

DESCRIPTION

TITLE OF THE INVENTION: BEVERAGE EXTRACTION FILTER

TECHNICAL FIELD

[0001]

The present invention relates to beverage extraction filters constituted by a filter portion for housing a luxury grocery item therein and a lid portion with a flat-plate shape which is mounted to an upper portion of the filter portion, wherein the lid portion is structured to have a laminated-layer configuration including a first sheet member with no water permeability which is positioned in the side closer to the filter portion, and a second sheet member with water permeability which is laminated on the first sheet member, and the first sheet member is provided at its center with a hole portion for passing hot water therethrough.

BACKGROUND ART

[0002]

As such beverage extraction filters, there has been known a beverage extraction filter disclosed in the following patent document. This filter is characterized in the configuration of a lid portion, which has a layer-laminated configuration including a first sheet member with no water permeability and a second sheet member with water permeability. The first sheet

member is provided at its center with a hole portion, such that hot water is introduced through the hole portion. The aforementioned extraction filter is for use in espresso machines and dripping machines. In any of the cases, the filter and the machines are structured in such a way as to pour hot water only at their centers, during extraction.

PRIOR ART DOCUMENT

PATENT DOCUMENT

[0003]

Patent Document 1: WO2012/4878

SUMMARY OF THE INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

[0004]

There has been known a structure as follows. That is, when the aforementioned extraction filter is used in a dripping machine, a hot-water pouring needle 5 is pierced through the lid portion 11 for pouring hot water therethrough into the inside of the filter, as illustrated in Fig. 7. Fig. 7(a) illustrates a state where the hot-water pouring needle 5 has not been pierced therethrough yet, and (b) illustrates a state where the hot-water pouring needle 5 has been pierced therethrough and coffee is being extracted into a cup 100 placed under the extraction filter 1.

[0005]

However, as the structures of dripping machines, there have been also structures adapted not to pierce a hot-water pouring needle, as well as the aforementioned structure. For example, as illustrated in Fig. 43, there has been a system adapted to push a hot-water pouring portion formed from an elastic member, against the lid portion, from above the lid portion, for pouring hot water therethrough.

[0006]

In this case, in the aforementioned well-known extraction filter, the first sheet member and the second sheet member are adhered to each other only at their peripheral edge portions, which has induced the problem of impossibility of efficiently pouring hot water through the hole portion at the center, due to diffusion of the hot water ejected through the machine hot-water pouring portion, up to the peripheral edge portions.

[0007]

The present invention was made in order to overcome the aforementioned problem and aims at providing a beverage extraction filter capable of pouring hot water into the inside of the filter with excellent efficiency, even with a dripping machine which employs no hot-water pouring needle.

MEANS FOR SOLVING THE PROBLEMS

[0008]

In order to solve the above problem, a beverage extraction filter according to the present invention includes:

a filter portion for housing a luxury grocery item, and a lid portion with a flat-plate shape which is mounted to an upper portion of the filter portion, wherein the lid portion is structured to have a laminated-layer configuration including a first sheet member with no water permeability which is positioned in a side closer to the filter portion, and a second sheet member with water permeability which is laminated on the first sheet member, and the first sheet member is provided at its center with a hole portion for passing hot water,

wherein the first sheet member and the second sheet member are laminated in a state of being adhered to each other at a peripheral edge portion and a periphery around the hole portion.

[0009]

The beverage extraction filter having this structure will be described, regarding effects and advantages thereof. When hot water is poured from above the lid portion, the hot water is poured through the second sheet member with water permeability. Since the first sheet member and the second sheet member are adhered to each other at the periphery around the hole portion, the hot water is prevented from diffusing to the outside of this adhered portion. Accordingly, the hot water is efficiently directed to the hole portion, which enables pouring the hot water into the inside of the filter with

excellent efficiency.

[0010]

In the present invention, preferably, the hole portion is formed to have a tongue piece shape through a cut line with a predetermined shape, and the hole portion with the tongue piece shape is adapted to deform downwardly for passing the hot water through the hole portion, due to a pressure of the hot water during extraction.

[0011]

Since the hole portion is formed to have a tongue piece shape through the cut line, it is possible to prevent the occurrence of scraps during the fabrication process for forming the hole portion. This can reduce the risk of intrusion of foreign substances during the fabrication process.

[0012]

Preferably, the second sheet member according to the present invention is formed from a non-woven fabric. By forming it from a non-woven fabric, it is possible to pass hot water therethrough and, further, it is possible to hold the hot water thereon.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013]

Fig. 1 is a view illustrating a cross-sectional shape of an extraction filter according to the present embodiment.

Fig. 2 is an exploded perspective view illustrating components constituting the extraction filter.

Fig. 3 is a schematic view illustrating the structure of a dripping machine.

Fig. 4 is a view illustrating the dimensional relationship between the structures of respective portions of a hot-water pouring portion, and a lid portion of the extraction filter.

Fig. 5 is a view illustrating operations for extracting coffee using the beverage extraction filter.

