

9

Description

The invention relates to a coffee maker comprising a housing in which a filtering device, provided with a single off-center outlet opening, can be arranged in a plurality of positions.

Such a coffee maker is known from US-A-2,299,809. This patent describes a coffee urn having a circular filter basket above a number of fixed jars. The basket is turnable so that the off-center outlet opening of the basket can be turned selectively over either jar. Another coffee maker is known by means of which—at choice—one cup of coffee or two cups of coffee at a time are obtained. For this purpose, the filtering device has two outlet openings which are arranged at such a relative distance that one cup fits beneath both outlet openings or two cups arranged one beside the other fit each beneath one outlet opening.

The invention has for its object to provide a coffee maker in which at choice one, two, three ... X cups of coffee can be filled at a time with coffee. Preferably, this number is larger than two.

A coffee maker according to the invention of the type referred to in the opening paragraph is provided for this purpose with a distributor having X inlet openings and X outlet openings and a duct system interposed between said inlet and outlet opening, which filtering device can be arranged in the housing in X different positions such that the outlet opening of the filtering device is located exactly above one of the inlet openings of the distributor, the Xth distributor inlet opening being connected to X distributor outlet openings, X being an integer greater than 1 and the first distributor inlet opening being connected to only the first distributor outlet opening.

Depending upon the number of cups of coffee that is desired, the filtering device is arranged in the apparatus in the desired manner. The coffee flows from the outlet opening of the filtering device into the relevant inlet opening of the distributor and then through the duct system to the desired number of outlet openings of the distributor and subsequently into the cups.

Preferably, the duct system is constituted by gutters.

An embodiment is characterized in that X is 4 so that the distributor has four inlet openings and four outlet openings, the four inlet openings being located at the angular points of an imaginary square and the four outlet openings being arranged in line, the filtering device being in the form of a square in horizontal cross section.

Since due to the use of a distributor the coffee has to cover a long distance to the cup, the temperature of the coffee will decrease more quickly than in the known coffee makers. In order to compensate for this decrease in temperature, the coffee maker according to the invention may be provided with means for heating the distributor.

The invention will now be described more fully

with reference to two embodiments shown in the accompanying drawings, in which:

Fig. 1 is a front elevation of a first embodiment of a coffee maker according to the invention,

Fig. 2 is a cross-sectional view of the coffee maker of Fig. 1 taken on the line II—II,

Fig. 3 is a cross-sectional view of the holder for the filter container of the coffee maker of Fig. 1,

Fig. 4 is a plan view of the holder for the filter container shown in Fig. 3,

Fig. 5 is a plan view of the distributor of the coffee maker of Fig. 1,

Fig. 6 is a cross-sectional view of the distributor shown in Fig. 5 taken on the line VI—VI,

Fig. 7 is a cross-sectional view of the distributor shown in Fig. 5 taken on the line VII—VII,

Fig. 8 is a front elevation of a distributor intended to be used in a second embodiment of a coffee maker according to the invention,

Fig. 9 shows diagrammatically in plan view the distributor shown in Fig. 8,

Fig. 10 shows diagrammatically an elevation of a holder for a filter container intended to be used with the distributor shown in Fig. 8,

Fig. 11 is a plan view of the holder for the filter container shown in Fig. 10.

The coffee maker according to the invention is composed of a housing 1, a water tank 2, a cover 3 for closing the water tank and a filtering device 4 which can be arranged in the housing. Beneath the filtering device one to four cups 6 can be arranged on a supporting plate 5. The coffee maker is provided with a flow heater 7, of which (in a manner not shown further) the water duct is connected at one end to the water tank 2 and discharges at the other end by means of a communication duct above the filtering device 4.

