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(54) **A CAPSULE TO BE USED TO PREPARE AN INFUSED BEVERAGE**

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CAPSULE UTILISEE POUR PREPARER UNE BOISSON INFUSEE

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Description

Technical Field

[0001] The present invention relates to a capsule that can be used to prepare an infused beverage.

[0002] In particular, the present invention relates to a single-dose coffee capsule to be used in an espresso coffee machine in which a flow of hot or boiling water forced through the capsule positioned in a percolating chamber produces a hot milk or coffee beverage, such as, for example, macchiato espresso coffee or cappuccino, which the present specification expressly refers to but without restricting the scope of the invention.

Background Art

[0003] Nowadays, a very popular way of preparing espresso coffee, especially in the home, is to use single-dose "coffee pods", which are extremely easy to use and readily available on the market. Typically, in this context, a pod is a single measure of coffee or other infusion product enclosed in a sealed filter paper container or bag of substantially cylindrical shape designed to be placed in a suitable holder forming part of the espresso coffee machine.

[0004] European patent EP 776166 B1 describes the method for making a filter paper bag or pod where the infusion material, namely coffee, is compressed, mixed with soluble additive material, such as powdered milk or creamer or the like, and enclosed between two layers of filter paper. The pod thus obtained can be used in an espresso coffee machine to make a hot coffee and milk beverage, especially cappuccino.

[0005] Document CH 688 686 shows a sealed cartridge in accordance with the preamble of appended claim 1. This cartridge contains a measured amount of a substance which is either dissolved or extracted by a liquid to prepare a beverage. It is placed in a tapered cup, and the assembly, is then placed in the receptacle of a coffee machine. The top of the cartridge is then punctured by an element which also injects a pressurised liquid. The membrane forming the bottom of the cartridge is deformed by this pressure and pushed against puncturing spikes located in the bottom of the cup. The liquid flows through the receptacle and is collected for consumption.

[0006] The use of a pod of the type made of filter paper, as described in the aforementioned patent, has considerable disadvantages.

[0007] The hot water flowing through the filter paper pod dissolves all the soluble additive material, namely the powdered milk, present in the mixture, whilst the infusion material, namely the coffee, tends to remain compacted. As a result, the beverage made with pods of this kind often contains incorrect proportions of milk to coffee. In other terms, the beverage made using the pods described above, which are made entirely of filter paper,

contains an excessively high concentration of milk, making it unpleasant to the taste.

[0008] Another disadvantage of these pods made entirely of filter paper is that the part of the mixture constituted by the soluble additive material dissolves completely, thus partly emptying the pod, causing it to become soft and spongy, and difficult to remove from the holder of the coffee machine when an unused pod has to be placed in the machine to make another cup of coffee.

[0009] The present invention has for an aim to provide a capsule used to prepare an infused coffee and milk beverage that overcomes the above mentioned disadvantages.

15 Disclosure of the invention

[0010] The present invention provides a capsule that can be used to prepare an infused beverage in accordance with one or more of the appended claims.

20 Brief description of the drawings

[0011] The invention will now be described with reference to the accompanying drawings which illustrate a preferred, non-restricting embodiment of a capsule used to prepare an infused beverage, and in which:

Figure 1 is a front cross section of a preferred embodiment of the capsule according to the invention; Figure 2 is a detail, shown in cross section, of the capsule of Figure 1;

Figure 3 is another front cross section of the capsule of Figure 1;

Figure 4 is a perspective view of the capsule according to the present invention;

Figure 5 is a front cross section of the capsule of Figure 4 during infusion; and

Figure 6 is a detail, shown in cross section, of the capsule of Figure 5.

40 Detailed description of the preferred embodiments of the invention

[0012] With reference to the accompanying drawings, the numeral 1 denotes a single-dose capsule for use in an espresso coffee machine to prepare a hot coffee and milk beverage, especially cappuccino.

[0013] The espresso coffee machine, not illustrated because it is a very well known type of machine, basically comprises a device for producing a flow of hot or boiling water that is forced through the capsule 1 once the latter has been placed in a holder in a percolating chamber where the hot beverage is brewed.

[0014] The capsule 1 comprises a closed container or cartridge 2, preferably in the shape of truncated cone made of a food safe plastic material.

