

PATENT SPECIFICATION

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(54) A FILTER DEVICE

(71) We, MELITTA-WERKE BENTZ & SOHN of Ringstrasse 99, 4950 Minden 1, Federal Republic of Germany, a Kommanditgesellschaft organised under the laws of the Federal Republic of Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a filter device for, inter alia the production of aromatic extracts of coffee or tea.

Known filter devices comprise a filter vessel with outlet means in the form of one or more passages at the lowest point of the vessel to ensure complete emptying. The disadvantage of this form of outlet means is that after completion of the filtration process and removal of the filter device from a receptacle for the filtrate, residual filtrate drips from the vessel in the area around the receptacle. This is particularly disadvantageous in coffee machines in which a suspended filter device remains in the machine after the filtration process, as the dripping filtrate falls onto the surface of the warming plate of the machine and burns on this surface.

According to the present invention there is provided a filter device comprising a filter vessel provided with rib means to support a filter bag therein and with filtrate outlet means for siphoning of filtrate from the vessel, the outlet means comprising two channels defined by guide ribs of the vessel, one of the channels extending upwardly from a suction opening disposed immediately above the base of the vessel and the other channel extending downwardly from the upper end of said one channel, and the guide ribs being so co-operable with such filter bag that, in use, the channels act as a siphon duct.

The guide ribs are preferably arcuate towards and at the base of the vessel, and the rib means may comprise ribs of lower height than the guide ribs.

An embodiment of the present invention will now be more particularly described by

way of example and with reference to the accompanying drawings, in which:

Fig. 1 is a cross-section of a filter device according to the said embodiment of the present invention,

Fig. 2 is a plan view in the direction of the arrow VI of Fig. 1, and

Fig. 3 is a section along the line VII - VII of Fig. 1.

Referring now to the accompanying drawings, there is shown a filter device which comprises a filter vessel 1 with internal ribs 10 for supporting a filter bag (not shown). The filter vessel 1 is provided with a support rim by means of which it can be placed on a can or other receptacle.

The vessel 1 is integrally constructed of, for example plastics material and has a filtrate outlet means 4 formed by a channel system which comprises guide ribs 15, 16 and 17 protruding into the interior of the vessel 1. A channel 18 leading upwardly from a suction opening 6a, which is disposed above the lowest point of the vessel 1, and a further channel 19 leading downwardly to an outlet opening 7a, are formed by these guide ribs. The guide ribs 15 to 17, which extend curvilinearly down to the axis of the filter vessel 1 to define arcuate surfaces 20 (Fig. 1), are constructed to be slightly higher than the ribs 10, i.e. the guide ribs 15 to 17 protrude slightly more into the interior of the vessel 1 than the ribs 10, which serve for supporting the filter bag. The filter bag is thus able to rest flush on the guide ribs 15 to 17, especially when the filtration process is initiated, i.e. when water is conducted into the filter device, as the filter bag then becomes softer than in its dry state and, due to the loading provided by the water pressure and for example coffee grounds, sealingly bears against the guide ribs 15 to 17. Thereby, the channels 18 and 19, which are bounded by the guide ribs 15 to 17, in conjunction with the filter bag resting thereon form a pipe system acting as siphon.

Because the pipe system has an outlet opening 7a which is disposed externally of the vessel 1 and lower than the suction opening 6a, filtrate can flow out of the ves-

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sel 1 by siphon effect when sufficient water is poured into the vessel during a brewing process for the water level to reach the junction of the channels 18 and 19. As long as sufficient liquid is present in the filter device for the water level to lie above this junction, the filtrate will run out into a receptacle through the pipe system. The outflow of the filtrate is interrupted only when air gets into the opening 6a. This happens when the liquid within the vessel 1 is practically completely sucked away so that any residual filtrate seeping from the filter bag 2 after completion of the filtration process cannot flow out of the pipe system. Dripping is thus prevented.

An advantage of the described embodiment is that a continuous flowing-out of the filtrate is ensured during the filtration process and that a quick cutting off of the filtrate flow takes place at the end of the filtration process. It is also advantageous that the filter vessel 1 can be integrally constructed from, for example, plastics material. In addition, cleaning of the vessel 1 after completion of the filtration process is relatively simple.

WHAT WE CLAIM IS:—

1. A filter device comprising a filter vessel provided with rib means to support a filter bag therein and with filtrate outlet means for siphoning of filtrate from the vessel,

the outlet means comprising two channels defined by guide ribs of the vessel, one of the channels extending upwardly from a suction opening disposed immediately above the base of the vessel and the other channel extending downwardly from the upper end of said one channel, and the guide ribs being so co-operable with such filter bag that, in use, the channels act as a siphon duct.

2. A device as claimed in claim 1, wherein the guide ribs define arcuate support surfaces for the filter bag towards and at the base of the vessel.

3. A device as claimed in either claim 1 or claim 2, the rib means comprising ribs of lower height than the guide ribs.

4. A device as claimed in any one of the preceding claims, wherein the vessel is of integral construction.

5. A device as claimed in any one of the preceding claims, wherein the vessel is made of plastics material.

6. A filter device substantially as hereinbefore described with reference to the accompanying drawings.

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