According to the invention, the coffee maker is provided with a distributor 8 which can be detachably arranged in the housing 1. The distributor is provided for this purpose with pins 9 which fit into openings 10 of the housing (see Fig. 2). In the embodiment shown in Figures 1 to 7, the distributor is provided with four inlet openings 11, 12, 13 and 14. The inlet openings are located at the angular points of an imaginary square 15. The reason for this arrangement will be explained hereinafter. The distributor is further provided with also four outlet openings 16, 17, 18 and 19, which are disposed in line. Beneath these outlet openings the cups 6 can be arranged. Between the inlet openings and the outlet openings there is provided a duct system 20 such that the inlet opening 11 is connected by means of a duct 21 to the outlet opening 16, the inlet opening 12 is connected by means of ducts 24/22 and 23 to outlet openings 16 and 17, respectively, the inlet opening 13 is connected by means of ducts 24/22, 25/23 and 26 to the outlet openings 16, 17 and 18 respectively, and the inlet opening 14 is connected by means of ducts 27/21, 25/23, 28/26 and 29 to all four outlet openings 16, 17, 18 and 19, respectively. The ducts are constituted by open preferably V-shaped gutters, as is apparent from Fig. 6. The bottom of each duct is slightly

inclined downwards from the inlet openings to the outlet openings. The inlet openings are constituted by upright pipes which are open on the upper side and closed on the lower side. The outlet ports of the inlet openings are constituted by vertical slots extending from the upper edge of a pipe. As seen in Fig. 6 the outlet opening 12 is constituted by a pipe having two outlet ports (slots) 31 and 32. In order to obtain a uniform distribution of the coffee flowing in the ducts and hence of the quantity of coffee in the cups, the lower edges 33, 34 of the outlet ports 31, 32 are located at the same distance from the closed bottom of the pipe. This holds for all the pipes having more than one outlet port. It can be seen in Fig. 7 how the coffee can flow from the inlet opening 14 through the ducts 28/26 to the outlet opening 18. It will be clear from the foregoing that the inlet opening through which the coffee enters the distributor determines through which (of the) outlet opening(s) the coffee flows outwards into the cups.

The filtering device 4 is constituted by a holder 35 in which a filter container (not shown), of which the bottom and, as the case may be, also the side walls are provided with filtering material, can be detachably arranged. The holder for the filter container is provided with one outlet opening 36, which is located in the bottom 37. The holder for the filter container can be arranged above the distributor 8 in such a manner that the outlet opening 36 is located just above one of the inlet openings 11, 12, 13 and 14 of the distributor. For this purpose, the holder for the filter container is in the form of a square and the outlet opening 36 is located at one of the angular points of the imaginary square 38 (see Fig. 4). This imaginary square 38 corresponds to the aforementioned imaginary square 15 at whose angular points are located the inlet openings of the distributor. The bottom 37 of the holder for the filter container is provided with a short downwardly directed pipe 39 in which the outlet opening 36 is provided. The outer dimension of the pipe 39 is such that it tightly fits into one of the pipes, for example, the pipe 30, of the distributor. In order that the holder for the filter container is positioned very accurately on the distributor, the bottom 37 is further provided with a downwardly directed boss 40 whose outer dimensions are equal to those of the pipe 39. The boss 40 is arranged at the angular point of the imaginary square 38 diametrically opposite to the pipe 39. The boss thus fits into one of the pipes of the distributor. Since the square holder for the filter container is symmetrical with regard to its outer dimensions, the holder can be arranged in four different ways on the distributor, the outlet opening 36 being located each time above another inlet opening of the distributor.

Figures 8 to 11 show diagrammatically an embodiment of a distributor and a holder for a filter container intended to be used in a coffee maker with which at most three cups of coffee can be made at a time. The distributor 41 is provided with three inlet openings 42, 43 and 44, which are

located at the angular points of an imaginary equilateral triangle 45 and with three outlet openings 46, 47 and 48 located in line. Between the inlet openings and the outlet openings there is situated a duct system 49 of a construction similar to that of the duct system in the first embodiment. The inlet opening 42 is connected through a single duct 50 to the outlet opening 46, the inlet opening 43 is connected through a duct 51 opening into the duct 50 and through a duct 52 to the outlet openings 46 and 47, respectively, and the inlet opening 44 is connected through a duct 53 opening into the duct 50, through a duct 54 and through a duct 55 to the outlet openings 46, 47 and 48, respectively.