Fig. 6 is a view illustrating operations for extracting coffee using the beverage extraction filter.

Fig. 7 is a view illustrating operations for extracting coffee using a hot-water pouring needle.

MODE FOR CARRYING OUT THE INVENTION

[0014]

The structure of a beverage extraction filter according to the present embodiment will be described. This extraction filter is for use for drip coffee and can be mounted in a dripping machine.

[0015]

<The Structure of the Extraction Filter>

Fig. 1 is a view illustrating a cross-sectional shape of the extraction filter. Fig. 1 is an exploded perspective view

illustrating components constituting the extraction filter. The extraction filter 1 is constituted by a filter portion 10 for housing a coffee powder (corresponding to a luxury grocery item) therein, and a lid portion 11 with a flat plate shape which is mounted to an upper portion of the filter portion 10.

[0016]

The lid portion 11 is structured to have a two-layer configuration constituted by a first sheet member 12 with no water permeability which is positioned in the side closer to the filter portion 10, and a second sheet member 13 with water permeability which is laminated on the first sheet member 12. The filter portion 10 is formed from a non-woven fabric and is, preferably, formed from a spunbonded non-woven fabric. A space portion S is formed in an upper portion of the filter portion 10. Through this space portion S, hot water, and the coffee powder having been expanded by the hot water can be retained therein and can be brought into contact with each other, thereby enabling sufficient extraction.

[0017]

The first sheet member 12 is formed from one or plural resin films. The second sheet member 13 is formed from a non-woven fabric such as a spunbonded non-woven fabric. The filter portion 10 is provided with a flange 10a and is adhered to the lid portion 11 at this flange 10a.

[0018]

Further, the first sheet member 12 and the second sheet member 13 are also adhered to each other at a peripheral edge portion A (see a hatched portion in Fig. 2) and at a periphery C around a hole portion 12a. The periphery C (the adhesion area) is formed to have a ring shape having a predetermined width. The inner diameter of the periphery C is set to be larger than the outer diameter of the hole portion 12a. A space B which is inside the peripheral edge portion A but is outside the periphery C, and a space D which is inside the periphery C are not adhered. Accordingly, the first sheet member 12 and the second sheet member 13 can be adhered to each other, through minimum necessary adhesion.

[0019]

The first sheet member 12 is provided, at its center, with the hole portion 12a with a tongue-piece shape. This hole portion 12a can be formed by forming a cut line CL in the first sheet member 12 during the fabrication process. The hole portion 12a can be also formed through punching instead of forming the cut line CL. However, in this case, fine scraps are induced, which causes troubles of intrusions of foreign substances. For coping therewith, by forming the aforementioned cut line CL, it is possible to prevent the occurrence of scraps, thereby preventing the occurrence of the aforementioned troubles. The hole portion 12a is sized to have a diameter of about 3 mm.

[0020]

Further, the first sheet-type member 12 and the second sheet-type member 13 are integrally provided with knob portions 12c and 13a, respectively, for making them easier to grasp. However, the knob portions 12c and 13a are not necessarily required.

[0021]

Although the cut line CL is made to have a C shape (corresponding to a predetermined shape) in the present embodiment, the cut line CL can be also made to have an appropriate shape such as a V shape.

[0022]

The material of the first sheet member 12 can be formed from, for example, a single-layer configuration made of a CPP (undrawn polypropylene) film (with a thickness of 50 micrometers), a three-layer configuration made of PE (polyethylene)/PP (polypropylene)/PE films (with a total thickness of 50 micrometers), a three-layer configuration made of PP/PP/PP films (with a total thickness of 50 micrometers), or the like. It is possible to select appropriate materials in consideration of the quality of the extracted liquid, the adhesive property, the strength, and the like.

[0023]

As the material forming the filter portion 10, it is possible to employ spunbond Y25200 fabricated by Asahi Kasei

Fibers Corporation, for example. As the material forming the second sheet member 13, it is possible to employ OKILON CEW-30 fabricated by OHKI Co,. Ltd , for example.

[0024]

<The Structure of a Dripping Machine>

Next, Fig. 3 illustrates the structure of a dripping machine 5 which utilizes the beverage extraction filter according to the present embodiment. Further, the structure of the dripping machine 5 is merely illustrated as an example, and the present invention is not limited thereto. The dripping machine 5 includes a main body portion 50, and an openable/closable lid 51 which is opened and closed through a hinge portion 52 with respect to the main body portion 50. Further, at a lower portion in the front surface side of the main body portion 50, there is provided a placement portion 54 for placing a coffee cup or the like thereon. In the upper surface of the main body portion 50, there is provided a housing portion 53 for placing the extraction filter 1 therein. A hot-water pouring portion 4 is provided on the back surface of the openable/closable lid 51. Through the hot-water pouring portion 4, hot water is supplied to the extraction filter 1. Further, the dripping machine 5 is provided with a water tank and a heater for heating the water within the tank, and the like, which are not illustrated.