[0015] As illustrated in Figures 5 and 6, the bottom surface 3 of the cartridge 2 has a central hole 4, preferably

circular, covered by a seal 5 of suitable material designed to be opened or pierced by a hollow needle A forming part of the coffee machine. In an alternative embodiment, the seal 5 forms an integral part of the bottom surface 3 of the cartridge 2, that is to say, it constitutes a portion of the surface 3 that can be easily pierced.

[0016] The cartridge 2 holds a predetermined quantity of powdered soluble material MS comprising powdered milk or creamer or the like. The material MS may also comprise a predetermined quantity of powdered sugar.

[0017] As illustrated in Figures 1 and from 3 to 5, the capsule 1 also comprises a container or pod 6 of filter paper or similar filter material, containing a tablet of infusion material MI, namely coffee powder, and positioned at the top 7 of the cartridge 2.

[0018] More specifically, as shown in Figures 1, 2, 3 and 5, the outer annular edge 8 of the pod 6 rests on, and is fixed to, a matching annular protuberance 9 of the cartridge 2, running round the outer edge at the top 7 of the cartridge 2.

[0019] The edge 8 of the pod 6 is fixed to the annular protuberance 9 of the cartridge 2 preferably by a gluing, heat-sealing or similar process.

[0020] In a still more preferable solution, fixing is accomplished by the currently known process of ultrasound sealing.

[0021] As illustrated in Figures 2, 3 and 4, the capsule 1 is advantageously covered and sealed by a sheet 10 of cover material, such as, for example, aluminium foil or the like, which is applied to the end of the protuberance 9 of the capsule 1 cartridge 2, for example by gluing, heat sealing or ultrasound sealing, in such a way as to cover the top 11 of the pod 6, thus keeping in the aroma of the coffee it contains.

[0022] The cover 10 is designed to be removed just before the capsule 1 is placed by the user in the appropriate holder in the coffee machine. The user can then start preparing the cappuccino by pressing the coffee machine start button which causes a relative movement between the needle A and the capsule 1 such that the needle A pierces the seal 5 and penetrates the hole in the capsule 1.

[0023] The flow of hot water produced by the machine passes first through the pod 6, creating a flow of infused coffee MI which falls onto and wets the soluble creamer MS inside the cartridge 2 and from there flows through the hollow interior of the needle A to produce cappuccino that fills an underlying glass or cup (not illustrated).

[0024] Thus, a delectable cappuccino with an optimum proportion of milk to coffee, can be prepared every time.

[0025] Once used, the capsule 1 can be removed very easily from the machine, thanks especially to the closed, rigid structure of the cartridge 2. Further, when the capsule 1 is moved away from the needle A, the seal 5 tends to re-close the hole 4, preventing residual water or beverage from dripping out and dirtying the user or the area around the machine.

[0026] Moreover, it should be stressed that the capsule

1 disclosed herein can be safely handled and sold without any overwrapping thanks to the rigid structure of the cartridge 2 and to the cover 10 attached to the top of it and placed only over the top face of the pod 6. This means less packaging material is required which in turn means not only considerable savings in terms of lower production and selling costs but also a reduced impact on the environment.

Claims

1. A capsule (1) used to prepare an infused beverage, comprising first container (6) made of a substantially flexible material and containing a powdered infusion substance (MI), attached to the top of a second container (2), made of a substantially rigid, material and containing a powdered soluble substance (MS), at least the top of it being covered by a sheet (10) of protective material and **characterised in that** the flexible first container (6) comprises a pod (6) made of filter paper or other similar filter material.
2. The capsule according to claim 1, **characterised in that** the flexible first container (6) is attached to the rigid second container (2) by heat sealing.
3. The capsule according to claim 1, **characterised in that** the flexible first container (6) is attached to the rigid second container (2) by gluing.
4. The capsule according to claim 1, **characterised in that** the flexible first container (6) is attached to the rigid second container (2) by ultrasound sealing.
5. The capsule according to any of the foregoing claims from 1 to 4, **characterised in that** the rigid second container (2) comprises a cartridge (2) made of a food safe plastic material.
6. The capsule according to claim 5, **characterised in that** the bottom surface (3) of the cartridge (2) has a hole (4) in it, covered by a seal (5) of suitable material designed to be pierced or removed.
7. The capsule according to claim 6, **characterised in that** the seal (5) constitutes a portion of the bottom surface (3) of the cartridge (2).
8. The capsule according to claims 4 and 5 or 6, or 7, **characterised in that** the pod (6) of filter paper has an annular outer edge (8) fixed to a matching annular protuberance (9) on the plastic cartridge (2), at the top (7) of the cartridge (2) itself.
9. The capsule according to claim 8, **characterised in that** the sheet (10) of protective cover material is removably placed over the top of the filter paper pod

(6); the sheet (10) being fixed to the edge of the outer protuberance (9) of the cartridge (2).

