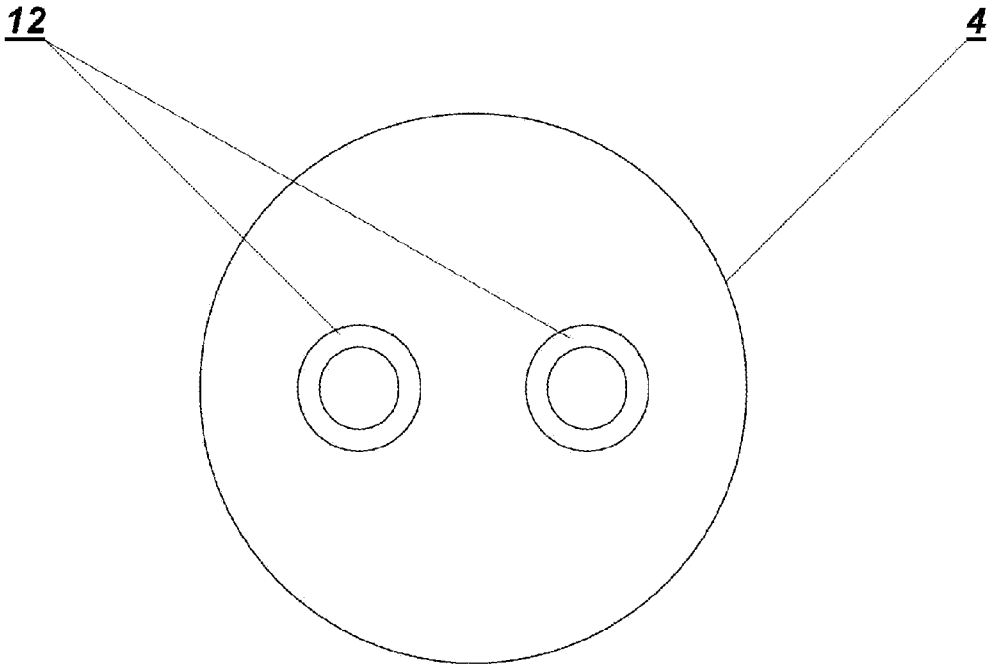


Fig. 5

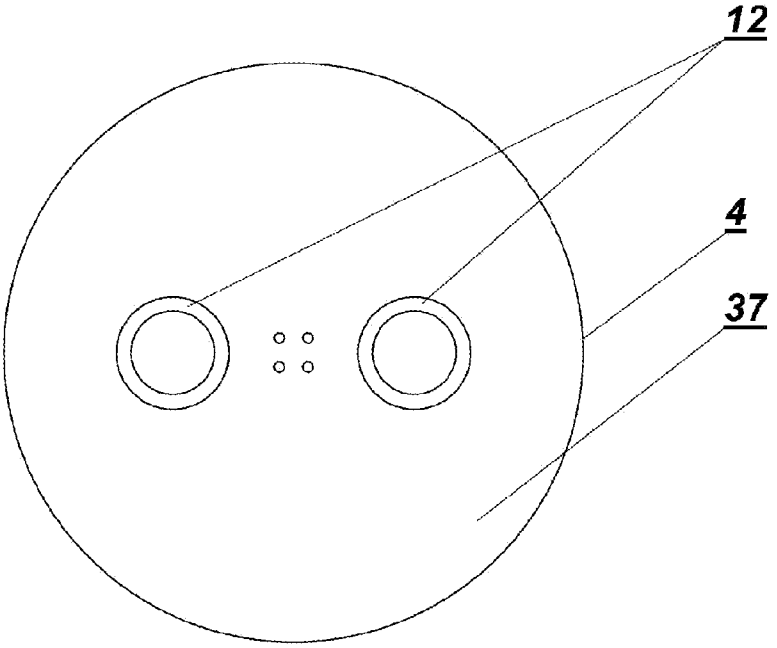


Fig. 6

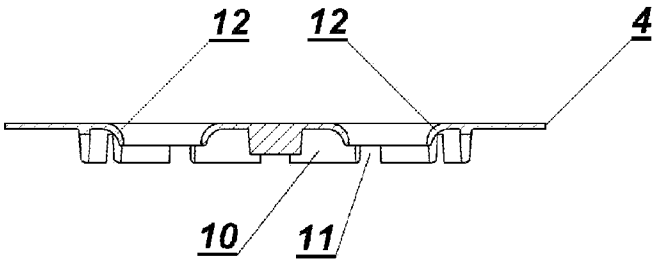


Fig. 7

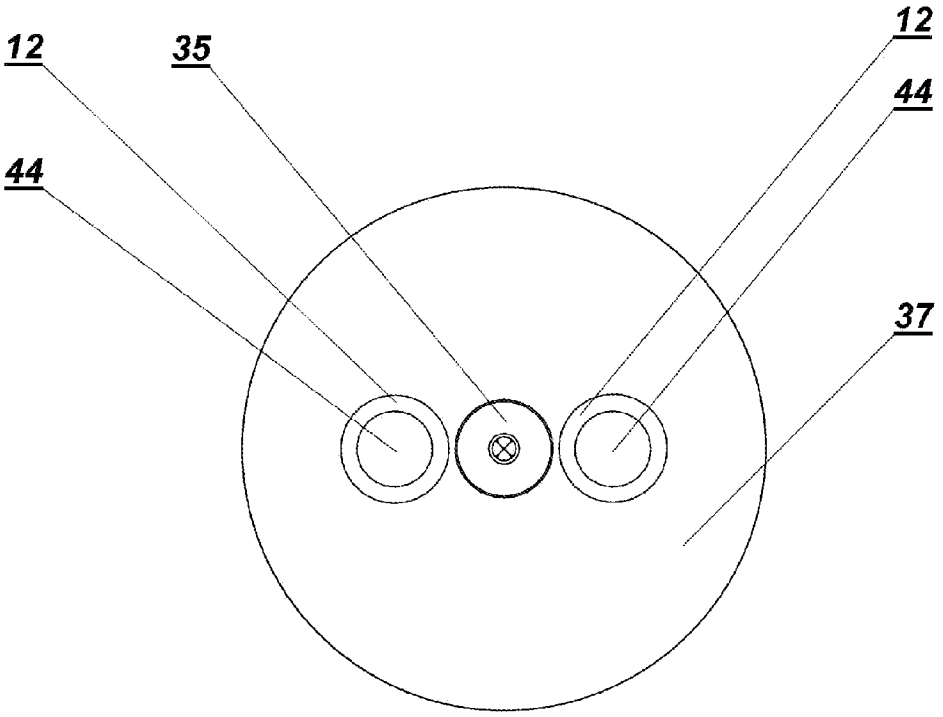


Fig. 8

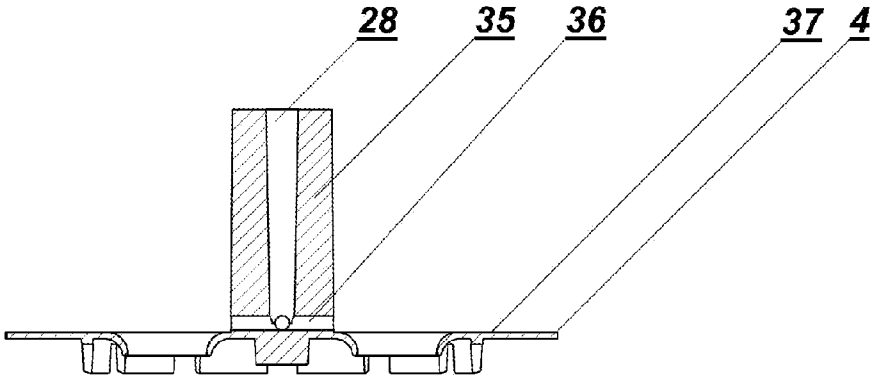


Fig. 9

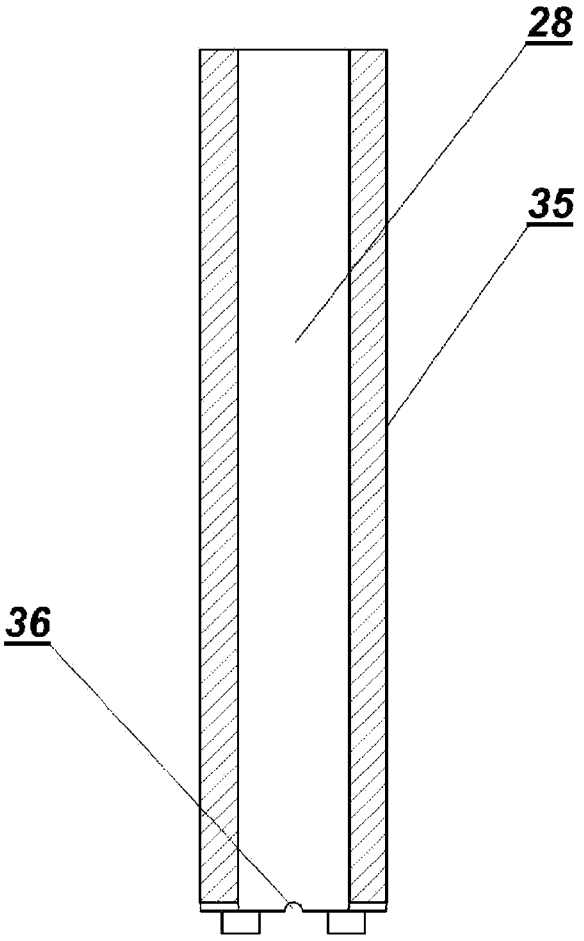


Fig. 10

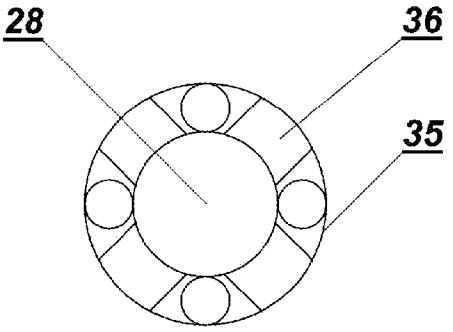


Fig. 11

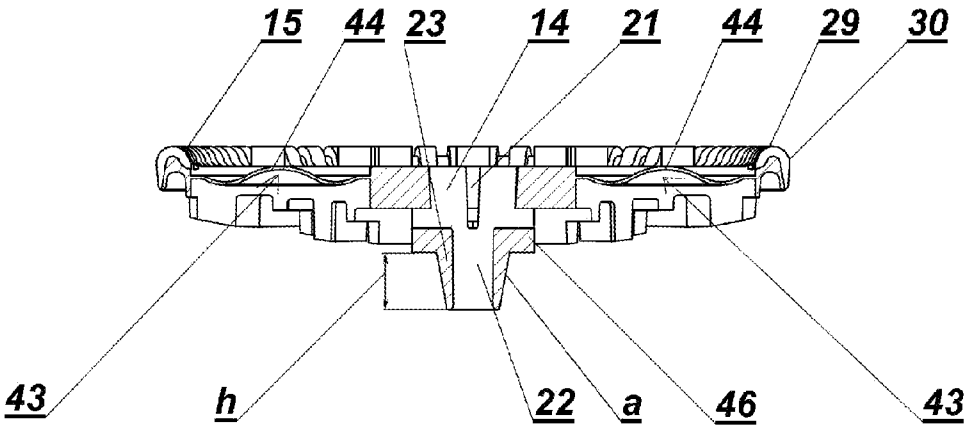


Fig. 12

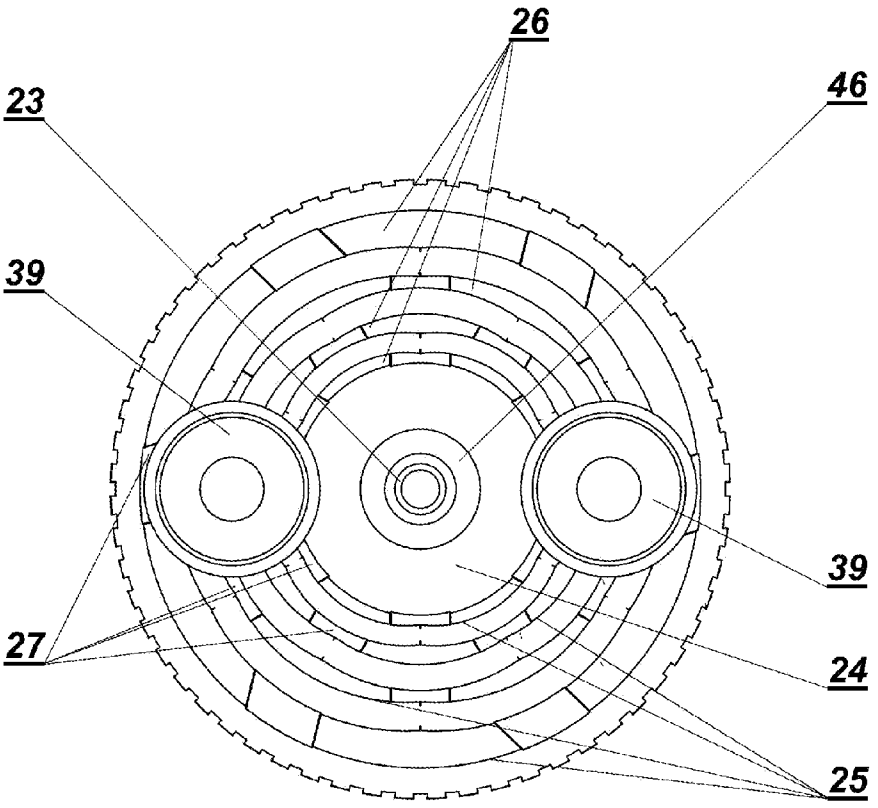


Fig. 13

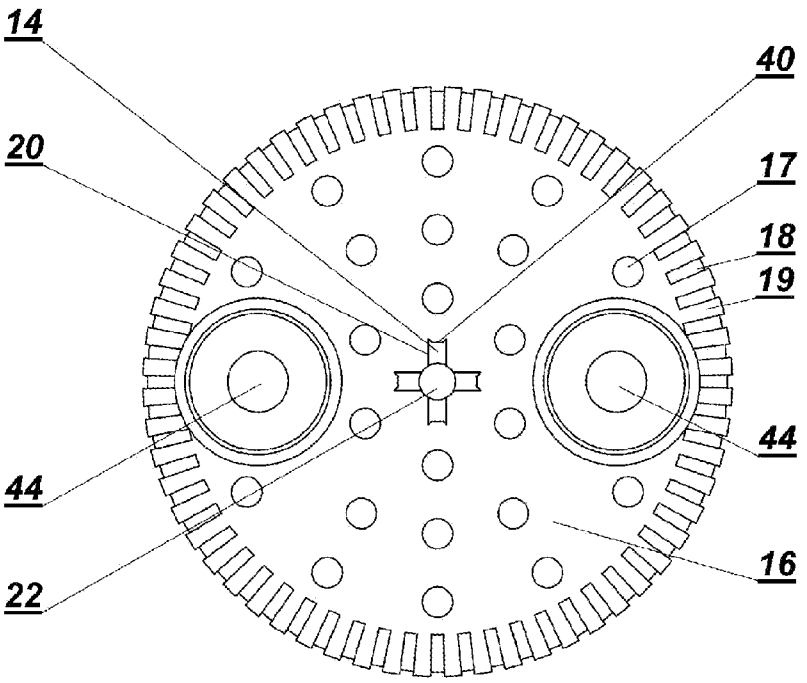


Fig. 14

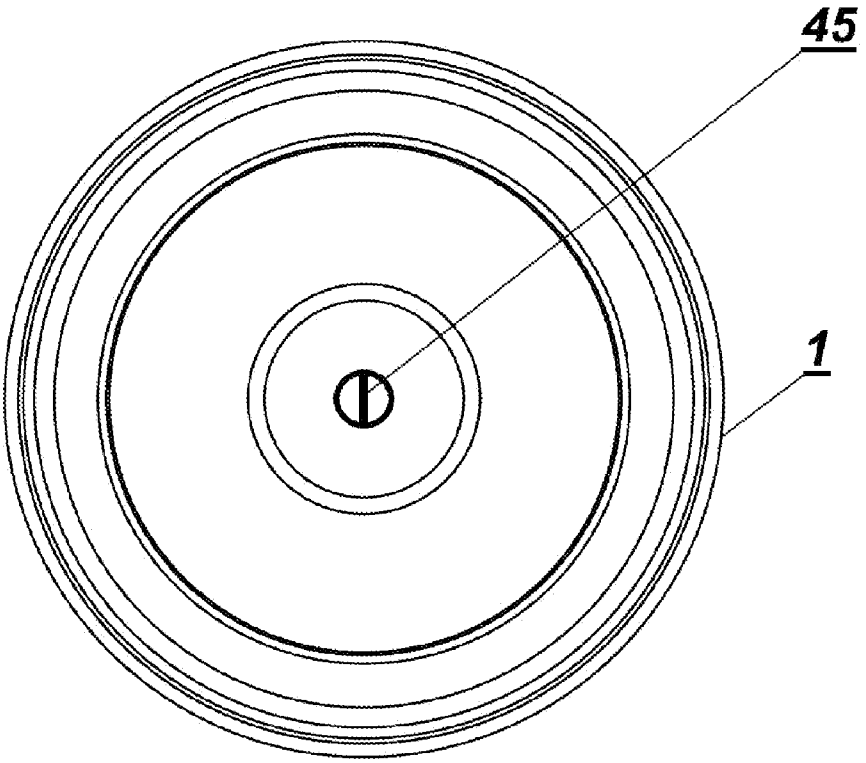


Fig. 15

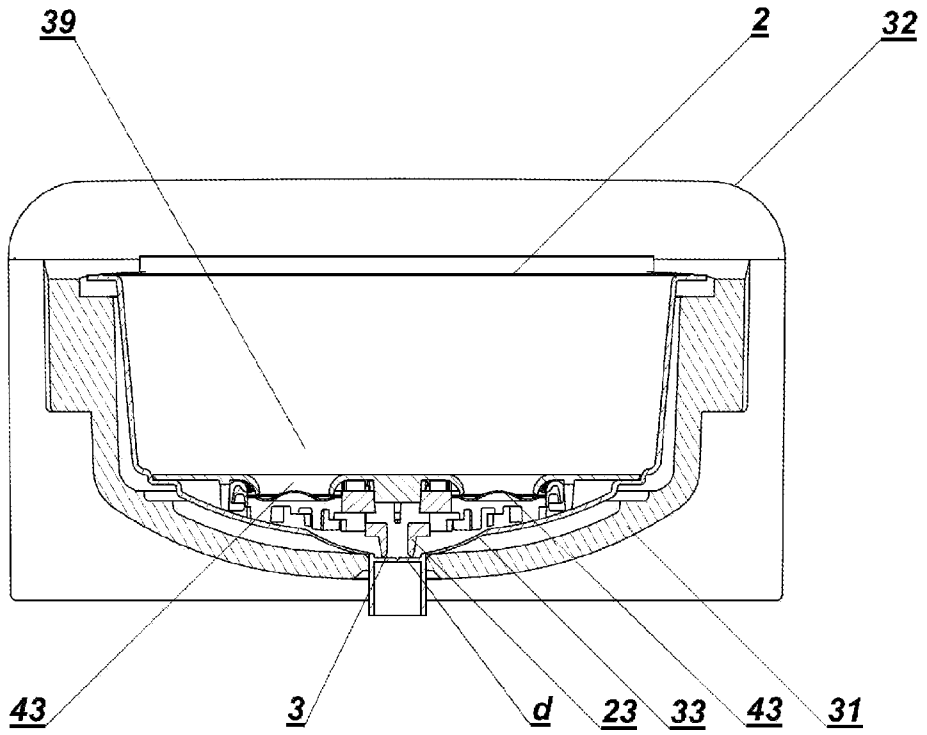


Fig. 16

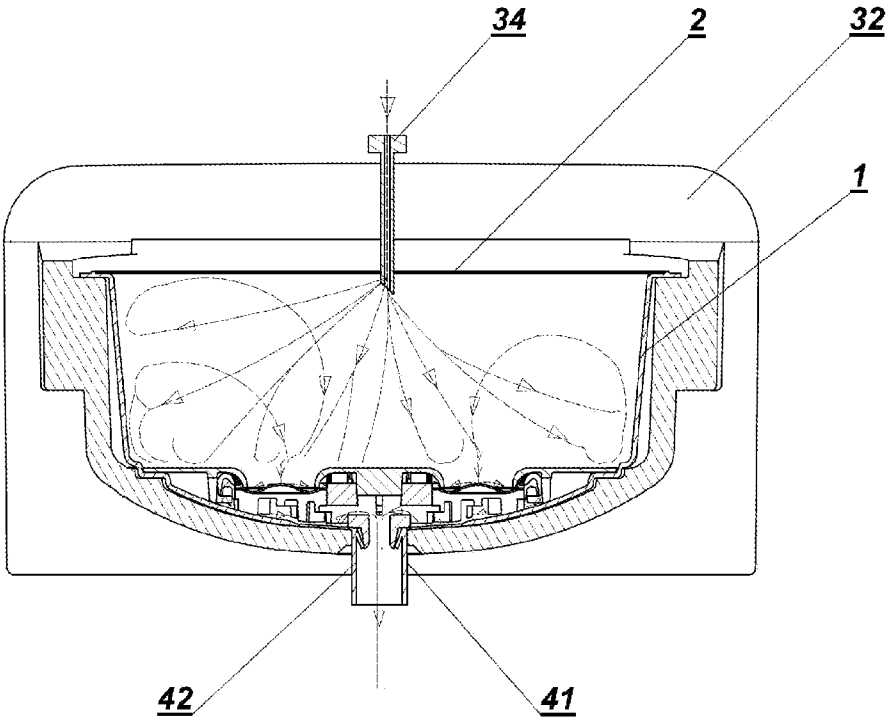


Fig. 17

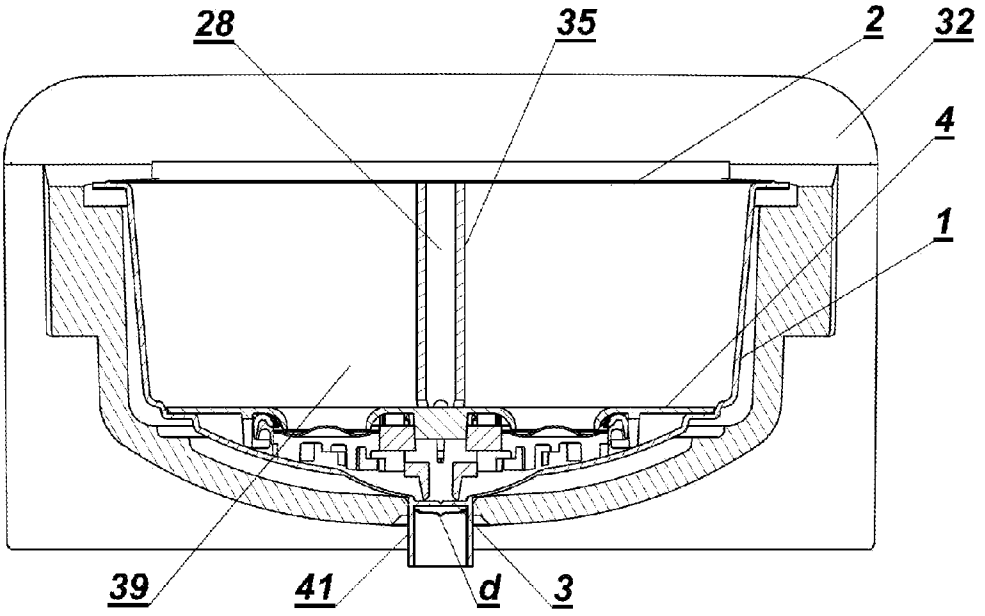


Fig. 18

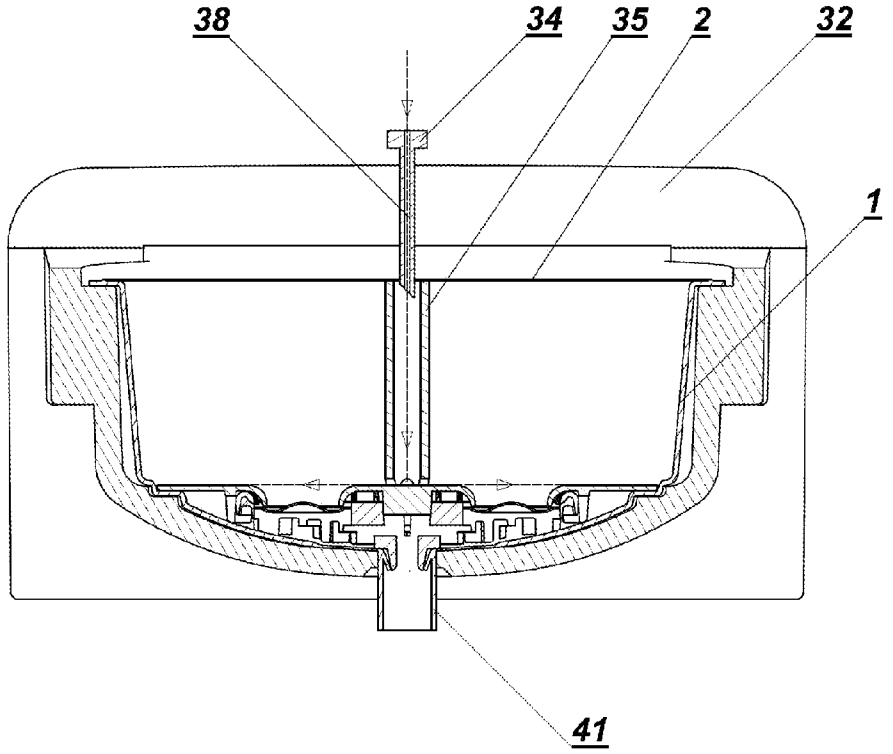


Fig. 19

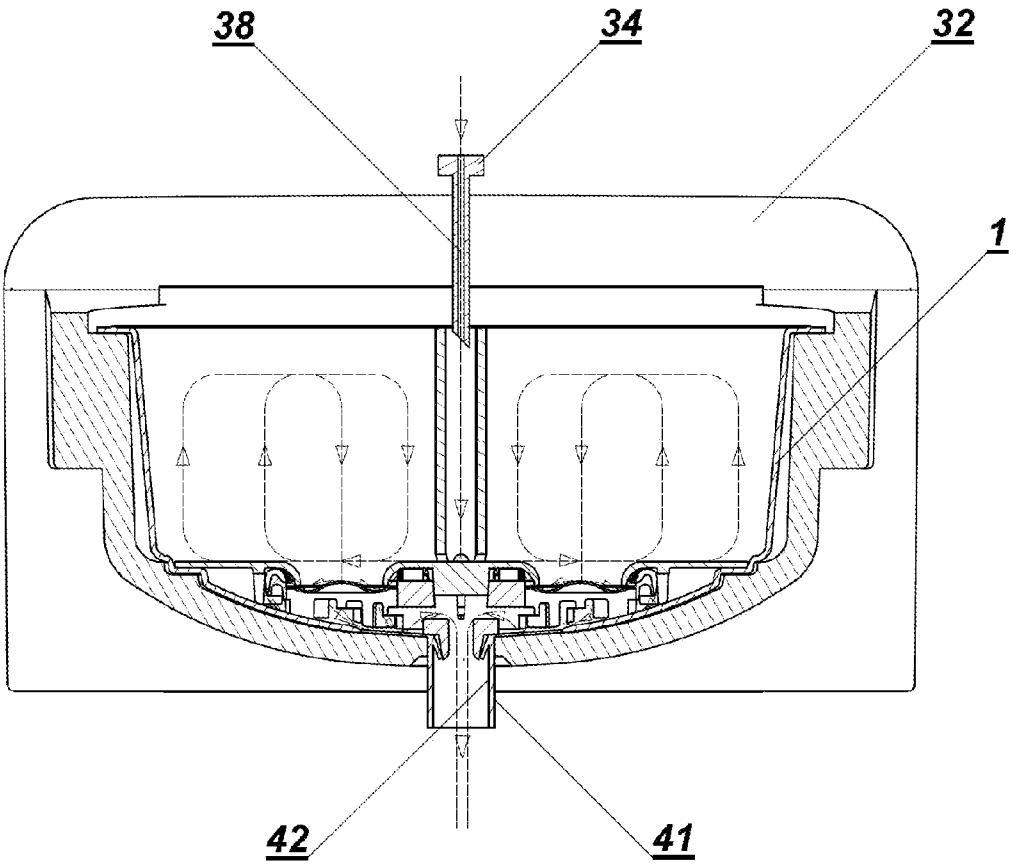


Fig. 20

CAPSULE FOR BEVERAGES AND BEVERAGE PREPARATION METHOD

PRIORITY

[0001] This utility application claims priority to a foreign application, Polish application number P.412201, filed on Apr. 30, 2015, presently pending, the contents of which are incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] This invention relates to the field of capsules for beverages and preparation of beverages from capsules using an appliance for preparing beverages.

[0004] 2. Background

[0005] The object of the invention is a capsule for beverages and the method of beverage preparation from substances placed in the upper part of the capsule that are subjected to the processes of extracting, dissolving and diluting by injecting into them liquid under pressure in an appliance for preparing beverages, where the capsule comprises a casing closed with puncturable barriers at the top and the base and it is designed for the preparation of hot, cold or chilled beverages, liquid food and liquid additives to food, especially such drinks as cappuccino, coffee, chocolate, Latte Macchiato, Ice Frappe, soups, teas, juices, desserts, sauces/dressings, alcoholic drinks and beer.