The holder 56 for a filter container forming part of this embodiment has a prismatic form, whose cross-section is an equilateral triangle, the outlet opening 57 being located in the slightly inclined bottom 58 of the holder at an angular point of an imaginary equilateral triangle 59 which corresponds to the aforementioned imaginary equilateral triangle 45 of the distributor 41. It will be appreciated that the holder 56 for the filter container can be arranged in three ways above the distributor in such a manner that the outlet opening is located exactly above one of the inlet openings of the distributor.

Coffee makers of this kind by which more than four cups of coffee can be made at a time are of course also possible. The outlet opening of the holder for the filter container should then be situated so that in the different positions of the holder for the filter container with respect to the distributor the outlet opening is located at the angular points of an imaginary uniform polygon. The inlet openings on the distributor are then of course also located at the angular points of the same imaginary uniform polygon. The maximum number of cups of coffee to be made at a time is then equal to the number of angular points of the imaginary polygon. It is alternatively possible to give the filtering device the form of a cylinder and to secure it rotatably and detachably in the coffee maker.

Since in the coffee maker according to the invention due to the presence of the distributor the coffee flowing from the outlet opening of the holder for the filter container has to cover a longer distance until it flows into the cups than in coffee makers in which the coffee flows directly into the cups, a greater decrease in temperature will occur. This may be compensated for by using means for heating the distributor. This may be effected, for example, by means of a separate heating element incorporated in the distributor or by means of pins which are in thermal contact with the heating element of the flow heater and onto which the distributor can be slipped. These means are not shown, however.

Claims

1. A coffee maker comprising a housing (1) in which a filtering device (4, 35, 36) provided with a



inclined downwards from the inlet openings to the outlet openings. The inlet openings are constituted by upright pipes which are open on the upper side and closed on the lower side. The outlet ports of the inlet openings are constituted by vertical slots extending from the upper edge of a pipe. As seen in Fig. 6 the outlet opening 12 is constituted by a pipe having two outlet ports (slots) 31 and 32. In order to obtain a uniform distribution of the coffee flowing in the ducts and hence of the quantity of coffee in the cups, the lower edges 33, 34 of the outlet ports 31, 32 are located at the same distance from the closed bottom of the pipe. This holds for all the pipes having more than one outlet port. It can be seen in Fig. 7 how the coffee can flow from the inlet opening 14 through the ducts 28/26 to the outlet opening 18. It will be clear from the foregoing that the inlet opening through which the coffee enters the distributor determines through which (of the) outlet opening(s) the coffee flows outwards into the cups.

The filtering device 4 is constituted by a holder 35 in which a filter container (not shown), of which the bottom and, as the case may be, also the side walls are provided with filtering material, can be detachably arranged. The holder for the filter container is provided with one outlet opening 36, which is located in the bottom 37. The holder for the filter container can be arranged above the distributor 8 in such a manner that the outlet opening 36 is located just above one of the inlet openings 11, 12, 13 and 14 of the distributor. For this purpose, the holder for the filter container is in the form of a square and the outlet opening 36 is located at one of the angular points of the imaginary square 38 (see Fig. 4). This imaginary square 38 corresponds to the aforementioned imaginary square 15 at whose angular points are located the inlet openings of the distributor. The bottom 37 of the holder for the filter container is provided with a short downwardly directed pipe 39 in which the outlet opening 36 is provided. The outer dimension of the pipe 39 is such that it tightly fits into one of the pipes, for example, the pipe 30, of the distributor. In order that the holder for the filter container is positioned very accurately on the distributor, the bottom 37 is further provided with a downwardly directed boss 40 whose outer dimensions are equal to those of the pipe 39. The boss 40 is arranged at the angular point of the imaginary square 38 diametrically opposite to the pipe 39. The boss thus fits into one of the pipes of the distributor. Since the square holder for the filter container is symmetrical with regard to its outer dimensions, the holder can be arranged in four different ways on the distributor, the outlet opening 36 being located each time above another inlet opening of the distributor.

