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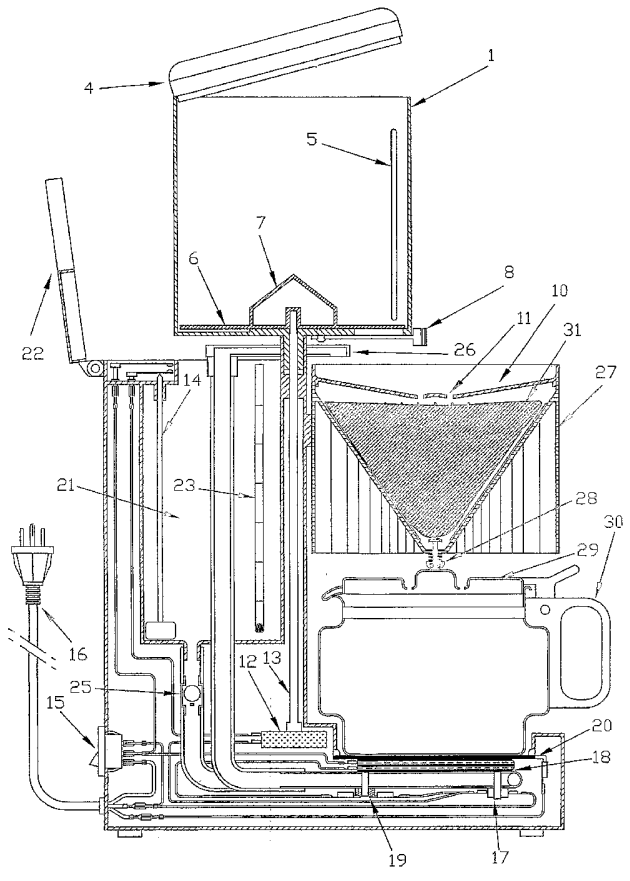
(54) Title: ELECTRIC COFFEE MAKER WITH COFFEE POWDER RESERVOIR, AUTOMATIC COFFEE POWDER DOSER, AND POWDER INTENSITY SELECTOR



(57) Abstract: An electric coffee maker with a removable coffee powder reservoir (1) and an automatic powder doser, composed by an electric coffee maker with powder reservoir (1) that allows the storage of the coffee powder, with a coffee powder quantity indicator (5), with a coffee powder automatic doser that doses the coffee powder automatically, with a powder intensity selector (8) that allows the regulation of the intensity of the flavor, with an auto-cleaning system (24), with a digital electronic timer (34) with timer function, clock function, auto-off function, auto-cleaning function and coffee making function.

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"ELECTRICK COFFEE MAKER WITH COFFEE POWDER RESERVOIR, AUTOMATIC COFFEE POWDER DOSER, AND POWDER INTENSITY SELECTOR."

The present invention refers to an electric coffee maker with reservoir and automatic coffee powder doser with a powder intensity selector, composed by a reservoir of powder as indicator of the amount of powder, automatic coffee powder doser with a powder intensity selector and a digital electronic timer.

The machinery and equipment industries, mainly the household industry require practical products, the comfort and consumer technological innovation, such as, an electric coffee maker with timer, where the user has the facility to program the hour to the coffee maker prepare the coffee.

It's known the coffee preparation process in the electric coffee makers, where the user places some water for a determined number of cups of coffee in the water coffee maker reservoir, places a clean filter on the filter holder, add some coffee powder to the intensity and flavor desired, and turns the coffee maker on to prepare the coffee.

One of the problems of the existent coffee makers is that, at each coffee preparation, there's the inconvenient to handle the coffee powder, what ends up to deleteriousness the powder conservation, interfering in the coffee flavor and aroma. Besides, there's the need to arrange a place to keep the coffee powder, because other coffee makers to not have its own reservoir to hold coffee powder.

Another problem is that there's not exactness in the coffee powder dosage, because the operation is manually, mainly if the user varies constantly the intensity

of the coffee flavor, compromising the efficiency of the coffee powder and the intensity of the prepared coffee flavor.

Another disadvantage of the existent electric coffee makers is the dilution of the coffee powder, which is made in the coffee maker filter, where the user adds the coffee powder, because when the coffee maker is turned on, this throws water over the powder that is going to be used, thus not creating an homogeneous mixture of powder with the water, what ends up compromising the intensity of the flavor and/or the outcome of the coffee, specially to small quantities preparation.

The documents PI 8902857 and PI 9400474-9 are known in what is referred to electric coffee makers with reservoir and coffee powder doser, where and electronic circuit controls the process and preparation of the coffee, which is made in two stages. In the first stage, the dosage of the coffee powder is done by the coffee powder doser directly in the filter, in a pre-established time interval, on which this defines the intensity of the coffee flavor. At the second stage there's the dosage of the hot water, finish the process of the preparation of the coffee.

The problem of these coffee makers is that they to not allow the user to regulate the intensity of the coffee flavor, because they do not have a coffee powder intensity selector and also cannot vary the quantity of coffee that is going to be prepared.

Another negative factor, as in the previously cited coffee makers, is that the dilution of the coffee powder with the hot water is done in the coffee maker filter, what may compromise the intensity of the flavor and the outcome of the coffee powder, because there's no homogeneous mixture.

Another problem of these coffee makers is the extended preparation time of the coffee, because the coffee preparation is done in two stages, one for the dosage of the coffee powder and another to the dosage of the hot water. These coffee makers do not favor practicity, such as the household's, because the compartments to put the done coffee, the filter holder and the coffee powder reservoir are attached to the coffee maker, what turns out to be difficult while handling and cleaning.

There are several documents such as PI 0100980-0, a WO 00/01283 and EP 0 659 378 A1 that are referred to coffee makers with dispenser and/or that prepare coffee through an infusion chamber, where the compressed coffee powder receives hot water under pressure to prepare the coffee. These coffee makers have a complex system to prepare the coffee, in which are used several sets of pieces and/or electronic circuits, resulting in dimensionally big and high cost of production coffee makers. Another problem is that this is a limitation of the quantity of the coffee to be prepared.

The present invention aims as objective to avoid the inconvenient of the electric coffee makers described previously, presenting to this, an electric coffee maker, with reservoir and automatic coffee powder doser with a selector of coffee powder intensity, a simple and compact system that disregards the use of electronic circuits and several sets to control de dosage of the coffee powder and the quantity of coffee to be prepared. The dosage of the coffee powder is done "simultaneously" with the hot water in the orificed upper cone of the filter holder, to, after dilution, fall into the coffee maker's filter.

This system enables the preparation of any quantity of coffee, enabling to regulate the intensity of the desired coffee flavor, because the coffee powder intensity selector controls exactly the amount of powder that is going to be diluted in the water to prepare the coffee.

In the present invention, the user will not need to arrange a place to store the coffee powder, because all of the content of a new package will be stored in the coffee powder reservoir, thus hermetically closed, keeping the coffee flavor and aroma. To prepare the coffee the user will have only to place a new clean filter, add the quantity of water in the water reservoir, and through a powder intensity selector, elicit the intensity of the desired flavor that goes from mild to extra-strong. The coffee maker will automatically do the rest; will dose the exact quantity of coffee powder, according to the intensity of the desired flavor.

The description that follows and associated figures, all of it, given as non-limitative examples, will be able to understand the invention.

Figure 1 presents, in a transversal view the electric coffee maker with reservoir and automatic powder doser.

Figure 2 is the transversal view of the powder reservoir

Figure 3 is the upper view of the powder reservoir.

Figure 4 is the upper view of the powder reservoir with the mover blade portraying the direction of the spin.

Figure 5 shows the bottom view of the powder reservoir.

Figure 6 is the upper view of the electric coffee maker without the powder reservoir.

Figure 7 shows, in a transversal view of the electric coffee maker, the position where water and coffee powder fall.

Figure 8 is the front view of the powder reservoir.

Figure 9 is the exploded view of the powder reservoir.

Figure 10 presents a transversal view of the electric coffee maker with reservoir and automatic powder doser with the positioning of the electric engine placed in the upper part of the coffee maker.

Figure 11 presents a transversal view of the electric coffee maker with powder reservoir placed in the upper part of the coffee maker to show that the powder reservoir might be detached of the coffee maker.

Figure 12 is the front view of the electric coffee maker with reservoir and coffee powder automatic doser.

Figure 13 presents in a transversal view of the electronic coffee maker with reservoir and automatic coffee powder doser with digital electronic timer.

Figure 14 is the front view of the digital electronic timer, showing the display of "F", "P" and "LD" keys and led lights.

Figure 15 is the front view of the digital electronic timer showing on its display, the hour, minutes and seconds.

Figure 16 is the front view of the digital electronic timer showing on its display the Timer function.

Figure 17 is the front view of the digital electronic timer that shows on its display the Auto-off function.

Figure 18 is the front view of the digital electronic timer that shows on its display the Auto-cleaning function.

As it's presented in the figure 1, the electric coffee maker with reservoir and automatic coffee powder doser, is composed by a powder reservoir 1 with reservoir powder lid 4 and with coffee powder quantity indicator 5, powder mover blade 6 with a conic form projection 7, intensity selector 8, orificed upper cone 10 with holes 11, electric engine 12, transmission axle 13 , water level sensor 14, luminous switch key 15, electric wire with plug 16, fuse 17, evaporator 18, thermostat 19, heating plate 20, water reservoir 21, water reservoir lid 22, cups number indicator 23, sphere valve 25, spouter 26, filter holder 27, anti-dropping valve 28, pot lid 29, pot 30, filter 31 detachable or washable.

The coffee preparation process of the electronic coffee maker consists in filling the powder reservoir 1 with the content of a new coffee powder 32 package, close it with the powder reservoir lid 4 and through a powder intensity selector 8, elicit the intensity of the flavor of the desired coffee, observing the powder intensity indicator 9, that varies from mild to extra-strong, sliding it horizontally.