[0006] There is an appliance for extracting a food substance contained in a sealed cartridge and the method of extracting a food substance contained in a sealed cartridge known from the Polish Patent No. 196425. The appliance has a hollow body with a chamber for inserting the cartridge, a water feeding duct running through the body and connected to the chamber and many puncturing elements distributed across the chamber. The puncturing elements puncture the cartridge in many separate places enabling water to flow into the cartridge and these are spaced across the chamber along the direction of water inflow. Furthermore, each puncturing element comprises a basic component that is connected to the body and protrudes into the chamber, and this basic component enters the cartridge at least partially forming in it the surface of water inflow inside the cartridge, and the basic component is a solid part with a closed cross-section while each puncturing element has a cutting face that cuts the basic component at an acute angle. The cross-section of the basic component narrows down gradually towards the cutting face at the "β" angle smaller than the "α" angle of the cutting face.

[0007] There is a replaceable cartridge known from the Polish Patent No. 171494 for a beverage brewing appliance that has a rigid, cylindrical casing which is hollow inside for placing beverage powder, with a non-perforated side wall and perforated central part that constitutes the casing inlet and the opposite perforated base that constitutes the casing outlet. There is an outer plastic ring-shaped protrusion around the central part that touches an external heat source in the form of the heated plate of the beverage brewing appliance. The outer plastic circumferential protrusion is subject to plastic deformation by the action of the external heat source and its front wall is formed in such a manner that it is part of the side surface of a truncated cone with an obtuse vertical angle, with its vertex located in the axis of the casing, and the temperature of protrusion softening is lower than the boiling point of water while the temperature of its melting is higher than the boiling point of water.

[0008] There is a container known from the Polish Patent Application No. P-385854 submitted according to the publication WO 2007/054479 Al of the Application PCT/EP2006/068121 that has several chambers and contains at least one beverage ingredient for beverage preparation, used to prepare a beverage by mixing it with liquid input to the container, and the container inside is divided into at least two separate chambers.

[0009] This container may be in the form of a capsule or bag containing at least one ingredient for preparing a beverage, and such a beverage is prepared by mixing liquid input to the capsule, while the capsule inside is divided into at least two separate chambers, the first and the second one, and each chamber contains a beverage ingredient or beverage ingredient mix, while the first chamber is adapted to release the ingredient or ingredient mix at a time lag versus the second chamber when the liquid is input inside the capsule to make the beverage.

