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⑤④ **Cup for the preparation of beverages.**

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EP-A-0 076 224
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Description

The present invention relates to a cup for the preparation of beverages and, in particular, to a cup incorporating therein a beverage infusion device containing leaf tea or ground coffee which is intended to provide an infusion of tea or coffee, respectively according to the preamble of claim 1 (known from GB—A—2152469).

Vending machines which dispense beverage ingredients for reconstitution into hot or cold drinks, are well known in the art. So called "in-cup" dispensing machines are known in which the beverage making ingredients are pre-packed in the bottom of a paper or plastics cup, a plurality of cups with the selected beverage ingredients therein usually being formed into stacks in a vending machine from which they are generally dispensed in response to a consumer operating an appropriate selection mechanism on the vending machine. The coffee which is dispensed by such vending machines is usually so-called "instant" coffee and the tea which is dispensed by such machines is usually instant tea. The drinks formed by reconstituting the instant coffee and instant tea with hot water are not acceptable to all consumers and there has therefore been a need for a system whereby infusions of leaf tea and ground coffee can be provided in vending machines.

In order to preserve the freshness of beverage making ingredients and to prevent beverage making ingredients which have high moisture absorbent characteristics from absorbing moisture, it has been proposed to package the beverage making ingredients in the lower portion of a cup, the ingredients being sealed in this lower portion by means of a hermetically sealed lid. Proposals of this type are discussed, for example, in British Patent Specification Nos. 1480545 and 1603421, French Patent No. 7536285 and United States Patent Specifications Nos. 4039435 and 4061782.

We have now developed a cup for the preparation of beverages in which leaf tea or ground coffee may be hermetically sealed in the bottom portion of the cup.

Accordingly, the present invention provides a cup for the preparation of beverages which comprises a body portion having a diaphragm hermetically sealed therein to extend normal to the axis of the cup, the lower surface of the said diaphragm forming the upper part of a beverage infusion device, the lower part of the beverage infusion device being permeable to liquids and being deep drawn or formed to provide a receptacle for a beverage ingredient or ingredients, the said upper and lower parts of the beverage infusion device being joined together around the edges thereof.

The cup of the present invention may be made from paper or a plastics material, such as polyethylene, polypropylene or polystyrene. The cup is preferably frustoconical, tapering towards its base and the diaphragm is then of a diameter between the maximum and minimum diameters

of the cup. The cup may be provided with an internal annular rim onto which the diaphragm is sealed, the said rim being spaced sufficiently far from the bottom of the cup to accommodate the beverage infusion device. The rim may either extend in a direction normal to the side wall of the cup or may be angled in an upwards direction, this latter arrangement facilitating the sealing of the diaphragm thereto. The diaphragm may be formed from aluminium, paper, card or a plastic coated foil material. The diaphragm will usually be coated around the perimeter of its under surface with an adhesive which is activated by heat and/or pressure so that it can be sealed to the annular rim, or with a plastics coating so that it can be heat sealed to the annular rim. Alternatively, the diaphragm may engage means provided on the internal surface of the cup, such as a groove or indent, so that it forms a hermetic seal therewith. It will also be understood that the diaphragm may be frictionally fitted into the cup, providing that it forms a substantially air and moisture proof seal therewith, so that the contents of the beverage infusion device remain fresh. The diaphragm is preferably provided with a pull tab or handle so that the consumer can readily remove the diaphragm from the cup and can use the handle or tab in order to facilitate the preparation of a beverage from the beverage infusion device by making it easier to swirl the beverage infusion device through the liquid added to the cup. The handle is preferably in the form of a strip about 1 centimetre in width and of the order of 5 to 8 centimetres in length.

The lower part of the beverage infusion device is preferably made from a water-permeable cellulosic material, a cellulosic material comprising woven paper fibres being particularly preferred. The woven paper fibres may be admixed with fibres of polypropylene, polyvinylchloride and/or polyethylene. The incorporation of these plastics materials into the cellulosic material renders the cellulosic material heat-sealable. The cellulosic material may also be coated with a material which is activated by heat and/or pressure so that it can readily be sealed to the lower surface of the diaphragm to form the beverage infusion device. The lower part of the beverage infusion device may also be made from a water-permeable synthetic material, for example a spun-bonded polyester web sold under the Trade Name REMAY or a spun-bonded nylon web sold under the Trade Name CEREX.