After the coffee maker is filled and regulated, it won't be necessary to handle the coffee powder 32. To prepare the coffee, only will have to place a quantity of water 33 in the reservoir 21 observing the cups number indicator 23, close the water reservoir lid 22 and place a filter 31 clean and detachable or washable in the filter holder 27. At each coffee preparation it might be adjusted the intensity of the coffee flavor, only having to modify the powder intensity selector 8 regulation.

The coffee powder automatic doser is integrated to the powder reservoir 1 of the coffee maker and it's composed by the powder reservoir 1 with a projection 2 and a hole 3, by the powder blade mover 6 with a conic projection format (7), by an

powder intensity selector 8, powder intensity indicator 9, electric engine 12 with transmission axle 13 and water level sensor 14.

When the coffee maker, with its plug 16 plugged in the plughole, it's turned on through luminous switch key 15 that is turned on when switched on, the electric engine 12 and the evaporator 18 are simultaneously activated, where the electric engine 12, through a transmission axle 13, makes that the powder mover blade 6 turns in the anti-clockwise direction, rubbing the coffee powder 32 against to the projection 2 of the powder reservoir 1 that is about a millimeter tall, making that the coffee powder 32 leaves through the hole 3 and falls into the orificed superior cone 10 of the filter holder 27, to be diluted with the water 33 and after go through the holes 11 and pour onto the filter 31 inside the filter holder 27.

It was used a hole 3 in the oblong format, because this format makes the coffee powder 32 passage easier, but there's the option to use squared and rectangular holes.

Figure 2 is a transversal view of the powder reservoir 1 showing the projection 2.

Figure 3 is the upper view of the powder reservoir 1 that shows its hole 3 and the outline of the projection 2.

Figure 4 is the upper view of the powder reservoir 1, where an arrow shows the direction of the rotation of the powder mover blade 6, that is its anti-clockwise direction and the powder intensity selector 8.

Figure 5 is an bottom view of the powder reservoir 1 that shows the hole 3, powder intensity selector 8 and the movement direction from left to right, as indicated by the arrow.

Figure 6 is an upper view of the electric coffee maker without the powder reservoir 1, and shows the orificed upper cone (10) with it's holes 11 where the water 33 and the diluted coffee powder 32 go through, a pot 30 below the filter holder 27, the indicator of cups number 23, the spouter 26, the transmission axle 13, the water reservoir lid 22 and the water reservoir 21.

The evaporator 18, with its working temperature controlled by the thermostat 19, will heat the water 33, making it boil, forcing it upwards and went by the spouter 26, falling into the superior orificed cone 10. The boiling water 33 will not return to the water reservoir 21, because it's going to be blocked by the sphere valve 25, that allows the flux only in the water reservoir 21 and spouter 26 direction.

Although the electric engine 12 and the evaporator 18 are simultaneously activated, firstly the coffee powder 32 starts to fall into the orificed upper cone 10, as the electric engine 12 activated by the water level sensor 14 propels the powder mover blade 6. Anyhow, the water 33 takes few seconds to pour by the spouter 26, because the evaporator 18 takes few seconds to make the water 33 boil. This is important, because it's necessary a small quantity of powder coffee 32 in the superior orificed cone 10 to avoid the pouring of pure water 33 in the detachable or washable filter 31.

At the end of the coffee preparation process, the opposite will happen, that is, the coffee powder 32 stops from falling from the hole 3 and the water 33 will continue to pour by the spouter 26 for a few seconds, washing the orificed upper cone 10, what avoids coffee powder 32 accumulation. This happens, because as the coffee if being prepared, the water 33 volume in the water reservoir 21 will decrease until it reaches the end. With this, the water level sensor 14 will turn off

the electric engine 12, making that the coffee powder 32 stops leaving too. But there will be a small quantity of water 33 in the piping of the evaporator 18, what's enough to wash the orificed upper cone 10.

The filter holder 27 is mobile and removable, what makes it easier to place and withdraw the filter and it's cleaning.

To a better understanding, the water level sensor 14 used in the present patent is the one the floater sensor type, what does not prevent the using of an electric sensor type.

The dilution of the coffee powder 32 with the hot water 33 occurs in the orificed upper cone 10 of the filter holder 27, for after being diluted, pours onto the filter 31 of the coffee maker.

As shown on figure 7, the passage of the water 33 by the spouter 26 is placed next to the edge of the orificed upper cone 10, and the leaving of the coffee powder 32 by the hole 3 is positioned in a way that the powder dust 32 falls between the pouring of the water 33 of the spouter 26 and the holes 11 that are positioned at the center of the orificed upper cone 10. This way, through gravity, the water 33 that pours, goes diluting all the coffee powder 32 towards the holes 11 in the orificed upper cone 10 to fall into the filter 31.

The figure 8 is a front view of the powder reservoir 1, which shows the powder intensity indicator 9, the powder intensity selector 8 and the coffee powder quantity indicator 5 of the powder reservoir 1.

The powder intensity selector 8 of the coffee powder automatic doser has an powder intensity indicator 9 to show the intensity of the coffee powder 32 that will

be diluted with the water 33, that is, the intensity which the coffee flavor is going to be prepared with.

The coffee powder automatic doser controls the quantity of the powder coffee 32 that is going to be used in the preparation of the coffee the powder intensity selector 8, as the lever is slided from the left to the right, will increase the opening of the hole 3 of the powder reservoir 1, consequently increasing the proportion of coffee powder 32 that is going to be diluted with the water 33. This systems control efficiently the quantity of coffee powder 32 that is going to be diluted with the water 33, that is, controls the intensity of the flavor of the coffee that is going to be prepared. Example:

- if the user wants to prepare one cup of coffee with the powder intensity selector 8 in the position mild, the coffee cup will be prepared in the mild flavor.

- if the user wants to prepare five cups of coffee and let the powder intensity selector 8 in the same position, that is, in the mild position, the five cups of coffee will be prepared with the same previous flavor, that is, the mild flavor.

- but, if in the next coffee preparation, the user modifies the coffee powder intensity selector 8 regulation to strong, independently of the quantity of coffee that is going to be prepared the flavor will be stronger.

These examples show that, independently from the quantity of coffee wished to be prepared, the coffee flavor will be prepared according to the regulation of the powder intensity selector 8.

The powder intensity selector 8, previously described, was the manual type one, nonetheless, a powder intensity selector 8 with movement adjusted by an electric engine controlled by keys.

The keys that control the electric engine can be placed beside the coffee maker timer or not, having an electronic control to make easier the programming of the coffee maker. The electronic control might have regulation of intensity flavor coffee patterns such as "mild", "medium", "strong" or "extra-strong" and might have intermediate to these. Might have an automatic closing, to keep the powder intensity selector 8 in position closed when the coffee maker is not in use. An electronic control may allow direct programming to the coffee maker auto-cleaning, closing automatically the flow of powder coffee of the coffee powder automatic doser when the auto-cleaning is activated.

To prevent the lack of coffee 32, the coffee 32 consumption can be seen through an indicator of coffee powder quantity indicator 5, which is transparent. Only after the coffee maker is used several times, the powder reservoir 1 will have to be filled again.

The powder mover blade 6 presents a conic projection 7 in it's center, because this way, when the coffee powder 32 of the powder reservoir 1 is ending, this projection enables the total use of the coffee 32, avoiding that deposits to settle in the center of the powder mover blade 6.

Figure 9 is an exploded view of the powder reservoir 1 that shows the powder reservoir lid 4, shows the powder mover blade 6 with its projection in the conic format 7, the powder reservoir 1 with the projection 2 and the hole 3 and the powder intensity selector 8.

The passage of water 33 of the spouter 26, the falling of the coffee powder 32 from the hole 3 and the orificed upper cone 10 were placed in a way to be exposed, to a better dissipation of the vapors that leave the spouter 26, and to

allow the user a visualization of the dosing process and the mixture of the coffee powder 32 with the water 33, but in another form of accomplishment is possible to the spouter 26 hidden, the falling of the coffee 32 and the hole 3 and the orificed upper cone 10, with side exits or rear exits to the vapor.

The orificed upper cone 10 is not attached to the filter holder 27, to allow the placement and withdrawing of the filter 31. In another accomplishment the orificed upper cone 10 can be attached to the coffee maker, to allow free movements and withdrawing the filter holder 27 without its interference.

According to the invention, the electric engine 12 used a motor-reducer in synchrony with the rotation of exit of 2,5 to 3 rotations per minute. The advantages of this type of engine is that they have their dimensions quite reduced, what facilitates the coffee maker fabrication, excellent durability, because they have a high leaving strength and a low cost.

The electric engine 12 was placed in the lower part of the coffee marker to make it easier the assemblage of the electric system, but as indicated in the figure 10, another form of accomplishment of the transmission is possible, positioning the electric engine in the upper part of the coffee maker using the transmission axle 13 short.

The fuse 17, if interrupted, will impede the functioning of the evaporator 18 and the electric engine 12, to avoid that the coffee maker keeps working only with one of those two components.

You can serve coffee even with the coffee maker functioning, because it's possible to withdraw the pot 30, with no droplets pouring from the filter holder 27,

because the valve anti-dropping 28 will impede the pouring even when the pot 30 is withdrawn from the coffee maker.

After the coffee is made, that is, after the end of the flux of the hot water 33 and the coffee powder dosage 32, the evaporator 18, with its temperature controlled by the thermostat 19, in contact with the heating plate 20 will be functioning, transmitting heat to the pot 30 keeping the coffee warm.

The powder reservoir 1 is removable from the coffee maker, that is, it's not attached to the coffee maker, allowing it's removal to be washed, because after being filled several times, there might be accumulation of coffee powder. To remove it, just remove the lid of the powder reservoir 4, remove the powder mover blade 6 that is fit to the transmission axle 13 and remove it from the coffee maker.

The figure 11 shows a transversal view of the electric coffee maker where the powder reservoir 1, the powder reservoir lid 4, a powder mover blade 6, all separated from the coffee maker to show that they are removable from the coffee maker. Also show the fitting of the transmission axle 13 to fit the powder mover blade 6.