Figures 8 to 11 show diagrammatically an embodiment of a distributor and a holder for a filter container intended to be used in a coffee maker with which at most three cups of coffee can be made at a time. The distributor 41 is provided with three inlet openings 42, 43 and 44, which are

located at the angular points of an imaginary equilateral triangle 45 and with three outlet openings 46, 47 and 48 located in line. Between the inlet openings and the outlet openings there is situated a duct system 49 of a construction similar to that of the duct system in the first embodiment. The inlet opening 42 is connected through a single duct 50 to the outlet opening 46, the inlet opening 43 is connected through a duct 51 opening into the duct 50 and through a duct 52 to the outlet openings 46 and 47, respectively, and the inlet opening 44 is connected through a duct 53 opening into the duct 50, through a duct 54 and through a duct 55 to the outlet openings 46, 47 and 48, respectively.

The holder 56 for a filter container forming part of this embodiment has a prismatic form, whose cross-section is an equilateral triangle, the outlet opening 57 being located in the slightly inclined bottom 58 of the holder at an angular point of an imaginary equilateral triangle 59 which corresponds to the aforementioned imaginary equilateral triangle 45 of the distributor 41. It will be appreciated that the holder 56 for the filter container can be arranged in three ways above the distributor in such a manner that the outlet opening is located exactly above one of the inlet openings of the distributor.

Coffee makers of this kind by which more than four cups of coffee can be made at a time are, of course also possible. The outlet opening of the holder for the filter container should then be situated so that in the different positions of the holder for the filter container with respect to the distributor the outlet opening is located at the angular points of an imaginary uniform polygon. The inlet openings on the distributor are then of course also located at the angular points of the same imaginary uniform polygon. The maximum number of cups of coffee to be made at a time is then equal to the number of angular points of the imaginary polygon. It is alternatively possible to give the filtering device the form of a cylinder and to secure it rotatably and detachably in the coffee maker.

Since in the coffee maker according to the invention due to the presence of the distributor the coffee flowing from the outlet opening of the holder for the filter container has to cover a longer distance until it flows into the cups than in coffee makers in which the coffee flows directly into the cups, a greater decrease in temperature will occur. This may be compensated for by using means for heating the distributor. This may be effected, for example, by means of a separate heating element incorporated in the distributor or by means of pins which are in thermal contact with the heating element of the flow heater and onto which the distributor can be slipped. These means are not shown, however.

Claims

1. A coffee maker comprising a housing (1) in which a filtering device (4, 35, 36) provided with a



single off-center outlet opening (36, 37) can be arranged in a plurality of positions, characterized in that the coffee maker is provided with a distributor (8, 41) having X inlet openings (11, 12, 13, 14 and 42, 43, 44), X outlet openings (16, 17, 18, 19 and 46, 47, 48) and a duct system interposed between said inlet and outlet openings, which filtering device (4, 35, 36) can be arranged in the housing (1) in X different positions such that the outlet opening of the filtering device is located exactly above one of the inlet openings of the distributor (8, 41), the Xth distributor inlet opening being connected to X distributor outlet openings, X being an integer greater than 1 and the first distributor inlet opening being connected to only the first distributor outlet opening.

2. A coffee maker as claimed in Claim 1, characterized in that the duct system (20) is constituted by gutters (21—29).

3. A coffee maker as claimed in Claim 1 or 2, characterized in that X is 4 so that the distributor (8) has four inlet openings (11—14) and four outlet openings (16—19), the four inlet openings being located at the angular points of an imaginary square (15) and the four outlet openings being arranged in line, the filter device (35) being in the form of a square in horizontal cross-section.

4. A coffee maker as claimed in any one of the preceding claims, characterized in that means are provided for heating the distributor.