The lower deep-drawn or formed portion of the beverage infusion device may be circular or square and is preferably pleated around the edges thereof to provide the desired volume of receptacle for housing the beverage ingredients.

The beverage infusion device may have one or more additional receptacles for beverage forming ingredients attached thereto, for example, a band of two or more receptacles may be formed from a cellulosic material and one only of these receptacles attached to the lower surface of the diaphragm. When the diaphragm is inserted into the

cup the additional receptacles for beverage forming ingredients are accommodated in the space below the diaphragm.

The beverage infusion device preferably contains leaf tea or ground coffee as the beverage ingredient, together with a whitener and/or sugar as desired. It may also be used for the packaging of other beverage ingredients, such as chocolate and fruit drinks. A particular advantage of the cup of the present invention is that the deep drawn or formed part of the beverage infusion device enables water to penetrate therein more readily, thereby to give a more satisfactory infusion than the type of infusion obtained with flat tea bags or the like. This is particularly important with regard to the infusion of ground coffee which is a much slower operation than the infusion of leaf tea.

The present invention also includes within its scope a stack of cups nested together. It will be understood that if the diaphragm has a handle or tab attached thereto then the handle or tab must be sufficiently flexible to allow the resting of non-interlocking cups. In the embodiment of the invention in which an annular rim is provided, the rim will assist in the stacking of one cup inside another.

The present invention will be further described by way of Example and with reference to the accompanying drawings, in which:—

Figure 1 is a vertical section through the lower portion of a cup of the present invention; and

Figure 2 is a perspective view of the cup of Figure 1, partly broken away, to show how the beverage infusion device is removed.

The cup 1 has a body portion formed from a plastics material and comprising upper and lower frustoconical sections 2 and 3 which are joined together by an annular flange 4 which is disposed therebetween. The lower frustoconical section 3 includes a base 5 and has an upwardly divergent side wall. Annular flange 4 is inclined at an angle of about 20 to 30° to the plane in which the base 5 lies. The cup is also provided with a rim 6.

The cup has a diaphragm 7, preferably formed from aluminium foil hermetically sealed to the annular rim 4. The underneath surface of the diaphragm forms the top of a beverage infusion device which has a deep drawn lower portion 8 formed from a heat-sealable cellulosic material containing fibres of a mixture of polypropylene, polyvinyl chloride and polyethylene. The infusion device contains a beverage ingredient or ingredients, for example leaf tea or coffee together with a whitener if desired. The diaphragm 7 is also provided with a handle 9 which acts as a pull tab to enable the consumer to remove the diaphragm. A pull on the handle 9 by the consumer generally in the direction of arrow 10 will cause the circular diaphragm 7 to progressively peel off the annular rim 4, thus providing the beverage infusion device ready for use.

In the manufacture of the cup of the invention the diaphragm is coated around the perimeter of its under surface with an adhesive which is activated by heat and/or pressure so that it can be

readily sealed to the annular rim by conventional means. The diaphragm is also sealed to the lower portion of the beverage infusion device by heat sealing.

It will be appreciated that the particular type of infusion device illustrated in the drawings is suitable for incorporation into the round bottomed cups which are currently used in vending machines. The round shape of the infusion device makes it particularly suitable for incorporation into the bottom of such cups.

Claims

1. A cup for the preparation of beverages which comprises a body portion having a receptacle containing therein a beverage ingredient or ingredients the cup (1) having diaphragm (7) hermetically sealed therein to extend normal to the axis of the cup (1), the lower surface of the said diaphragm (7) forming the upper part of a beverage infusion device (18), characterised in that the lower part of the beverage infusion device (8) is permeable to liquids and deep drawn or formed to provide a receptacle for a beverage ingredient or ingredients, preferably leaf tea or ground coffee, the said upper and lower parts of the beverage infusion device being joined together around the edges thereof.

2. A cup as claimed in claim 1 wherein the body portion (2, 3) is made from paper or a plastics material, preferably polyethylene, polypropylene or polystyrene.

3. A cup as claimed in claim 1 or claim 2 which is frustoconical tapering towards its base (5).

4. A cup as claimed in any one of the preceding claims which has an internal annular rim (4), preferably angled in an upwards direction, onto which the diaphragm (7) is sealed.

5. A cup as claimed in any one of the preceding claims wherein the diaphragm (7) is made from aluminium, paper, card or a plastics coated foil material.

6. A cup as claimed in any one of the preceding claims wherein the diaphragm (7) is coated around the perimeter of its under surface with an adhesive which is activated by heat and/or pressure so that it can be sealed to the annular rim (4).