[0010] There is a capsule that is subjected to extraction and the method of improving hygiene and reducing contamination when preparing a beverage from the capsule known from the Polish Patent Description No. 201325. The capsule according to that invention is subjected to extraction by injecting liquid under pressure into the capsule in an appliance for preparing a beverage, and the capsule contains a substance for preparing the beverage in a sealed chamber and a means of opening the capsule applied, where the opening of the capsule permits the beverage to flow out as a result of the interaction of the opening means and the chamber wall under the influence of the liquid pressure increase in the chamber.

[0011] There is a capsule for beverages known from the Polish Patent Description No. 219698 subjected to extracting, dissolving and diluting its content by injecting liquid under pressure into the capsule in an appliance for preparing beverages, comprising a casing containing such a substance closed with puncturable membranes at the top and the base, which is characterized in that there are at least two internal concentric chambers inside the casing sealed with the membrane at the top, fitted with a cap with a ring turned inside fitted with reinforcements spaced along its internal side, while at the base the cap has a ring turned outside fitted with passages that adhere to a spacing insert, and there is a frothing insert placed inside the area surrounded by the ring and fitted at the top with slots spaced around the ring perimeter and spacing mandrels and fitted at the base with concentric segmented rings of variable thickness and with a preferably centrally placed punch partly located in the outflow duct hole covered with the outflow membrane, where part of the casing base is rounded outwards within the outflow duct. The spacing insert