Patentansprüche

1. Kaffeeautomat mit einem Gehäuse (1), in dem eine Filtervorrichtung (4, 35, 36) mit einer einzigen aussermittigen Ausströmungsöffnung (36, 37) in mehreren Positionen angeordnet werden kann, dadurch gekennzeichnet, dass der Kaffeeautomat mit einem Verteiler (8, 41) versehen ist, der X Einströmungsöffnungen (11, 12, 13, 14 und 42, 43, 44) aufweist, sowie X Ausströmungsöffnungen (16, 17, 18, 19 und 46, 47, 48), wobei zwischen den genannten Einströmungs- und Ausströmungsöffnungen ein Kanalsystem vorgesehen ist, wobei die Filtervorrichtung (4, 35, 36) in X verschiedenen Stellungen in dem Gehäuse (1) angeordnet werden kann, so dass die Ausströmungsöffnung der Filtervorrichtung genau über einer der Einströmungsöffnungen des Verteilers (8, 41) liegt, wobei die X Einströmungsöffnungen des Verteilers mit X Ausströmungsöffnungen des Verteilers verbunden ist, wobei X eine ganze Zahl grösser als 1 ist und wobei die erste Einströmungsöffnung des Verteilers nur mit der ersten Ausströmungsöffnung des Verteilers verbunden ist.

2. Kaffeeautomat nach Anspruch 1, dadurch

gekennzeichnet, dass das Kanalsystem (20) aus Rinnen (21—29) besteht.

3. Kaffeeautomat nach Anspruch 1 oder 2, dadurch gekennzeichnet, dass X vier ist, so dass der Verteiler (8) vier Einströmungsöffnungen (11—14) und vier Ausströmungsöffnungen (16—19) aufweist, wobei die vier Einströmungsöffnungen an den Ecken eines imaginären Quadrates (15) liegen und die vier Ausströmungsöffnungen fluchtend liegen, wobei die Filtervorrichtung (35) im horizontalen Schnitt eine quadratische Form aufweist.

4. Kaffeeautomat nach einem der vorstehenden Ansprüche, dadurch gekennzeichnet, dass Mittel zum Erwärmen des Verteilers vorgesehen sind.

Revendications

1. Cafetière électrique comportant un boîtier (1) dans lequel un dispositif de filtrage (4, 35, 36) présentant un seul orifice d'écoulement décentré (36, 37) peut être disposé dans une pluralité de positions, caractérisée en ce qu'elle est munie d'un distributeur (8, 41) présentant X orifices d'admission (11, 12, 13, 14 et 42, 43, 44) et X orifices d'écoulement (16, 17, 18, 19 et 46, 47, 48) ainsi qu'un système de conduits interposé entre lesdits orifices d'admission et d'écoulement, dispositif de filtrage (4, 35, 36) qui peut être disposé dans le boîtier (1) dans X positions différentes de telle manière que l'orifice d'écoulement du dispositif de filtrage soit situé exactement au-dessus de l'un des orifices d'admission du distributeur (8, 41), le x^{ième} orifice d'admission du distributeur communiquant avec X orifices d'écoulement du distributeur, étant entendu que X est un entier supérieur à 1, et le premier orifice d'admission du distributeur communiquant seulement avec le premier orifice d'écoulement du distributeur.

2. Cafetière électrique selon la revendication 1, caractérisée en ce que le système de conduits (20) est constitué par des gouttières (21—29).

3. Cafetière électrique selon la revendication 1 ou 2, caractérisée en ce que X=4, de sorte que le distributeur (8) présente quatre orifices d'admission (11—14) et quatre orifices d'écoulement (16—19), les quatre orifices d'admission étant situés aux sommets d'angle d'un carré imaginaire (15) et les quatre orifices d'écoulement étant alignés, alors que le dispositif de filtrage (35) a la forme d'un carré en section transversale horizontale.

4. Cafetière électrique selon l'une quelconque des revendications précédentes, caractérisée en ce qu'il est prévu des moyens de chauffage du distributeur.