7. A cup as claimed in any one of claims 1 to 5 wherein the diaphragm (7) engages means provided on the internal surface of the cup so as to form a hermetic seal therewith.

8. A cup as claimed in any one of the preceding claims wherein the diaphragm is provided with a pull tab or handle (9).

9. A cup as claimed in any one of the preceding claims wherein the lower part of the beverage infusion device (8) is made from a water-permeable cellulosic material, preferably woven paper fibres admixed with fibres of polypropylene, polyvinylchloride and/or polyethylene.

10. A cup as claimed in claim 9 wherein the cellulosic material is coated with a material which is activated by heat and/or pressure so that it can

be sealed to the lower surface of the beverage infusion device.

11. A cup as claimed in any one of the preceding claims wherein one or more additional receptacles for beverage forming ingredients is attached thereto.

12. A stack of cups as claimed in any one of the preceding claims which are nested together.

Patentansprüche

1. Becher für die Bereitung von Getränken, der einen Körperabschnitt umfaßt, der ein Behältnis hat, das darin eine Getränkezutat oder Zutaten enthält, wobei der Becher (1) einen Zwischenboden (7) hat, der darin hermetisch verschlossen ist, um sich normal zu der Achse des Bechers (1) zu erstrecken, und die untere Oberfläche des genannten Zwischenbodens (7) das obere Teil einer Getränkeaufgußvorrichtung (8) formt, dadurch gekennzeichnet, daß das untere Teil der Getränkeaufgußvorrichtung (8) durchlässig für Flüssigkeiten und tiefgezogen oder geformt ist, um ein Behältnis für eine Getränkezutat oder Zutaten, bevorzugt Teeblätter oder gemahlene Kaffee vorzusehen, wobei die genannten oberen und unteren Teile der Getränkeaufgußvorrichtung um dessen Kanten miteinander verbunden sind.

2. Becher nach Anspruch 1, bei dem der Körperabschnitt (2, 3) aus Papier oder einem Kunststoffmaterial, bevorzugt Polyethylen, Polypropylen oder Polystyrol hergestellt ist.

3. Becher nach Anspruch 1 oder Anspruch 2, der in Richtung dessen Basis (5) kegelstumpfförmig verjüngt ist.

4. Becher nach einem der vorhergehenden Ansprüche, der einen inneren ringförmigen Rand (4) hat, der bevorzugt in eine Aufwärtsrichtung gewinkelt ist, an den der Zwischenboden (7) dicht angeschlossen ist.

5. Becher nach einem der vorhergehenden Ansprüche, bei dem der Zwischenboden (7) aus Aluminium, Papier, Pappe oder kunststoffbeschichtetem Folienmaterial hergestellt ist.

6. Becher nach einem der vorhergehenden Ansprüche, bei dem der Zwischenboden (7) um den Umfang seiner unteren Oberfläche herum mit einem Klebstoff beschichtet ist, der durch Wärme und/oder Druck aktiviert wird, sodaß er an den ringförmigen Rand (4) dicht angeschlossen werden kann.

7. Becher nach einem der vorhergehenden Ansprüche, bei dem der Zwischenboden (7) auf Mittel wirkt, die an der inneren Oberfläche des Bechers vorgesehen sind, um damit einen hermetischen Verschuß zu bilden.

8. Becher nach einem der vorhergehenden Ansprüche, bei dem der Zwischenboden mit einem Zugstreifen oder Handgriff (9) versehen ist.

9. Becher nach einem der vorhergehenden Ansprüche, bei dem das untere Teil der Getränkeaufgußvorrichtung (8) aus wasserdurchlässigem zelluloseartigen Material, bevorzugt gewobenen Papierfasern mit zugemischten Fasern aus Poly-

propylen, Polyvinylchlorid und/oder Polyethylen hergestellt ist.

10. Becher nach Anspruch 9, bei dem das zelluloseartige Material mit einem Material beschichtet ist, das durch Wärme und/oder Druck aktiviert wird, sodaß es an die untere Oberfläche der Getränkeaufgußvorrichtung dicht angeschlossen werden kann.

11. Becher nach einem der vorhergehenden Ansprüche, bei dem eines oder mehrere zusätzliche Behältnisse für Getränkebildende Zutaten daran befestigt sind.