has concentric rings on the inside, where there are indentations on the perimeter of the inner ring and passages on the rim of the outer ring, and there is a passage in the base of the spacing insert, while the rim of the spacing insert is clasp locked along its whole perimeter with a flange inside the casing. The frothing insert has a flexible sealing lip turned out along its perimeter.

[0012] There is a capsule for beverages known from the Polish Patent Description No. 220172 subjected to the processes of extracting, dissolving and diluting its content by injecting liquid under pressure into the capsule in an appliance for preparing beverages, comprising a casing

containing such a substance closed with puncturable membranes at the top and the base, which is characterized in that there is one internal chamber inside the casing which has a spacing insert in its lower part, and there is a frothing insert placed inside the area surrounded by the ring and fitted at the top with slots spaced around the ring perimeter and a row of spacing mandrels and fitted at the base with a row of concentric segmented rings of variable thickness and with a preferably centrally placed punch partly located in the outflow duct hole covered with the outflow membrane, where part of the casing base is rounded outwards within the outflow duct. The spacing insert is fitted with a passage and has concentric rings on the inside, where there is a row of indentations on the perimeter of the inner ring and the rim of the insert is clasp locked along its whole perimeter with a flange inside the casing. In the locking area with the rim, the flange has the shape of a reversed letter "J". The frothing insert has a flexible sealing lip turned out along its perimeter.