[0025]

<The Structure of the Hot-Water Pouring Portion>

Fig. 4 is a cross-sectional view illustrating the structure of the hot-water pouring portion, and a view illustrating the dimensional relationship between the structures of respective portions of the hot-water pouring portion 4, and the lid portion 11 of the extraction filter 1. The hot-water pouring portion 4 is formed from an elastic member such as a rubber. The hot-water pouring portion 4 is provided, at its center portion, with a hot-water path 4a for passing hot water therethrough. Around the hot-water path 4a, there are concentrically formed a first ring portion 4b, and a second ring portion 4c with a smaller diameter than that of the first ring portion 4b. The first ring portion 4b and the second ring portion 4c are both shaped to protrude downwardly, and the first ring portion 4b is more protruded than the second ring portion 4c by a smaller amount (for example, 0.4 mm).

[0026]

The outer diameter d_4 of the hole portion 12a formed in the first sheet member 12 is equal to or substantially equal to the inner diameter d_3 of the hot-water path 4a in the hot-water pouring portion 4 ($d_3 = d_4 : d_3 \approx d_4$), and is 3 mm. The inner diameter d_5 of the periphery C is 9 mm, and the outer diameter d_2 of the second ring portion 4c is 9.4 mm. Accordingly, they are set in such a way as to satisfy $d_2 > d_5$. The outer diameter d_6 of the periphery C is 16.6 mm, and the outer diameter d_1 of

the first ring portion 4b is 14.6 mm. Accordingly, they are set in such a way as to satisfy $d_6 > d_1$. Further, the aforementioned numerical values are merely illustrative, and the present invention is not limited to these numerical values.

[0027]

The first ring portion 4b and the second ring portion 4c form double walls, which can certainly prevent the hot water poured through the hot-water path 4a from leaking and diffusing to the outside of the hot-water pouring portion 4.

[0028]

<Operations for Extracting Coffee>

Next, there will be described operations for extracting coffee using the dripping machine 5 in Fig. 3 and the beverage extraction filter 1 according to the present embodiment, with reference to Figs. 5 and 6.

[0029]

At first, the extraction filter 1 is set in the housing portion 53 in the dripping machine 5. Next, the openable/closable lid 51 is closed. Fig. 5 illustrates a state where the lid has been closed. This is a state where the first ring portion 4b in the hot-water pouring portion 4 is pressed against the upper surface of the second sheet member 13 in the lid portion 11 and, thus, is in intimate contact therewith. Fig. 6 is a view illustrating a state where hot water is being supplied through the hot-water path 4a in the hot-water pouring portion

4.

[0030]

The hot water is spread over the space inside the second ring portion 4c and is poured into the inside of the extraction filter 1 through the hole portion 12a. Since the hot water is prevented from diffusing largely in the radial direction, the hot water can be poured with high efficiency. Further, the space D between the first sheet member 12 and the second sheet member 13 is expanded inside the periphery C, due to the pressure of the hot water, but the hot water is not spread and diffused to the outside of the periphery C. Accordingly, the hot water is poured with high efficiency. Due to the pressure of the hot water being poured, the hole portion 12 with the tongue piece shape is deformed to hang downwardly.

[0031]

<Other Embodiments>

Although coffee has been described as an example of a luxury grocery item in the present embodiment, the present invention is not limited thereto and can be also applied to other luxury grocery items such as teas, green teas.

[0032]

The extraction filter according to the present invention can be also applied to a dripping machine which employs a hot-water pouring needle 5 as illustrated in Fig. 7. As an adhesive agent or an adhesion method for adhering the first

sheet member 12 and the second sheet member 13 to each other, it is possible to employ an arbitrary one. For example, it is possible to adhere them to each other by thermally pressing them against each other.

DESCRIPTION OF REFERENCE SIGNS

[0033]

A	peripheral edge portion
B	space
C	periphery
CL	cut line
D	space
1	extraction filter
10	filter portion
11	lid portion
12	first sheet member
12a	hole portion
13	second sheet member
4	hot-water pouring portion
4a	hot-water path
4b	first ring portion
4c	second ring portion
5	hot-water pouring needle

CLAIMS

1. A beverage extraction filter comprising a filter portion for housing a luxury grocery item, and a lid portion with a flat-plate shape which is mounted to an upper portion of the filter portion, wherein the lid portion is structured to have a laminated-layer configuration including a first sheet member with no water permeability which is positioned in a side closer to the filter portion, and a second sheet member with water permeability which is laminated on the first sheet member, and the first sheet member is provided at its center with a hole portion for passing hot water,

wherein the first sheet member and the second sheet member are laminated in a state of being adhered to each other at a peripheral edge portion and a periphery around the hole portion.

2. The beverage extraction filter according to claim 1, wherein the hole portion is formed to have a tongue piece shape through a cut line with a predetermined shape, and the hole portion with the tongue piece shape is adapted to deform downwardly for passing the hot water through the hole portion, due to a pressure of the hot water during extraction.

3. The beverage extraction filter according to claim 2, wherein the second sheet member is formed from a non-woven

fabric.