The electric coffee maker with reservoir and coffee powder automatic coffee doser also has an auto-cleaning system that allows the auto-cleaning of the coffee maker.

To the auto-cleaning system work, the powder intensity selector 8 must be placed all to the left, in the position closed of the coffee powder intensity indicator 9. With the filter 31 withdrawn from the coffee maker, water 33 is put in the water reservoir 21 of the coffee maker, observing the water level indicator for auto-cleaning 24 in the cups number indicator 23, that indicates the ideal quantity of

water 33 to the auto-cleaning system work and turn the coffee maker on. This way, powder intensity selector 8 will close the hole 3 preventing the flux of coffee powder 32, there only being the flux of water 33 that will clean the coffee maker components such as the orificed upper cone 10, the filter holder 27, the anti-dropping valve 28, the pot lit 29 and the pot 30. After it's finished, turn the coffee maker out and dispose the water of the pot.

Figure 12 is a front view of the electric coffee maker that shows the powder reservoir 1 with its lid 4 showing the coffee powder quantity indicator 5, the cups number indicator 23 with water 33, the auto-cleaning water level indicator 24, the filter holder 27, the orificed upper cone 10, the powder intensity selector 8 and the powder intensity indicator 9.

The powder intensity selector 8 in the closed position allows the moving of the coffee maker with the powder reservoir 1 completed, what prevents an eventual coffee powder 32 loss by the hole 3.

As presented in the figure 13, the electric coffee maker with reservoir and coffee powder automatic coffee powder doser with coffee powder intensity selector might be produced with a digital electronic time 34 where the same is composed by an electronic circuit that controls all the coffee maker's functions.

The digital electronic timer 34 has the function key "F" 36, program key "P" 37, switch-on-off "LD" 38 key, indicator led 39, liquid crystal display 35, with a daily programming that allows to program the hour to the coffee maker to start to prepare the coffee automatically. Example: if a person wakes up at 7:00am and would like his morning coffee to be ready at 8:00am, he can let the coffee maker

programmed the night before with the coffee flavor already regulated, to let it initiate the process automatically.

Figure 14 is the digital electronic timer 34 showing the display 35, the function keys "F" 36, program "P" 37, switch-on-off "LD" 38 and indicator led 39.

The functions of the digital electronic timer 34 are:

- clock function, as indicated on figure 15, shows on the display 35 the hour 40, the minutes 41 and the seconds 42. The hour 40, the minutes 41 and the seconds 42 are adjusted by pressing the function key "F" 36 three seconds and then pressing the program key "P" 37.

- timer function, as shown on figure 16 allows to program beforehand the hour 40 and the minutes 41 to the beginning of the coffee preparation. The timer function is accessed pressing the function key "F" 36. When the timer function is accessed, the display 35 will show the letter "T" 43. The hour 40 and the minutes 41 to the preparation of the coffee are adjusted by pressing the program key "P" 37. To activate or deactivate the timer function, with the display 35 indicating the letter "T" 43, press "LD" 38 making that the indicator symbol of "activated timer function" 44 appear or disappear on the display 35.

- auto-off function, as shown on the figure 17, allows the auto-off of the coffee maker in the programmed timing after the preparation of the coffee, that is, how long the coffee will be kept warm by the heating plate 20 of the coffee maker. The auto-off function is accessed pressing the "F" 36 function key. When this function is accessed, the display 35 shows the letters "AD" 45. The duration of hours and minutes that the coffee maker will keep the coffee warm, are adjusted by pressing the program "P" 37 key. To activate or deactivate this function, with

display 35 indicating the letters "AD" 45, press "LD" 38 making that the indicator symbol of the "auto-off function activated" 46 show or disappear on the display 35.

- auto-cleaning function of the digital electronic timer 34, as indicated in the figure 18, allows the functioning of the coffee maker just the necessary time to perform the auto-cleaning of the coffee maker, turning-off itself automatically after the process of cleaning the coffee maker is finished. To activate the auto-cleaning function just move the powder intensity selector 8 all to the left, keeping it on the closed position, pour water 33 on the water reservoir 21 of the coffee maker observing the water level indicator for auto-cleaning 24 in the cups number indicator 23, as shown on figure 12. After the auto-cleaning is accessed by pressing the function key "F" 36, making it show on the display 35 the letters "AL" 47 and pressing the "LD" key 38 to activate the auto-cleaning.

- make coffee function, allows the clock function turn the coffee maker on or off immediately to press the "LD" 38 key.

All the time that the coffee maker is turned on, either by the timer function, make coffee function out auto-cleaning function, the indicator led 39 will turn on to indicate that the coffee maker is turned on, disappearing only when the functions were finished and the coffee maker turned off.

It's possible to activate or deactivate the timer function in the clock function, by pressing the "LD" 38 key three seconds, making that the indicator symbol of the "activated timer function" 44 appears or disappears on the display 35.

The digital electronic timer 34 allows that the timer function to be deactivated at each coffee making, to avoid that the user forgets the function activated, avoiding that the coffee maker turns-on accidentally.

When a function is accessed, in the case the user stops operating the digital electronic timer 34, this will return to the clock function after a few seconds, leaving the function on which was accessed in the previous programming.

"CLAIMS"

1. Electric coffee maker with reservoir and coffee powder automatic doser, powder intensity selector comprised by having a powder reservoir (1) with a powder reservoir lid (4) with a projection (2) and hole (3), powder mover blade (6) with a conic format projection (7), orificed upper cone (10) with holes (11), powder intensity selector (8), powder intensity indicator (9), electric engine (12) with synchronic reducer with transmission axle (13) and water level sensor (14) water floater type or electronic water level sensor type, coffee powder automatic doser that doses the coffee powder (32) simultaneously with the water (33), which allows the regulation of the intensity of the coffee flavor.

2. Electric coffee maker according to claim 1, comprised by having a removable powder reservoir (1).

3. Electric coffee maker according to claim 2, comprised by its powder reservoir (1) having indication of quantity of coffee powder (5).

4. Electric coffee maker according to claim 3, comprised by its projection (2) of the powder reservoir (1) might having half up to two millimeters, preferable one millimeter tall.

5. Electric coffee maker according to claim 4, comprised by its hole (3) of the powder reservoir (1) might being rectangular or squared, preferably oblong.

6. Electric coffee maker according to claim 5, comprised by its powder reservoir (1) to have a powder reservoir lid (4) and being hermetic.

7. Electric coffee maker according to claim 6, comprised by its coffee powder automatic doser to be integrated to the powder reservoir (1).

8. Electric coffee maker according to any of the claims from 1 to 7, comprised by its coffee powder automatic doser having a powder intensity selector (8) of manual control, to elicit a coffee flavor intensity or close the leaving of the coffee powder (32).

9. Electric coffee maker according to any of the claims from 1 to 7, comprised by its coffee powder automatic doser having a powder intensity selector (8) of electric engine activation control by keys, these might being present beside the digital electronic timer (34) of the coffee maker or not, to elicit the intensity of the flavor of the coffee or to close the leaving of the coffee powder (32).

10. Electric coffee maker according to any of the claims from 1 to 7, comprised by its coffee powder automatic doser having a powder intensity selector (8) of electronic control controlled by keys, these might being present beside the digital electronic timer (34) of the coffee maker or not, to elicit the intensity of the flavor of the coffee or to close the leaving of the coffee powder (32).

11. Electric coffee maker according to claim 1, comprised by its electric engine (12) positioned in the lower part of the coffee maker and having its transmission axle (13) long.

12. Electric coffee maker according to claim 1, comprised by its electric engine (12) in another occurrence might be positioned in the upper part of the coffee maker and having its transmission axle (13) short.

13. Electric coffee maker according to claim 1, comprised by the passage of the water (33) of the spouter (26), the falling of the powder of the coffee (32) and the hole (3) and the orificed upper cone (10) en another occurrence being exposed.

14. Electric coffee maker according to claim 1, comprised by the passage of the water (33) of the spouter (26), the leaving of the powder of the coffee (32) and the hole (3) and the orificed upper cone (10) en another occurrence being hidden, with vapor side or rear exits.

15. Electric coffee maker according to claim 1, comprised by having a luminous switch key (15), electric wire with plug (16), fuse (17), evaporator (18), thermostat (19), heating plate (20), water reservoir (21), water reservoir lid (22), cups number indicator (23) with auto-cleaning level indicator (24), sphere valve (25), spouter (26), filter holder (27) mobile and removable, anti-dropping valve (28), pot (30), lid pot (29), coffee powder (32) and water (33).

16. Electric coffee maker with reservoir and coffee powder automatic doser with powder intensity selector is comprised by having an auto-cleaning system.

17. Electric coffee maker with reservoir and coffee powder automatic doser with powder intensity selector is comprised by having digital electronic timer (34)

18. Electric coffee maker according to claim 17, comprised by its digital electronic timer (34) having the functions hour, timer, auto-off, auto-cleaning and coffee making.

19. Electric coffee maker according to claim 18, comprised by its digital electronic timer (34) has a liquid crystal display (35), function "F" 36 key, program "P" (37) key, turn on-off "LD" (38) key, led light (39).

20. Electric coffee maker according to claim 19, comprised by its liquid crystal display (35) indicate hours (40), minutes (41), seconds (42), letter "T" (43),

"activated timer function" (44) symbol, letters "AD" (45), "activated auto-switch-off function" (46) symbol, letters "AL" (47).