[0013] The biggest disadvantages of the capsules currently used for beverages is the incomplete mixing of the ingredients and the residue of mixed ingredients on the surfaces of capsule components after the capsule has been emptied as well as the difficulty in recycling due to the material used for the top and base membranes, which are made of various types of foils, most often aluminum foil, which means that these foils must be manually removed in order to recycle the capsule.

SUMMARY OF THE INVENTION

[0014] The purpose of the invention is to design a capsule for beverages made completely of a homogeneous material and the method of beverage preparation from the substances contained in that capsule, and the said capsule enables the content to be mixed and contained in the upper part of the casing and the complete mixing of the substance which is then discharged from the appliance for beverage preparation in a laminar manner.

[0015] The capsule for beverages that comprises the casing sealed tightly with the upper barrier at the top and the lower barrier at the base, where there is a separator located in the casing with at least one hole and connected to the casing along its perimeter, and in the upper part of the capsule casing between the upper barrier and the separator, there is a substance subjected to the processes of extracting, dissolving and diluting its content by injecting liquid under pressure into it within the appliance for preparing beverages, and that contains a mixing unit located between the separator and the lower barrier which seals the outflow duct through which the prepared content flows out, according to the invention is characterized in that the separator is tightly connected along its perimeter to the inner surface of the casing, and the outflow from each hole in the separator is controlled by a pressure control valve. There is a bush between the separator and the upper barrier fitted with the holes at the base allowing the liquid to flow out for the purpose of mixing the substance in the direction from the separator to the upper barrier. The bush may or may not be detachable from the separator. Inside the separator area determined by a ring fastened to the separator from below, there is mixing unit guide seated in a recess made in the mixing unit, whose arms have outflow holes at the ends placed in the walls of the recess, and connected to the central hole of the punch that punctures the barrier which has at least one notch in the center of the casing, and is part of the casing where the punch, in its working position, after puncturing the lower barrier, seals the resulting hole with its outer surface during the outflow of the prepared mix, and the generating line of the punch is longer than half the length cut on the inside of the barrier, and the height of the punch is shorter than the height of the casing outflow duct. The method of beverage preparation from a substance contained in a hermetically sealed capsule in an appliance for preparing beverages, where the said capsule has inside its casing a separator separating the upper part of the capsule interior between that separator and the upper barrier of the casing, where the said substance is contained in the upper part and below the separator there is a mixing unit and an outflow duct sealed by the lower barrier, and the method comprises inserting the capsule in the appliance for preparing beverages and opening it from the base, and then puncturing the upper barrier and injecting liquid under pressure, according to the invention is characterized by that the liquid under pressure is injected by at least one pressure nozzle into the central hole of the bush which is typically free of the substance used for beverage preparation, and in the lower part of the side wall of the bush there is at least one opening located in the immediate vicinity of the capsule separator surface, through which the liquid under pressure is fed continuously from the base towards the upper part of the casing containing the said substance for the purpose of its preliminary dilution until at least one pressure control valve, through which the diluted substance flows into the mixing unit, opens and, when it is finally mixed, the substance is discharged from the capsule through the central hole in the mixing unit punch located in the outflow duct.

[0016] The method of beverage preparation from a substance contained in a hermetically sealed capsule in an appliance for preparing beverages, where the said capsule has inside its casing a separator separating the upper part of the capsule interior situated between that separator and the upper barrier of the casing, where the said substance is contained in the upper part and below the separator there is a mixing unit and an outflow duct closed by the lower barrier, and the method comprises inserting the capsule in the appliance and opening it from the base, and then puncturing the upper barrier and injecting liquid under pressure, according to the invention is characterised by that the liquid under pressure is injected through at least one pressure nozzle into the upper part of the casing containing the said substance for the purpose of its preliminary dilution until at least one pressure control valve, through which the diluted substance flows into the mixing unit, opens and, when it is finally mixed, the substance is discharged from the capsule through the central hole in the mixing unit punch located in the outflow duct.

[0017] The advantage of the capsule according to the invention is that owing to the application of the tight connection between the separator and the inner rim and of the pressure control valves, especially the diaphragm pressure control valves, the complete tightness of the capsule in its upper area has been achieved, which is especially significant when storing thickened juices or other concentrated liquids, and by the application in the capsule option of a bush fitted with holes at the base, a uniform mixing of ingredients is achieved followed by the evacuation of the total contents of the capsule through the punched-through lower barrier which is made of a homogeneous material that eliminates the need for aluminum foils, which are currently used, and

discharges the content outside in a laminar manner without splashing it on the inner walls of the outflow duct. In case of this capsule, complete recycling of the whole capsule is possible, since it is made completely of a homogeneous material.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] The foregoing and other objects, aspects, and advantages of this invention will be better understood from the following detailed description of the preferred embodiments of the invention with reference to the drawing, in which:

[0019] FIG. **1** is a side view of an embodiment of a beverage capsule, in accordance with features of the present invention;

[0020] FIG. **2** is a partial cutaway side view of an embodiment of a beverage capsule, in accordance with features of the present invention;

[0021] FIG. **3** is a partial cutaway side view of another embodiment of a beverage capsule, in accordance with features of the present invention;

[0022] FIG. **4** is a top view of an embodiment of a beverage capsule separator, in accordance with features of the present invention;

[0023] FIG. **5** is a top view of an embodiment of a beverage capsule separator, in accordance with features of the present invention;

[0024] FIG. **6** is a top view of an embodiment of a beverage capsule separator, in accordance with features of the present invention;

[0025] FIG. **7** is a partial cutaway side view of an embodiment of a beverage capsule separator, in accordance with features of the present invention;

[0026] FIG. **8** is a top view of an embodiment of a beverage capsule separator, in accordance with features of the present invention;

[0027] FIG. **9** is a partial cutaway side view of an embodiment of a beverage capsule separator, in accordance with features of the present invention;

[0028] FIG. **10** is a cutaway side view of an embodiment of a beverage capsule sleeve, in accordance with features of the present invention;

[0029] FIG. **11** is a cross-section side view of an embodiment of a beverage capsule sleeve, in accordance with features of the present invention;

[0030] FIG. **12** is a cutaway side view of an embodiment of a beverage capsule mixing unit, in accordance with features of the present invention;

[0031] FIG. **13** is a bottom view of an embodiment of a beverage capsule mixing unit, in accordance with features of the present invention;

[0032] FIG. **14** is a top view of an embodiment of a beverage capsule mixing unit, in accordance with features of the present invention;

[0033] FIG. **15** is a top view of an interior of an embodiment of a beverage capsule, in accordance with features of the present invention;

[0034] FIG. **16** is a cutaway side view of an embodiment of a beverage capsule, in accordance with features of the present invention;

[0035] FIG. **17** is a cutaway side view of an embodiment of a beverage capsule, in accordance with features of the present invention;

[0036] FIG. **18** is another cutaway side view of an embodiment of a beverage capsule, in accordance with features of the present invention;

[0037] FIG. **19** is another cutaway side view of an embodiment of a beverage capsule, in accordance with features of the present invention; and

[0038] FIG. **20** is another cutaway side view of an embodiment of a beverage capsule, in accordance with features of the present invention.