10. The capsule according to any of the foregoing claims from 1 to 9, **characterised in that** the infusion substance (MI) comprises powdered coffee.

11. The capsule according to any of the foregoing claims from 1 to 10, **characterised in that** the soluble substance (MS) comprises powdered milk and/or creamer and similar soluble substances.

Patentansprüche

1. Kapsel (1), verwendet zur Zubereitung eines Aufgussgetränkes, enthaltend einen ersten Behälter (6) aus einem im wesentlichen flexiblen Material und enthaltend eine pulverförmige Aufgusssubstanz (MI), befestigt am oberen Teil eines zweiten Behälters (2) aus einem im wesentlichen steifen Material und enthaltend eine pulverförmige lösliche Substanz (MS), wobei wenigstens der obere Teil desselben durch eine Folie (10) aus schützendem Material abgedeckt ist, **dadurch gekennzeichnet, dass** der flexible erste Behälter (6) ein Pad (6) aus Filterpapier oder einem ähnlichen Filtermaterial enthält.

2. Kapsel nach Patentanspruch 1, **dadurch gekennzeichnet, dass** der flexible erste Behälter (6) an dem steifen zweiten Behälter (2) durch Heissversiegelung befestigt ist.

3. Kapsel nach Patentanspruch 1, **dadurch gekennzeichnet, dass** der flexible erste Behälter (6) an dem steifen zweiten Behälter (2) durch Verkleben befestigt ist.

4. Kapsel nach Patentanspruch 1, **dadurch gekennzeichnet, dass** der flexible erste Behälter (6) an dem steifen zweiten Behälter (2) durch Versiegeln mit Ultraschall befestigt ist.

5. Kapsel nach einem beliebigen der vorstehenden Patentansprüche von 1 bis 4, **dadurch gekennzeichnet, dass** der steife zweite Behälter (2) eine Kartusche (2) aus für Lebensmittel geeignetem Material enthält.

6. Kapsel nach Patentanspruch 5, **dadurch gekennzeichnet, dass** die untere Oberfläche (3) der Kartusche (2) ein Loch (4) enthält, abgedeckt durch eine Dichtung (5) aus geeignetem Material und dazu bestimmt, durchstoßen oder entfernt zu werden.

7. Kapsel nach Patentanspruch 6, **dadurch gekennzeichnet, dass** die Dichtung (5) einen Abschnitt der unteren Oberfläche (3) der Kartusche (2) bildet.

8. Kapsel nach den Patentansprüchen 4 und 5 oder 6 oder 7, **dadurch gekennzeichnet, dass** das Pad (6) aus Filterpapier einen ringförmigen äusseren Rand (8) aufweist, befestigt an einem passrechten ringförmigen Vorsprung (9) an der Kunststoffkartusche (2) an dem oberen Teil (7) der Kartusche (2) selbst.

9. Kapsel nach Patentanspruch 8, **dadurch gekennzeichnet, dass** die Folie (10) aus schützendem Abdeckmaterial lösbar über dem oberen Teil des Pads (6) aus Filterpapier angebracht ist; wobei die Folie (10) an dem Rand des äusseren Vorsprungs (9) der Kartusche (2) befestigt ist.

10. Kapsel nach einem beliebigen der vorstehenden Patentansprüche von 1 bis 9, **dadurch gekennzeichnet, dass** die Aufgusssubstanz (MI) Pulverkaffee enthält.

11. Kapsel nach einem beliebigen der vorstehenden Patentansprüche von 1 bis 10, **dadurch gekennzeichnet, dass** die lösliche Substanz (MS) Milchpulver und/oder Creme und ähnliche lösliche Substanzen enthält.