21. Process for the preparation of coffee in electric coffee maker with reservoir and coffee powder automatic doser with powder intensity selector, according to claims 1 to 20, comprised by the fact that if the powder reservoir (1) is filled with a new coffee powder (32) package and closed with the powder reservoir lid (4); put the quantity of desired water (32) into the coffee maker water reservoir (21), observing the cups number indicator (23), place a filter (31) detachable clean or washable in the filter holder (27) of the coffee maker; with the powder intensity selector (8) elicit the coffee powder intensity (32), observing the powder intensity indicator (9); turn on the coffee maker activating simultaneously the electric engine (12) and the evaporator (18) making that the coffee powder mover blade (6) turns in the anti-clockwise direction, rubbing the coffee powder (32) against to the projection (2) of the powder reservoir (1), making that the coffee powder (32), goes through the hole (3) and falls in the orificed upper cone (10) of the filter holder (27), to be diluted in water (32) and fall on the filter (31) of the coffee maker; control by a thermostat (19) the evaporator temperature (18), warming the water (33), making that it boils, forcing it upwards to go through the spouter (26), pouring on the orificed upper cone (10), control the quantity of coffee powder (32), by the powder automatic doser of coffee powder, that's going to be used in the preparation of the coffee through the powder intensity selector (8), because as it's moved from left to the right diminishes the opening of coffee powder (32) falling from of the hole (3)

22. Auto-cleaning process in the electric coffee maker with reservoir and coffee powder automatic doser with powder intensity selector, according to claim 16,

comprised by the fact that moving the powder intensity selector (8) all to the left, leaving it in position closed, withdraw the filter (31) and put water (33) in the water reservoir (21) up to the auto-cleaning water level (24) and turn on the coffee maker to clean the components where the coffee goes through.