DETAILED DESCRIPTION

[0039] The object of the invention has been shown in a sample embodiment in the drawing, where FIG. **1**—shows a side view of the capsule, FIG. **2**—shows an axial section of the capsule, FIG. **3**—shows an axial section of the capsule fitted with the sleeve, FIG. **4**—shows a base view of the separator, FIG. **5**—shows a top view of the separator, FIG. **6**—shows a top view of the separator for connecting the sleeve , FIG. **7**—shows an axial section of the separator, FIG. **8**—shows a top view of the separator fitted with the sleeve, FIG. **9**—shows an axial section of the separator fitted with the sleeve, FIG. **10**—shows an axial section of the sleeve, FIG. **11**—shows a view of the sleeve from the side of the outflow holes, FIG. **12**—shows an axial section of the mixing unit, FIG. **13**—shows a base view of the mixing unit, FIG. **14**—shows a top view of the mixing unit, FIG. **15**—shows a top view of the middle of the capsule without the separator and the mixing unit, FIG. **16**—shows an axial section of the capsule placed in the tray of the appliance for preparing beverages before emptying it, FIG. **17**—shows an axial section of the capsule placed in the tray of the appliance for preparing beverages during emptying it, FIG. **18**—shows an axial section of the capsule fitted with the sleeve and placed in the tray of the appliance for preparing beverages before emptying it, FIG. **19**—shows an axial section of the capsule fitted with the sleeve and placed in the tray of the appliance for preparing beverages when the liquid is being injected into the central hole in the sleeve, and FIG. **20**—shows an axial section of the capsule fitted with the sleeve and placed in the tray of the appliance for preparing beverages during the process of extracting and emptying it.

[0040] As shown in the drawings, the capsule for beverages has the casing **1**, made of a homogeneous material, as are all capsule components, which is sealed with the upper barrier **2** at the top and with the lower barrier **3** at the base, which act as tight closures of the separated capsule zones (FIG. **2**). There is the separator **4** inside the casing **1** fitted with the rim **5**, which is connected tightly by welds to the ring-shaped surface **7** of the part of the casing **1** (FIG. **3**). The separator **4** connected to the sleeve **35** and which may not be detached has at least one funnel-shaped passage **12** inside the area **8** surrounded by the central ring **9** consisting of segments **10** with the gaps **11** between them, and the guide **13** placed in the geometric center of the area **8**, which is inserted in the cruciform hole **14**—which can have other geometric shapes—of the mixing unit **15**, thus the rotation of the mixing unit **15** inside the casing **1** is prevented (FIG. **3-4**, FIG. **12**, FIG. **14**). The sleeve **35** has the central hole **28** for injecting liquid under pressure during capsule removal, and the said central hole **28** is generally free of the substances contained in the upper part **39** of the capsule, which means that the substance is not placed in the central hole but can enter it as a result of the migration from the upper part **39** of the capsule through the openings **36** in the sleeve **35**

walls, and the said sleeve **35** supports the upper barrier **2**, which is significant for the process of pasteurization of the contents in the upper part **39** (FIG. **2**, FIG. **3**, FIG. **10**).

[0041] In some embodiments, the separator **4** connected to the sleeve **35**, is detachable, and is also fitted with the passage openings **36** located near the surface **37**. The application of the openings **36** improves the quality of mixing or diluting the concentrated liquids in the capsule (FIG. **3**, FIG. **10**).

[0042] In the area between the separator **4** and the mixing unit **15**, there is at least one pressure control valve **43** in the form of the diaphragm **44** closing the hole **12**, located in the separator **4** above the diaphragm **44** placed in the mixing unit **15**. The pressure control valve **43** opens when the pressure set in the upper part **39** of the casing **1** for extracting, dissolving and diluting processes is exceeded (FIGS. **3-4**, FIG. **12**).

[0043] Turning to FIGS. **12-14**, a cruciform hole **14** is defined on a horizontal side of surface **16** fitted with a row of spacing protrusions **17** along with a ring **29** comprising protrusions **18** and indentations **19** alternating between the protrusions **18** and the indentations **19**. The cruciform hole **14** has arms **20** with outflow holes **21** at the ends placed in the walls **40** of the piercer **23** base **46**, while the concentric rings **25** made of shaped segments **26** and holes **27** are seated on the side of the base **24** and connected to it and cannot be detached. (FIG. **12-14**).

[0044] The outflow holes **21** are connected with the central hole **22** of the piercer **23** that punctures the barrier **3** along at least one notch **45**, which on splitting into parts additionally seals the outflow duct **41** in its upper part with the outer surface of the piercer **23** base **46**, thus forcing the outflow of the prepared mix through the central hole **22** and preventing the uncontrolled outflow of the prepared mix along the inner surface **42** of the outflow duct **41** (FIG. **3**, FIG. **12**, FIG. **15**). The generating line a of the piercer **23** is longer than half the length d cut on the inside of the barrier **3**, and the height h of the punch is shorter than the height H of the casing **1** outflow duct **41** (FIGS. **2-3**, FIG. **12**, FIG. **15**).

[0045] To empty the capsule of beverage ingredients it is placed in the removable tray **31**, which is then locked inside the appliance **32** for preparing hot or cold beverages and as the tray **31** is raised the capsule is additionally sealed around its entire perimeter and thus, the rounding **33** moves towards the piercer **23** which punches through the barrier **3** along at least one notch **45**, and on splitting into parts it additionally seals the outflow duct **41** in its upper part with the outer surface of the piercer **23** base **46**, thus forcing the outflow of the prepared mix through the central hole **22** and preventing the uncontrolled outflow of the prepared mix along the inner surface **42** of the outflow duct **41** (FIG. **12**, FIGS. **15-17**). At the same time, the barrier **2** is also punched through by the nozzle **34** and after cold or hot water is fed under pressure into the capsule through the hole **38** the content in the upper part **39** of the capsule is dissolved/diluted and the prepared mixed content flows out through the holes **12**, outflow holes **21**, mixing unit labyrinth **15**, central hole **22** and the outflow duct **41** outside to a receiving vessel, namely a cup, a glass or another container (FIG. **12**, FIG. **17**, FIGS. **18-19**). Example I. The method of beverage preparation from a substance contained in the hermetically-sealed capsule **1** in the appliance **32** for preparing beverages consists in injecting water under pressure through at least one pressure nozzle **34** into the central hole of the sleeve **35** generally free of the substance used for beverage preparation, and the said sleeve **35** in the lower part of its side wall is fitted with the opening **36** located in the immediate vicinity of the capsule **1** separator **4** surface **37**, through which the liquid under pressure is fed from the base to the upper part **39** of the casing **1** for the purpose of diluting it until the pressure control valve **43** through which the diluted substance flows into the mixing unit **15** opens and, upon its final mixing, is discharged from the capsule **1** through the central hole **22** in the mixing unit **15** piercer **23** located in the outflow duct **41** (FIG. **3**, FIGS. **16-20**). Example II. The method of beverage preparation from a substance contained in the hermetically-sealed capsule **1** in the appliance **32** for preparing beverages consists in injecting water under pressure through at least one pressure nozzle **34** into the upper part **39** of the casing **1** for the purpose of its preliminary dilution until the pressure control valve **43** through which the diluted substance flows into the mixing unit **15** opens and, when the beverage is finally mixed it is discharged from the capsule **1** through the central hole **22** in the mixing unit **15** piercer **23** located in the outflow duct **41**. (FIG. **3**, FIGS. **16-17**).