Revendications

1. Une capsule (1) utilisée pour préparer une boisson infusée, comprenant un premier contenant (6), réalisé dans un matériau essentiellement souple et contenant une substance à infuser (MI) en poudre, qui est fixé à la partie supérieure d'un deuxième contenant (2), réalisé dans un matériau essentiellement rigide et contenant une substance soluble (MS) en poudre, au moins la partie supérieure de ladite capsule étant recouverte d'une feuille (10) de matériau de protection et ladite capsule étant **caractérisée en ce que** le premier contenant (6) souple comprend une dosette (6) réalisée en papier filtre ou autre matériau filtrant similaire.

2. La capsule selon la revendication 1, **caractérisée en ce que** le premier contenant (6) souple est fixé au deuxième contenant (2) rigide par thermosoudage.

3. La capsule selon la revendication 1, **caractérisée en ce que** le premier contenant (6) souple est fixé au deuxième contenant (2) rigide par collage.

4. La capsule selon la revendication 1, **caractérisée en ce que** le premier contenant (6) souple est fixé au deuxième contenant (2) rigide par soudage par ultrasons.

5. La capsule selon l'une quelconque des revendica-

tions précédentes de 1 à 4, **caractérisée en ce que** le deuxième contenant (2) rigide comprend une cartouche (2) réalisée dans une matière plastique à usage alimentaire.

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6. La capsule selon la revendication 5, **caractérisée en ce que** la surface de fond (3) de la cartouche (2) comporte un trou (4) qui est recouvert d'une languette (5) de matériau approprié destinée à être percée ou retirée.

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7. La capsule selon la revendication 6, **caractérisée en ce que** la languette (5) constitue une partie de la surface de fond (3) de la cartouche (2).

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8. La capsule selon les revendications 4 et 5 ou 6, ou 7, **caractérisée en ce que** la dosette (6) de papier filtre a un bord extérieur annulaire (8) qui est fixé sur une protubérance annulaire (9) complémentaire de la cartouche (2) en plastique, au niveau de la partie supérieure (7) de la cartouche (2) elle-même.

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9. La capsule selon la revendication 8, **caractérisée en ce que** la feuille (10) de matériau de couverture de protection est placée de façon amovible sur la partie supérieure de la dosette (6) en papier filtre ; la feuille (10) étant fixée sur le bord de la protubérance (9) extérieure de la cartouche (2).

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10. La capsule selon l'une quelconque des revendications précédentes de 1 à 9, **caractérisée en ce que** la substance à infuser (MI) comprend du café en poudre.

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11. La capsule selon l'une quelconque des revendications précédentes de 1 à 10, **caractérisée en ce que** la substance soluble (MS) comprend du lait en poudre et/ou de la crème de lait en poudre et substances solubles similaires.