5

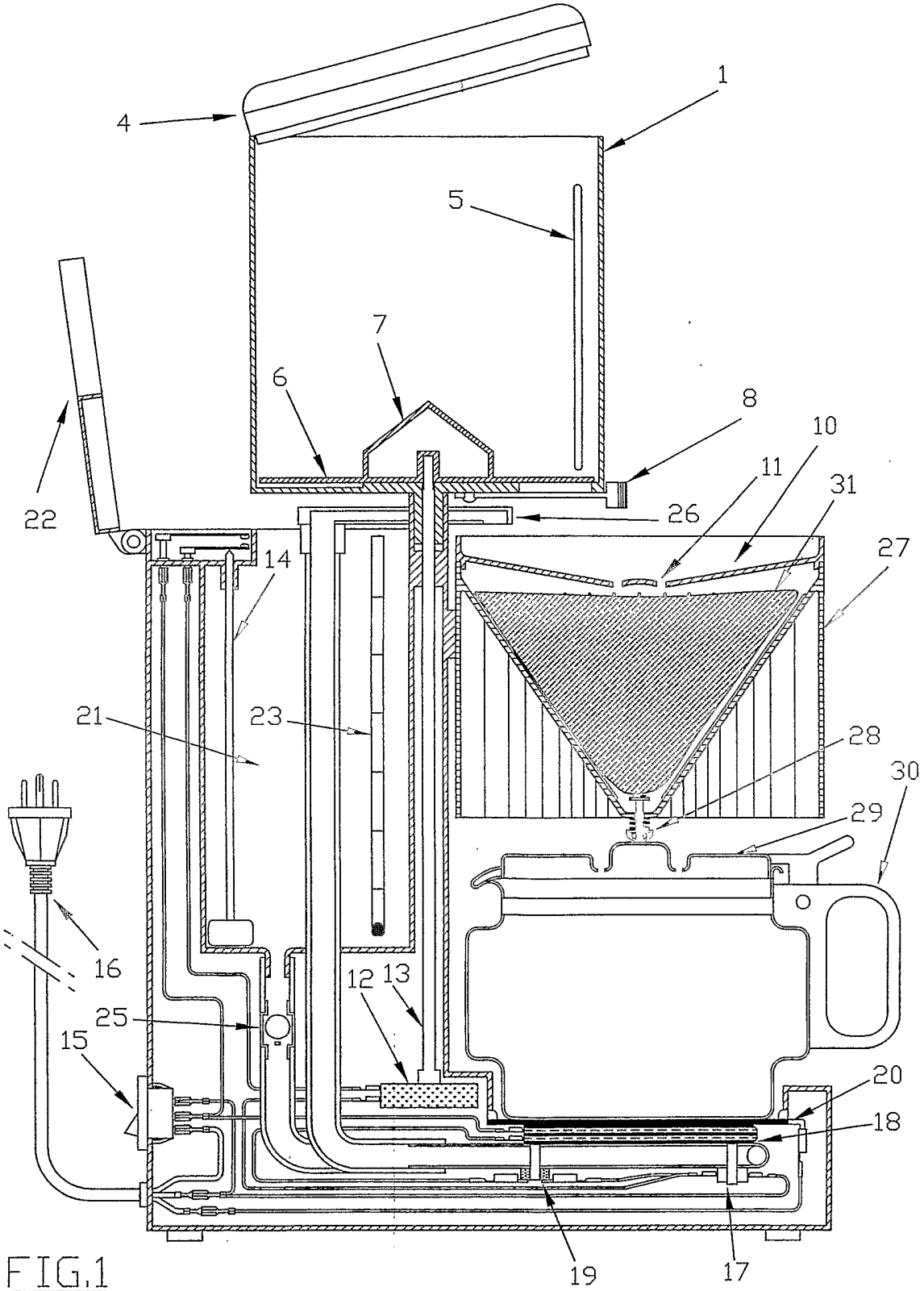


FIG.1

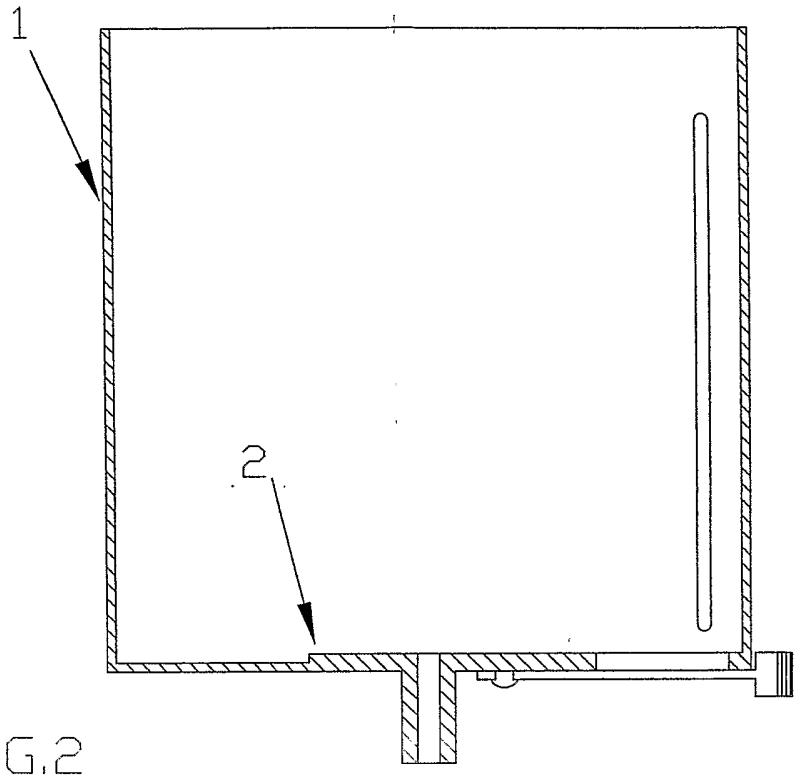


FIG.2

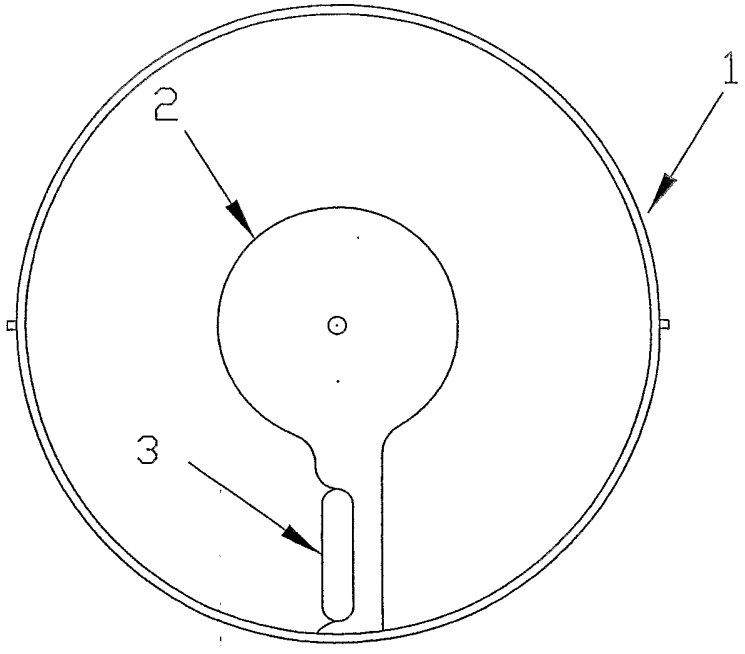


FIG.3

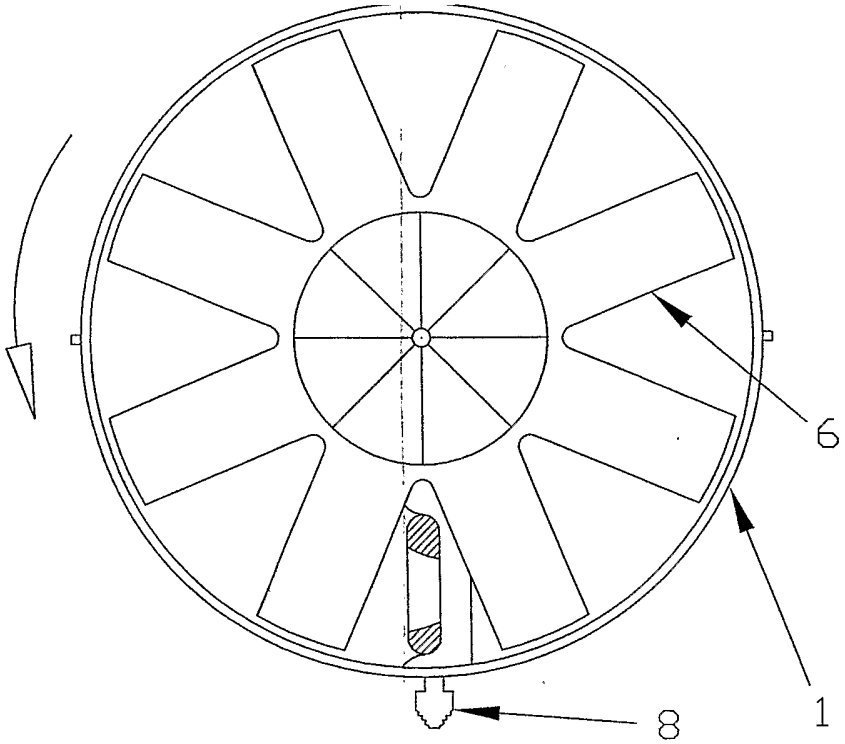