12. Stapel von Bechern nach einem der vorhergehenden Ansprüche, welche zusammen ineinander gesetzt sind.

Revendications

1. Gobelet pour la préparation de boissons, qui comporte une partie formant corps comprenant un réceptacle logeant un ou des ingrédients pour boissons, le gobelet (1) possédant, en son intérieur, un diaphragme (7) fermé hermétiquement, et s'étendant perpendiculairement à l'axe du gobelet (1), la surface inférieure dudit diaphragme (7) formant la partie supérieure d'un dispositif (8) d'infusion de la boisson, caractérisé en ce que la partie inférieure du dispositif (8) d'infusion de la boisson est perméable à des liquides et est emboutie ou formée de manière à constituer un réceptacle pour un ou des ingrédients d'une boisson, de préférence des feuilles de thé ou du café moulu, lesdites parties supérieure et inférieure du dispositif d'infusion de la boisson étant réunies l'une à l'autre le long de leurs bords.

2. Gobelet selon la revendication 1, dans lequel la partie formant corps (2, 3) est réalisée en papier ou en une matière plastique, de préférence du polyéthylène, du polypropylène ou du polystyrène.

3. Gobelet selon la revendication 1 ou 2, qui possède une forme tronconique se rétrécissant en direction de sa base (5).

4. Gobelet selon l'une quelconque des revendications précédentes, qui comporte un rebord annulaire intérieur (4), de préférence incliné dans une direction montante et sur lequel le diaphragme (7) est scellé.

5. Gobelet selon l'une quelconque des revendications précédentes, dans lequel le diaphragme (7) est réalisé en aluminium, en papier, en carton ou en un matériau en forme de feuille recouverte d'une matière plastique.

6. Gobelet selon l'une quelconque des revendications précédentes, dans lequel le diaphragme (7) est recouvert, le long du pourtour de sa surface inférieure, par un adhésif qui est activé par une chaleur et/ou une pression de sorte qu'il peut être scellé sur le rebord annulaire (4).

7. Gobelet selon l'une quelconque des revendications 1 à 5, dans lequel le diaphragme (7) s'applique contre des moyens prévus sur la surface intérieure du gobelet de manière à établir un joint hermétique avec ce dernier.

8. Gobelet selon l'une quelconque des revendications précédentes, dans lequel le diaphragme comporte une languette de traction ou une poignée (9).

9. Gobelet selon l'une quelconque des revendications précédentes, dans lequel la partie inférieure du dispositif (8) d'infusion de la boisson est réalisée en un matériau cellulosique perméable à l'eau, de préférence des fibres de papier tissées mélangées à des fibres de polypropylène, de polychlorure de vinyle et/ou de polyéthylène.

10. Gobelet selon la revendication 9, dans

lequel le matériau cellulosique est recouvert d'un matériau qui est activé par une chaleur et/ou une pression de sorte qu'il peut être scellé sur la surface inférieure du dispositif d'infusion de la boisson.

11. Gobelet selon l'une quelconque des revendications précédentes, dans lequel un ou plusieurs réceptacles additionnels pour les ingrédients formant une boisson sont fixés au gobelet.

12. Pile de gobelets selon l'une quelconque des revendications précédentes, qui sont emboîtés les uns dans les autres.

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FIG. 1.

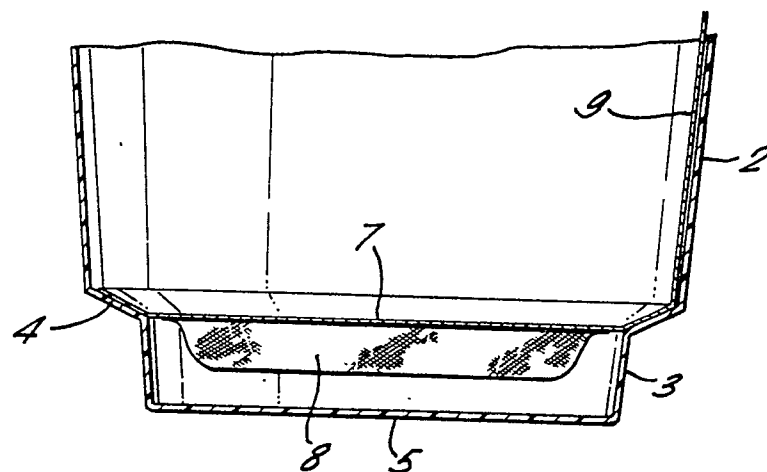


FIG. 2.