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FIG.1

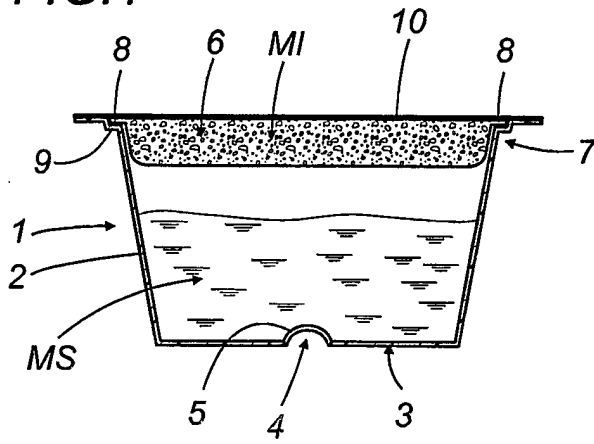


FIG.2

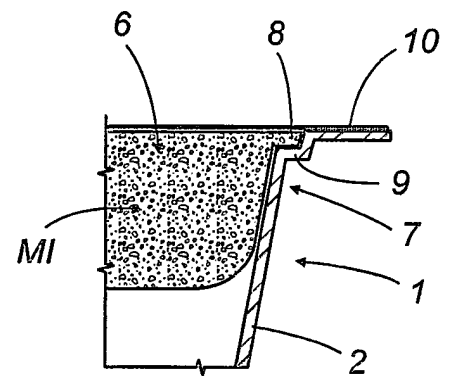


FIG.3

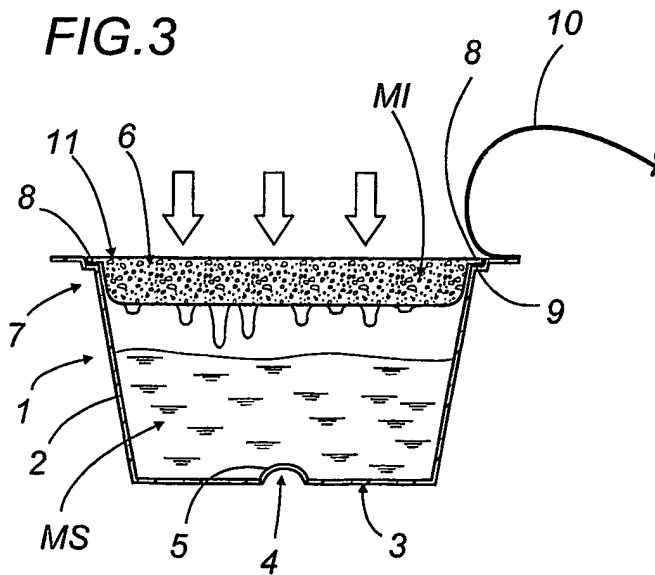


FIG.4

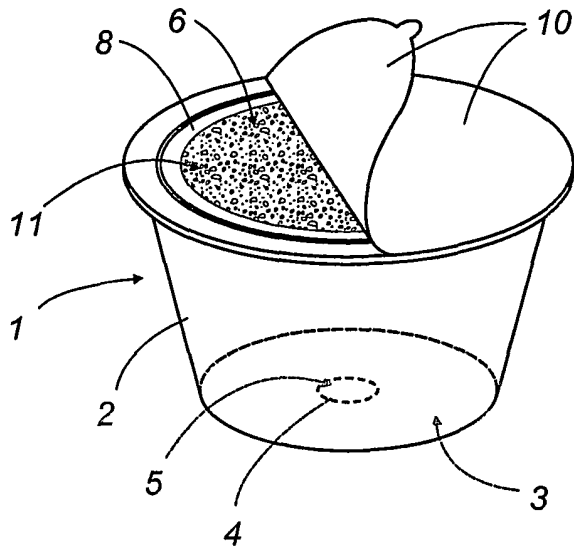


FIG.5

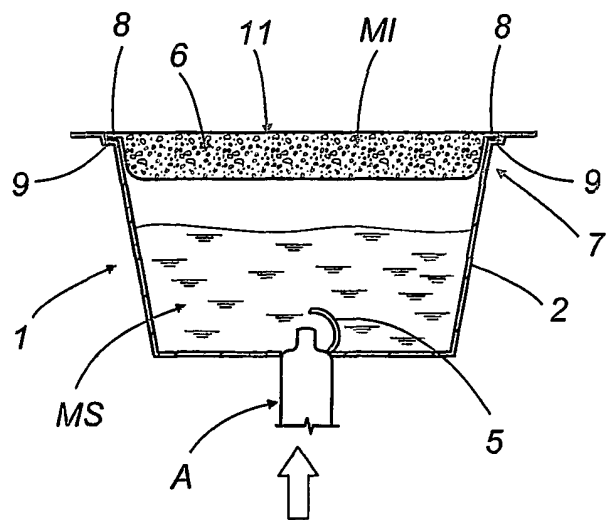
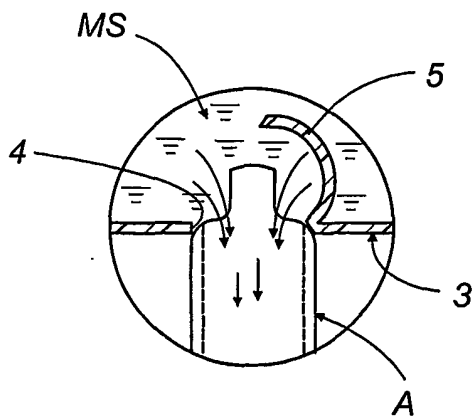


FIG.6



REFERENCES CITED IN THE DESCRIPTION

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