FIG.4

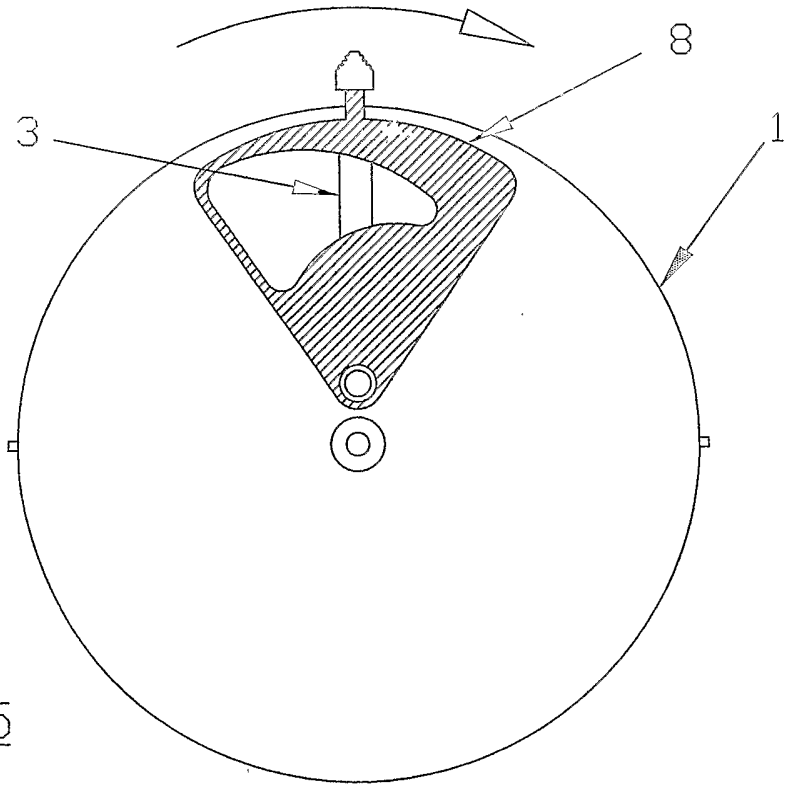


FIG.5

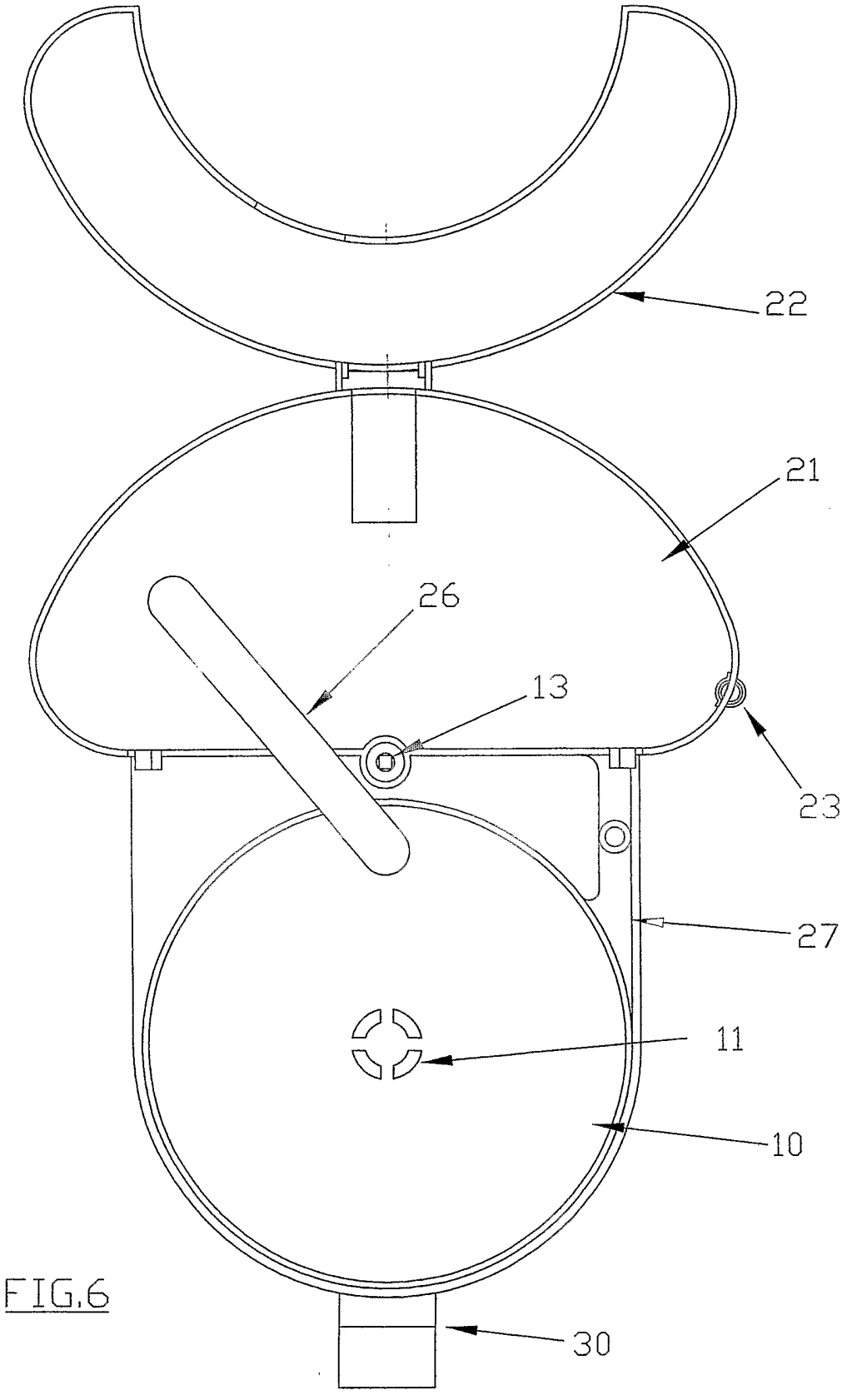
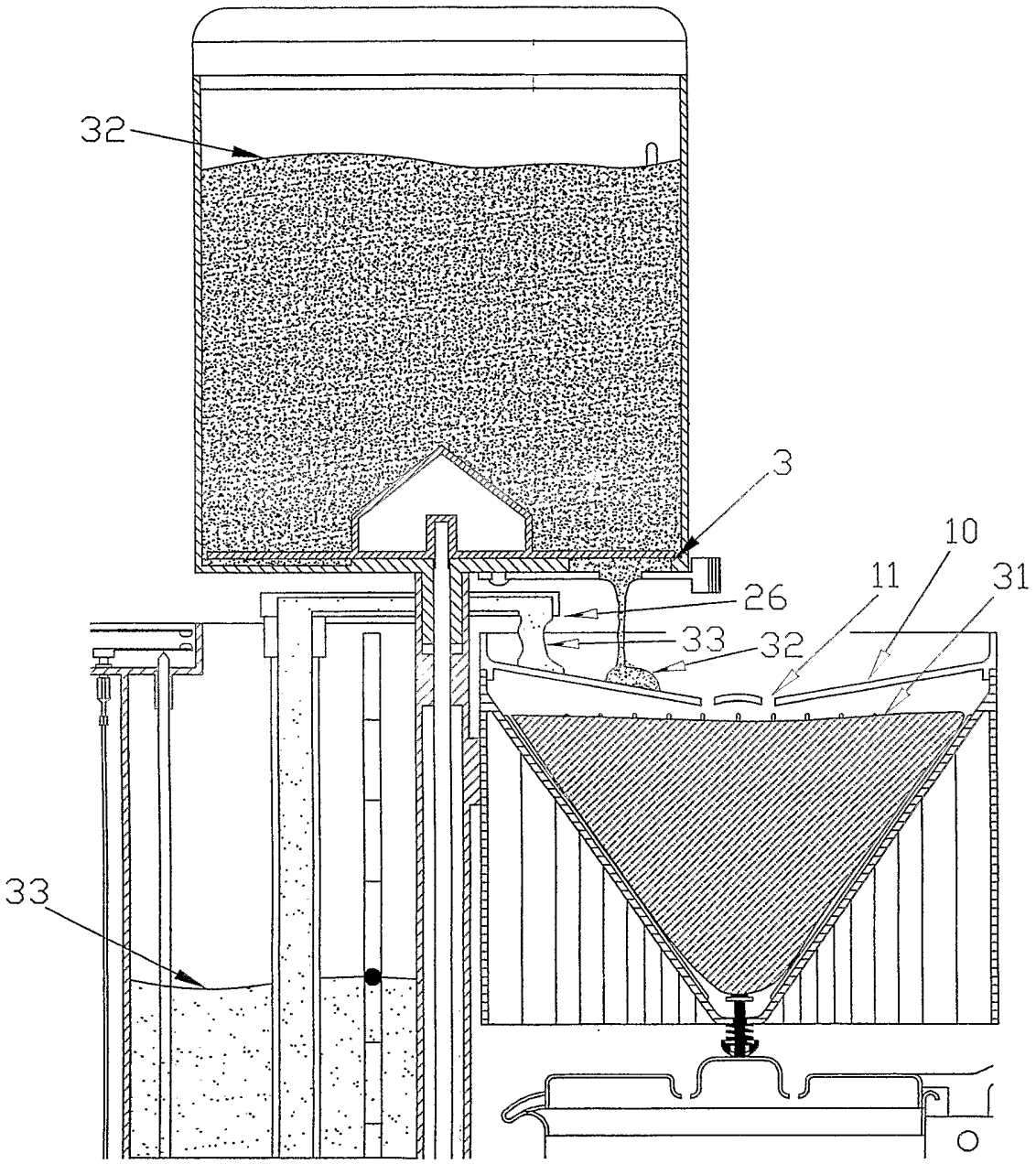
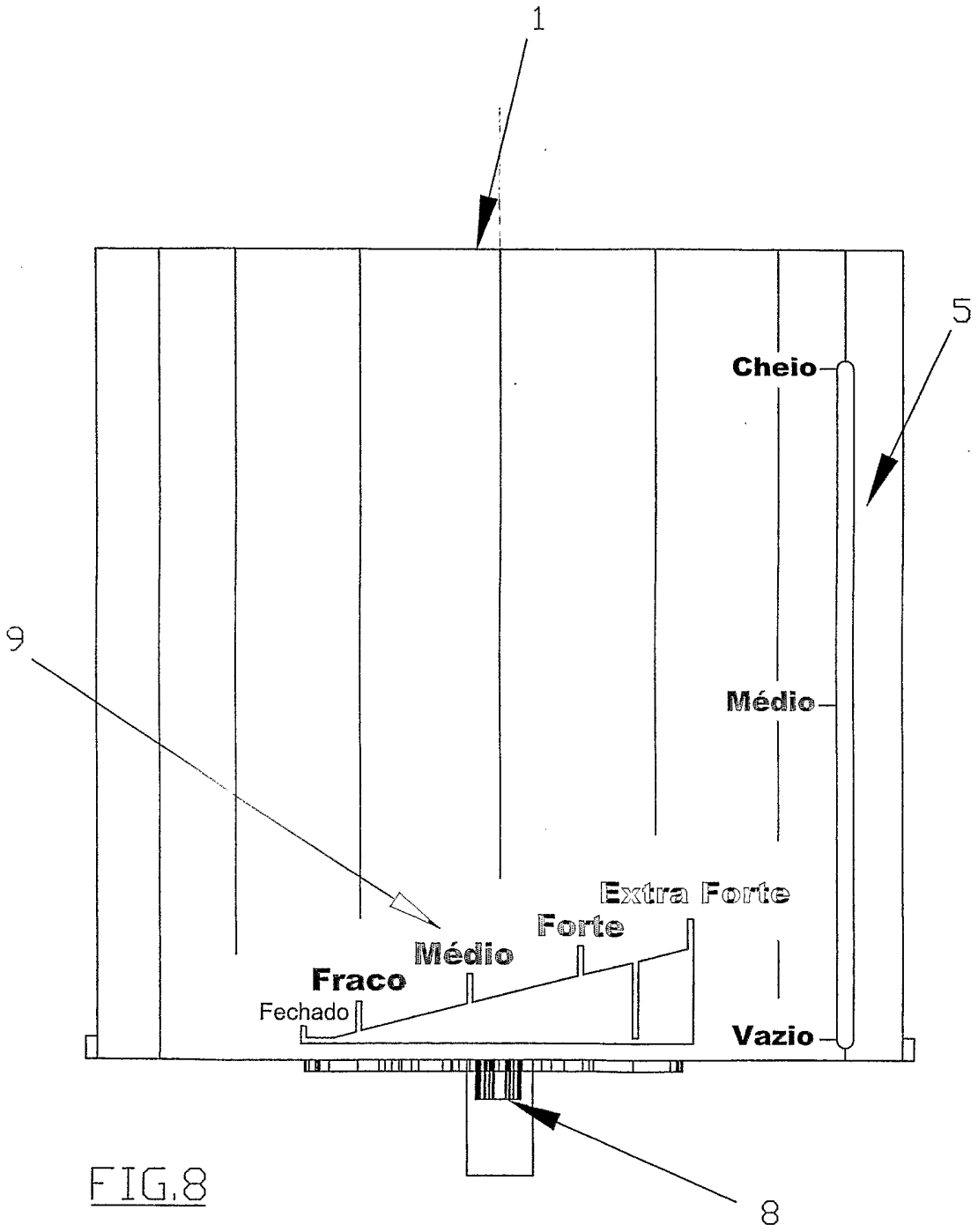