[0046] Separately, as shown in FIG. **12**, the mixing unit **15** that houses the ring **29** includes a curved edge **30**.

[0047] In summary, the object of the invention is a capsule for beverages and the method of beverage preparation from substances placed in the upper part of the capsule that are subjected to the processes of extracting, dissolving and diluting by injecting liquid under pressure into the capsule in an appliance for preparing beverages, where the capsule comprises a casing closed with barriers which can be punctured at the top and the base, designed for the preparation of hot, cold or chilled beverages, liquid food and liquid additives to food, especially such drinks as cappuccino, coffee, chocolate, Latte Macchiato, Ice Frappe, soups, teas, juices, desserts, sauces/dressings, alcoholic drinks and beer.

[0048] The capsule is characterized in that inside a casing (**1**), at the level of the upper part (**39**) of the casing (**1**), between an upper barrier (**2**) and the surface (**37**) of a separator (**4**) connected tightly along its perimeter (**6**) to the inner surface (**7**) of the casing (**1**), there is a sleeve (**35**) fitted at the base with openings (**36**) for the outflow of the liquid to mix the substances in the direction from the separator (**4**) towards the upper barrier (**2**), and the outflow from each hole (**12**) in the separator (**4**) is controlled by a pressure control valve (**43**).

[0049] The method of beverage preparation from the substance contained in a hermetically-sealed capsule (**1**) in an appliance (**32**) for preparing beverages consists of injecting water under pressure through at least one pressure nozzle (**34**) into the central hole of the sleeve (**35**) which is typically free of the substance used for beverage preparation, where the said sleeve in the lower part of its side wall is fitted with an opening (**36**) located in the immediate vicinity of the capsule (**1**) separator (**4**) surface (**37**), through which the liquid under pressure is fed continuously to the upper part (**39**) of the casing (**1**) for the purpose of diluting its content that makes the pressure rise in the capsule until the pressure control valve (**43**) through which the diluted substance flows into a mixing unit (**15**) opens, and, when the beverage is finally mixed, it is discharged from the capsule (**1**) through the central hole (**22**) in the mixing unit (**15**) piercer (**23**) located in an outflow duct (**41**).

1. A capsule for beverages comprising:
a casing having a top and a base wherein an upper barrier seals tightly the top and a lower barrier seals the base,
a separator located within the casing with at least one hole wherein the separator is attached to the casing along the separator's perimeter; and
a substance in an upper part of the capsule casing between the upper barrier and the separator, wherein said substance is subjected to the processes of extracting, dissolving and diluting substance content by injecting liquid under pressure into the casing upper part within an appliance for preparing beverages, wherein said capsule contains a mixing unit located between the separator and the lower barrier which seals an outflow duct, through which the prepared content flows out, wherein the separator is frictionally engaged along its perimeter to the inner surface of the casing, and an outflow from each hole in the separator is controlled by a pressure control valve.

2. The capsule as recited in claim 1, further comprising a sleeve, between the separator and the upper barrier, wherein said sleeve is fitted with openings at its base for the liquid to flow out in order to mix the substance in a direction from the separator towards the upper barrier.

3. The capsule as recited in claim 1, further comprising a pressure control valve, wherein said pressure control valve comprises a diaphragm mounted in the mixing unit and in wherein said diaphragm in one position blocks the entire hole.

4. The capsule as recited in claim 1, wherein the sleeve and the separator form one component.

5. The capsule as recited in claim 1, wherein the sleeve and the separator are detachable.

6. The capsule as recited in claim 1, wherein the mixing unit further comprises a guide which is inside an area of the separator defined by a ring fastened to the separator at the base, and the guide is seated in a recess in the mixing unit, wherein said guide defines arms having outflow holes at the ends placed in the walls of the recess and connected to the central hole of a piercer that punctures the barrier which has at least one notch in the center of the casing and where the piercer in its working position, after puncturing through the lower barrier, seals with its outer surface the resulting hole during the outflow of the prepared mix, and the generating line of the piercer is longer than half the length cut on the inside of the barrier, and the height of the piercer is shorter than the height of the casing outflow duct.

7. A method of beverage preparation comprising:
inserting a capsule having a substance contained in a hermetically sealed area into an appliance for preparing beverages, wherein said capsule comprises:
a casing,
a separator separating an upper part of the capsule interior situated between the separator and an upper barrier of the casing and,
the substance is contained in the upper part and below the separator,
a mixing unit and an outflow duct sealed by the lower barrier, and
wherein the method further comprises inserting the capsule in the appliance for preparing beverages and opening it from the base, and then piercing the upper barrier and injecting a liquid under pressure, wherein the liquid under pressure is injected through at least one pressure nozzle into a central hole of a sleeve, and in the lower part of the side wall of the sleeve there is at least one opening located in the immediate vicinity of the capsule separator surface, through which the liquid under pressure is fed continuously from the base towards the upper part of the casing containing the said substance for the purpose of its dilution until at least one pressure control valve through which the diluted substance flows into the mixing unit opens and, when the beverage is finally mixed, the liquid is discharged from the capsule through the central hole in the mixing unit piercer located in the outflow duct.

8. A method of beverage preparation comprising inserting a hermetically sealed capsule containing a substance in an appliance for preparing beverages, wherein said capsule comprises defined inside its casing a separator separating an upper part of the capsule interior situated between the separator and an upper barrier of the casing, where the said substance is contained in the upper part and below the separator, the capsule further comprising a mixing unit and an outflow duct closed by the lower barrier,
comprises inserting the capsule in the appliance for preparing beverages and opening it from the base, and puncturing the upper barrier and injecting liquid under pressure, wherein the liquid under pressure is injected through at least one pressure nozzle into the upper part of the casing containing the said substance for the purpose of its dilution until at least one pressure control valve through which the diluted substance flows into the mixing unit opens and, when the beverage is finally mixed, the substance is discharged from the capsule through the central hole in the mixing unit piercer located in the outflow duct.

9. The capsule as recited in claim 2, further comprising a pressure control valve, wherein said pressure control valve comprises a diaphragm mounted in the mixing unit and in wherein said diaphragm in one position blocks the entire hole.

10. The capsule as recited in claim 2, wherein the sleeve and the separator form one component.

11. The capsule as recited in claim 3, wherein the sleeve and the separator form one component.

12. The capsule as recited in claim 2, wherein the sleeve and the separator are detachable.

13. The capsule as recited in claim 3, wherein the sleeve and the separator are detachable.

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