FIG.6

FIG.7

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5
Cheio
Médio
Vazio
9
Extra Forte
Forte
Médio
Fraco
Fechado
8

FIG.8

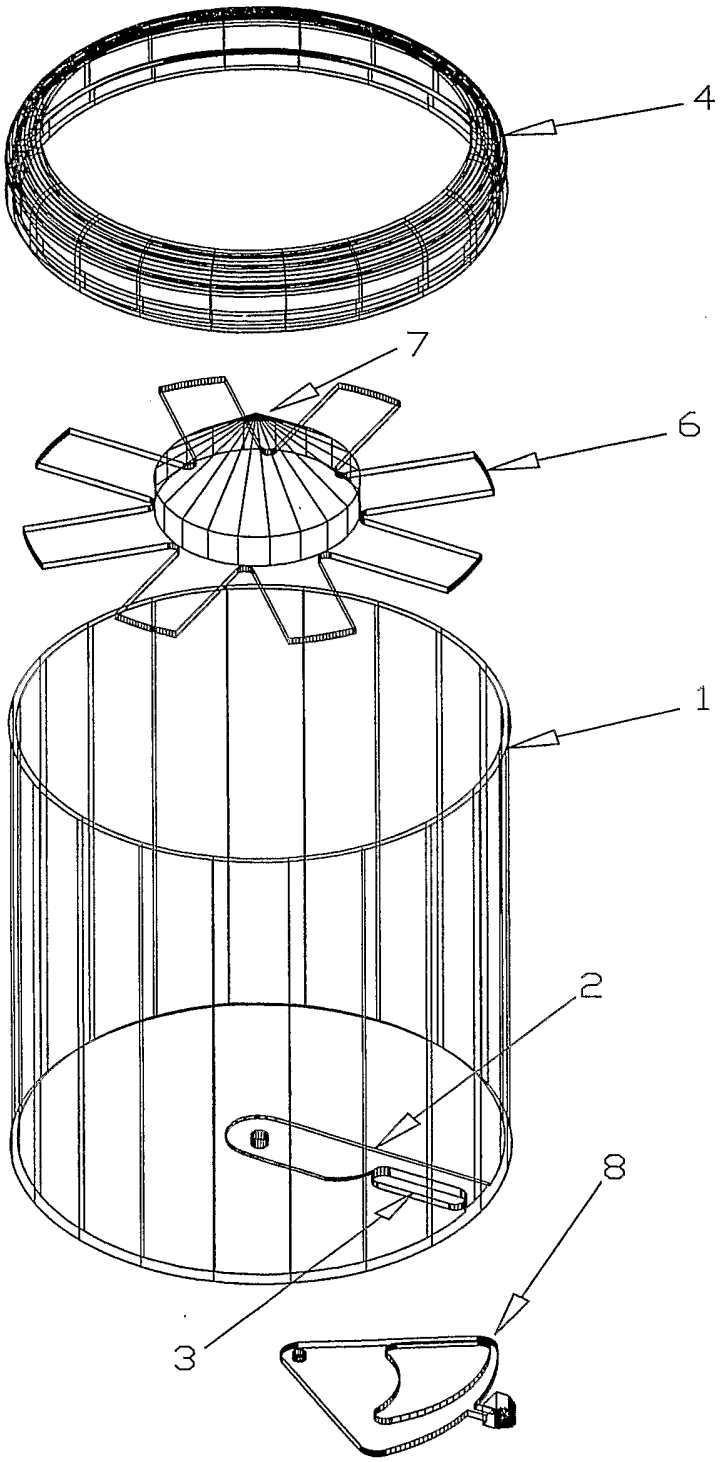


FIG.9

FIG.10

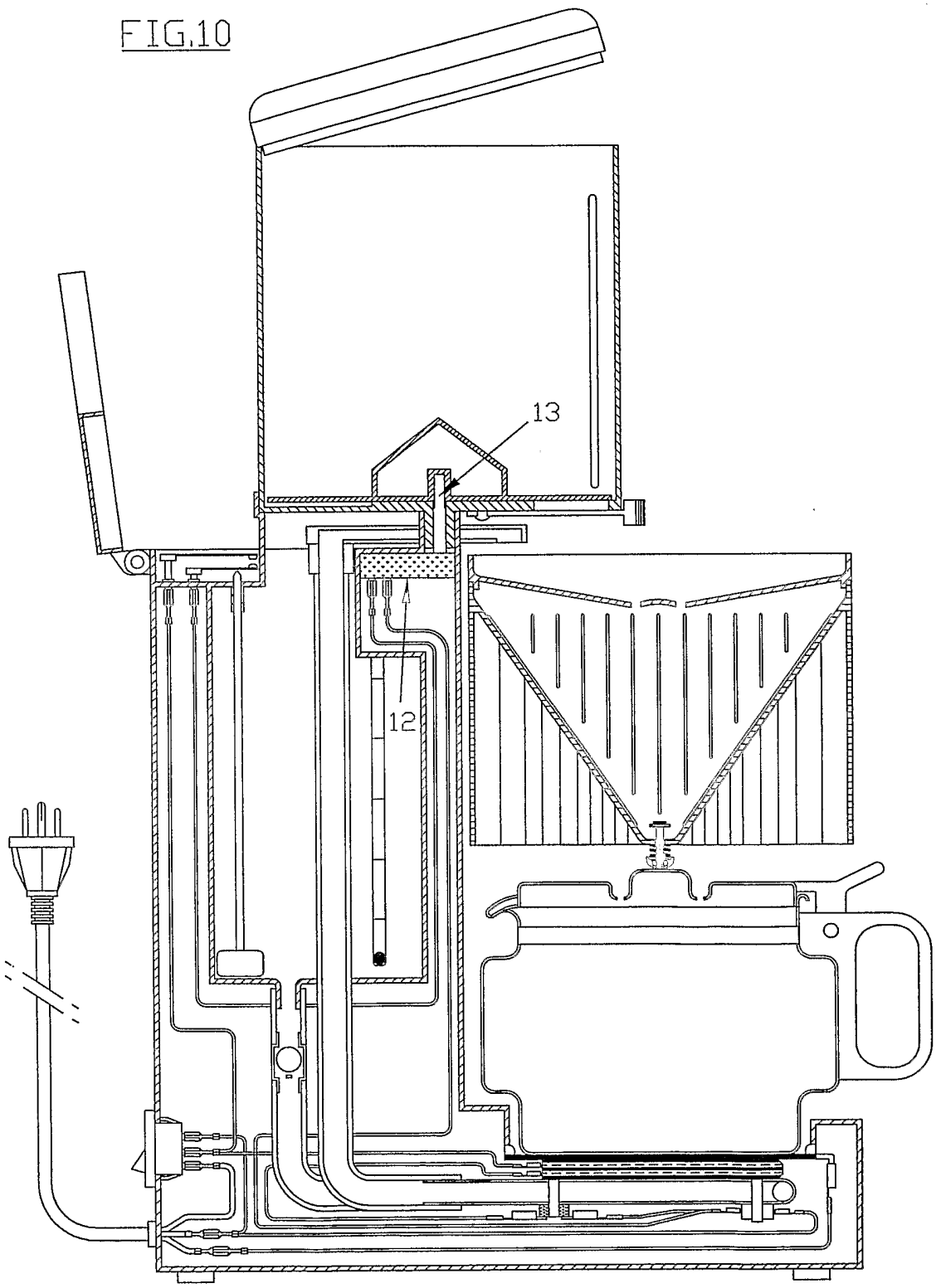


FIG.11

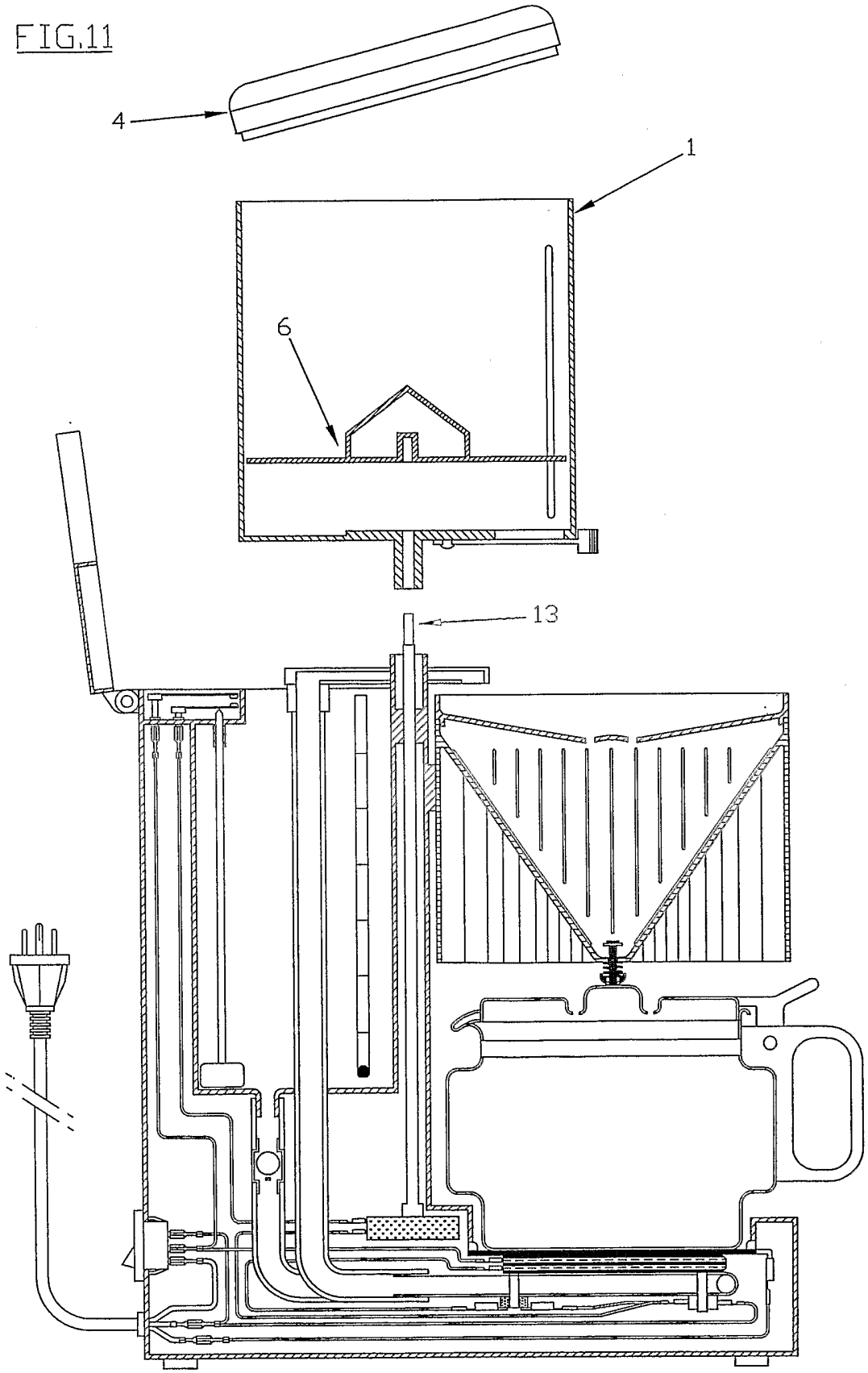
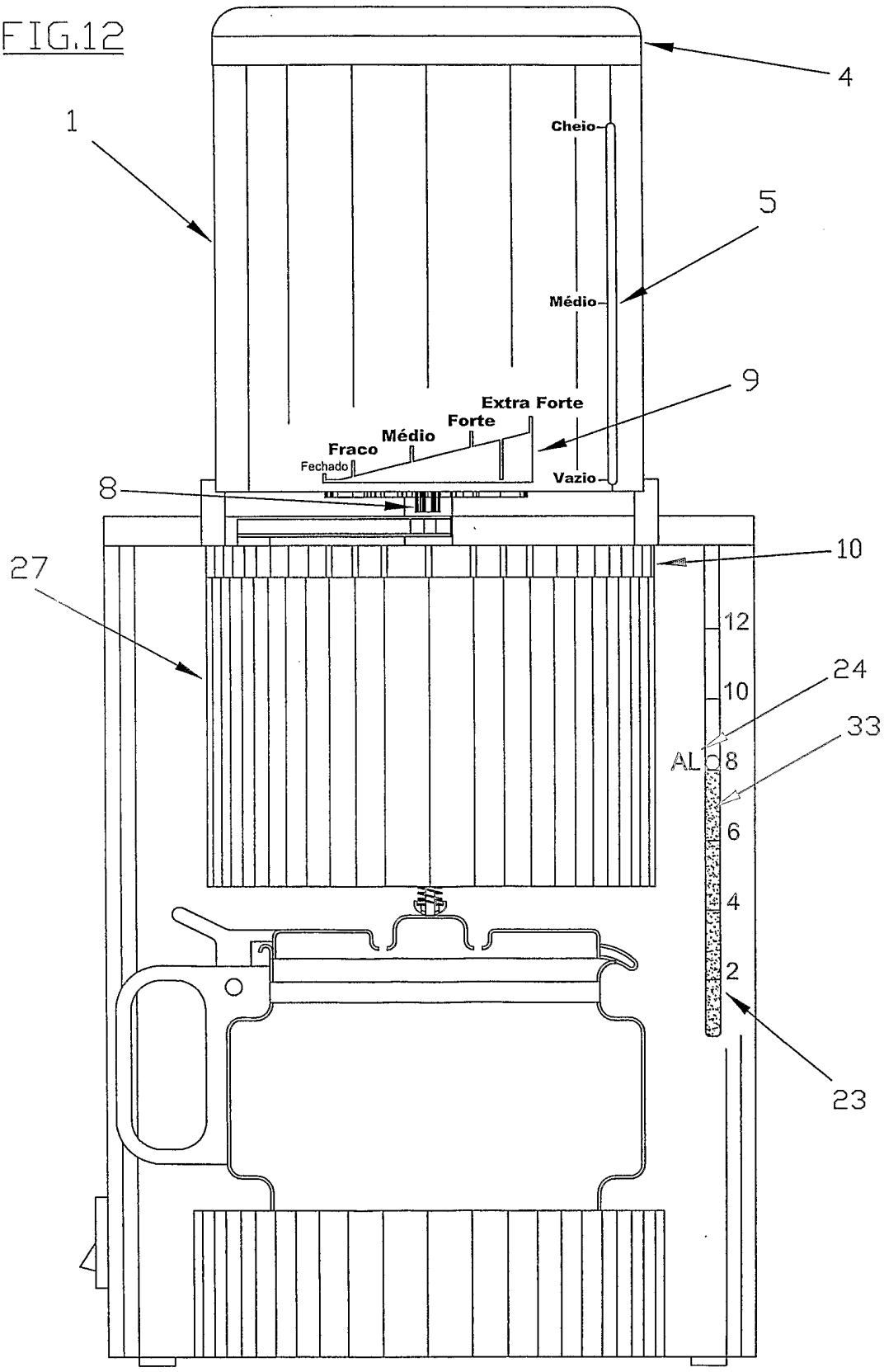


FIG.12


4
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Cheio
5
Médio
9
Extra Forte
Forte
Médio
Fraco
Fechado
Vazio
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27
12
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33
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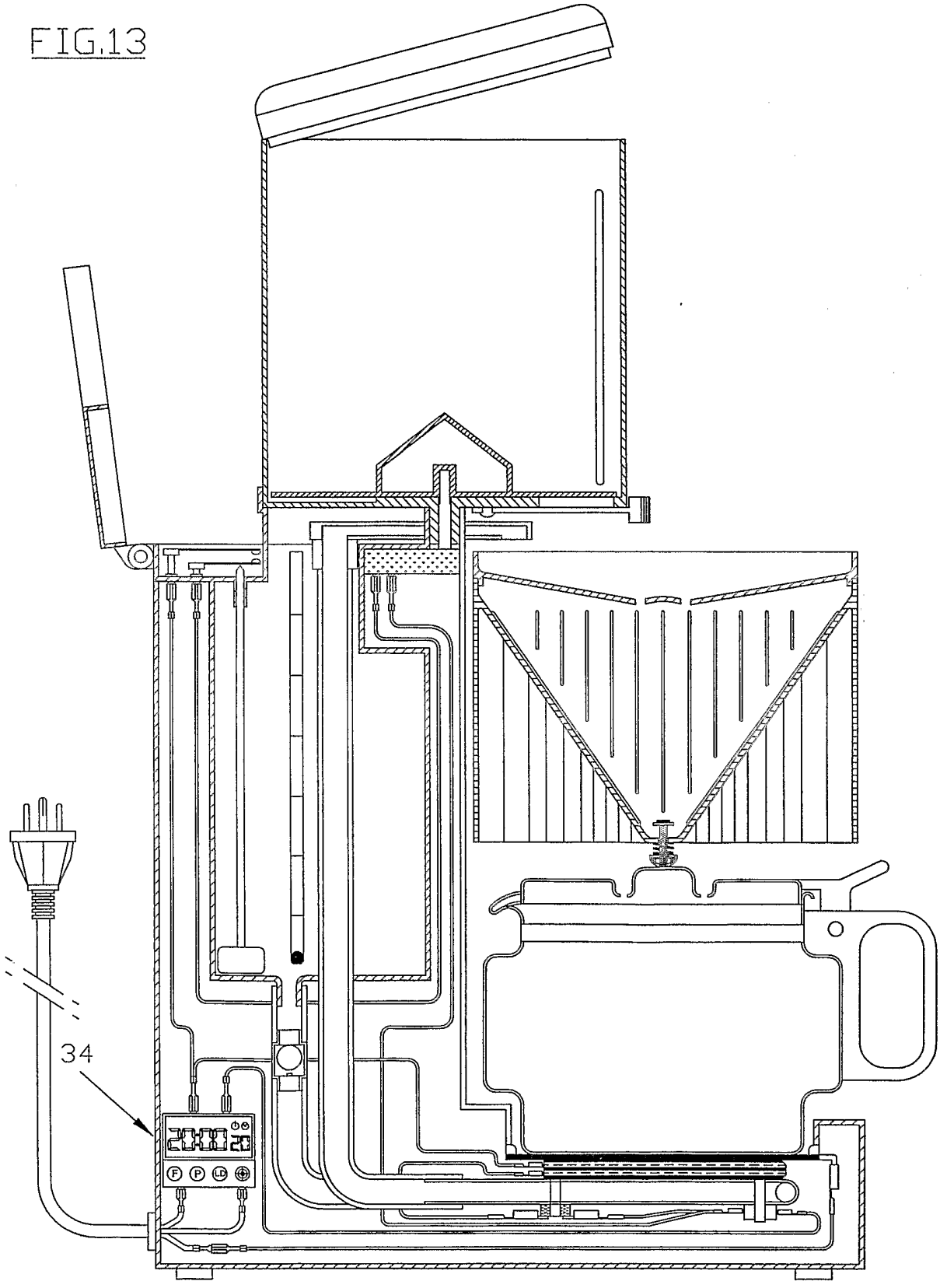
FIG.13



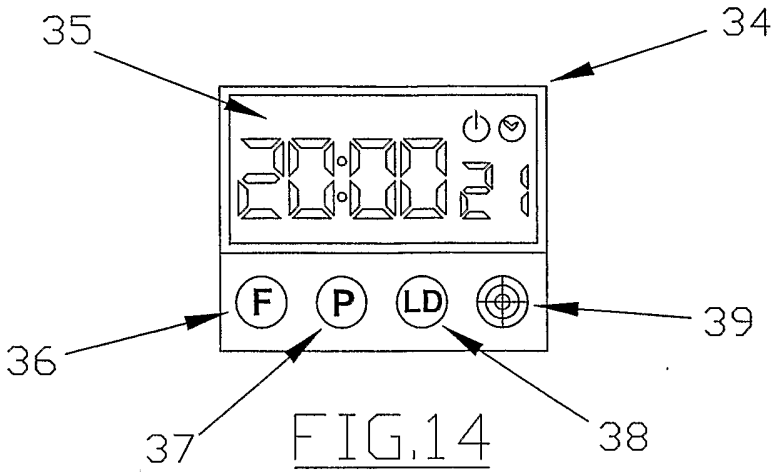


FIG.14

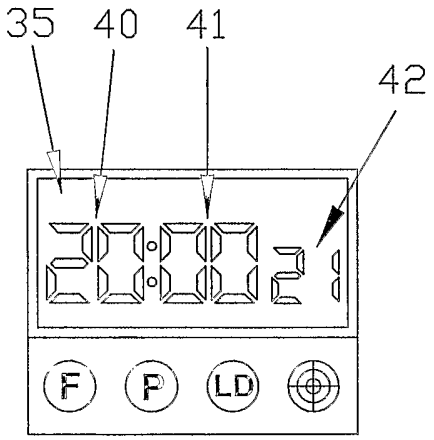


FIG.15

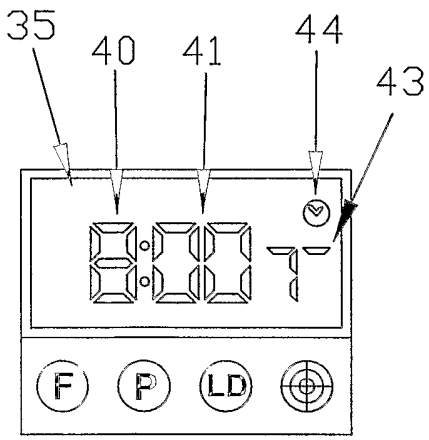


FIG.16

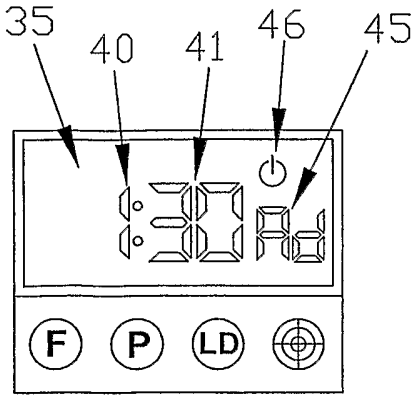


FIG.17

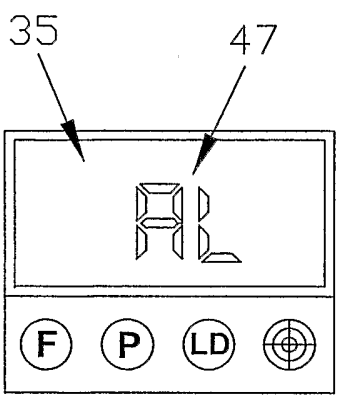


FIG.18

INTERNATIONAL SEARCH REPORT

International application No.
PCT/BR 2004/000104

A. CLASSIFICATION OF SUBJECT MATTER
A47J 31/40, 31/42, 31/52
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A47J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPI, EPODOC, PAJ, DEPATISNET

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 463 932 A (OLSON) 7 November 1995 (07.11.1995) *abstract; claims figure 1;* --	1-22
A	US 5 307 733 A (ENEMOTO) 3 May 1994 (03.05.1994) *abstract; claims* --	1-22
A	JP 07 250 763 A (UENO C), 3 October 1995 (03.10.1995) World patent Index (Online). London. U.K : Derwent Publication Ltd. (retrieved on 2004-09-15) retrieved from: EPO Database., DW 199549, Accession No. 1995-377387 [49] *abstract* --	1-22

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:
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"E" earlier application or patent but published on or after the international filing date
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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 September 2004 (15.09.2004)	22 September 2004 (22.09.2004)
Name and mailing address of the ISA/ AT **Austrian Patent Office** Dresdner Straße 87, A-1200 Vienna Facsimile No. +43 / 1 / 534 24 / 535	Authorized officer SEIRAFI M. Telephone No. +43 / 1 / 534 24 / 224

INTERNATIONAL SEARCH REPORT

International application No.
PCT/BR 2004/000104

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 11 221 158 A (HITACHI HOMETEC LTD), 17 August 1999 (17.08.1999) World patent Index (Online). London. U.K : Derwent Publication Ltd. (retrieved on 2004-09-15) retrieved from: EPO Database., DW 199943, Accession No. 1999-511486 [43] *abstract* --	1-22
A	JP 09 313 356 A (HITACHI HOMETEC LTD), 9 December 1997 (09.12.1997) (abstract) World patent Index (Online). London. U.K : Derwent Publication Ltd. (retrieved on 2004-09-15) retrieved from: EPO Database., DW 199808, Accession No. 1998-080236 [08] *abstract* --	1-22
A	DE 297 18374 U1 (ROWENTA- WERKE GmbH) 2 August 1998 (02.08.1998) *the whole document* ---	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/BR 2004/000104

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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JP A 7250763A 2		none	
JP A 9313356A 2		none	
JP A 11221158 A2		none	
US A 5307733	1994-05-03	JP A 5161552	1993-06-29