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(54) Title: VESSEL FOR HEATING AND FILTERING WATER

(57) Abstract:

VESSEL FOR HEATING AND FILTERING WATER

Jug kettles used to boil water for the making of instant coffee or tea have been around for many years. The jug is filled with tap water, the kettle is connected to the electrical cord or base (which is permanently connected to the mains) and the switch is turned on. When the water starts to boil, steam will trip a bimetallic temperature switch turning off the electrical element at the bottom of the kettle. The water is now ready to be poured.

There are some variants of this design some of which are common to most kettles. The use of a flat electrical heating element at the bottom of the jug is a popular design. This makes cleaning lime scale build-up easier.

In another variant, the element is switched off by the use of a bimetallic strip in contact with the bottom of the kettle and not through the use of vapour.

There is also the variant where the temperature at which the electrical element is switched off is controllable through the use of a tuning knob on the bimetallic strip. This allows the water to be heated to below 100°C which can reduce scalding. Many of these types of devices are familiar to users and will not be described in any more detail.

Conventional kettles have got two main problems.

Firstly, if the kettle is filled to the top, it will take a long time, around 3 or 4 minutes, for the water to boil. Often, the only requirement is however for one or two cups of boiling water.

However if the kettle is only filled a little bit from the bottom (enough for a cup or two), there is a constant requirement to be re-filling the kettle. It is also difficult to judge the required amount of water while filling.

The second problem is the lime scale that precipitates out of hard tap water as the water is heated. This deposits on the kettle requiring either cleaning or in self cleaning kettles the precipitate will wash out in larger white scales that can drop out at the bottom of the kettle with the last water. The lime scale will also produce a scum on the coffee or tea making the drink look unpleasant. The removal of other types of pollutants in the tap water can also be important.

There are on the market water filters and even water filters combined with a kettle have been recently introduced (for example from Brita). These however, working by gravity, take quite a while for the water to filter through and do not provide a method of positively displacing the water required to be heated.

The problems described above can be solved in the present invention a kettle separates the required level of water to be heated from the filling jug and heats only this amount. This radically cuts down both the waiting time and the energy spent on heating the water, while the filling jug can be filled to the top when required.

Secondly, it provides an in-built ion exchange and activated carbon filter that removes both lime scale and other water pollutants providing for a scum free, safe and better tasting coffee, tea or just high quality drinking water for the refrigerator. This can also be used on a water filter alone where no heater is present.

According to a first aspect of the invention there is provided a filtered-water dispenser comprising first and second tanks connected via a filter and a pump operative to transfer the contents of the first tank through the filter to the second tank.

In a first aspect of the invention the appliance is used as a water filter, using the extra speed provided by the pumping system to accelerate the water purification. This applies to all embodiments of the invention as the only difference between the filter and filter kettle is the use of a heating element in the kettle.

An embodiment of the invention uses a controllable valve to measure the amount of water that passes from the first tank to the second. More specifically this could be a constant flow valve working on a timer or a valve working using a chamber of fixed volume and siphon like a toilet cistern, for example. The chamber could contain the volume of a cup or a known fraction of a cup. In such an arrangement the first tank needs to be positioned generally higher than the second tank so that the water will naturally flow by gravity through the valve system.

Another embodiment of the invention uses a piston pump and a set of non-return valves providing both pumping and a measurement system for the transfer of water from the first tank to the second. Here the valves could be spring loaded to prevent leaks from the first tank to the second. Both the first tank and the pump do not need to be in the main vessel of the appliance but can be separated from it and connected through a pipe. This could make the jug lighter for the user. There is no need now for the first tank to be positioned higher than the second. The collection point on the first tank should still be at its lowest point to be able to collect all the water there to the pump.

The piston pump is preferably operated by a hand plunger. On the preferred embodiment the pump is connected through a filter which the water goes through before reaching the second chamber. Such hand pump uses a system of non-return valves which preferably are spring loaded to prevent leaks. In an alternative arrangement the valves could be of the flexible membrane type. Since this type is not spring loaded it requires another system to prevent any water leaks. Such leaks from the first tank to the second will not occur if for example a siphon system is used such that the water needs to rise to a point above the highest point in the first tank before being channelled to the second.

In the case of a hand pump, mechanical leveraging means can be applied to increase the force on the piston in order to overcome the pressure drop in the system mainly in the filter.

The hand pump could also be of the rotary vane type where one rotation represents a fixed volume passed through the pump.

On a preferred embodiment of the invention the piston pump and valve system are located at the bottom of the first tank and generally above the second tank. The piston working in a cylinder corresponding to the volume of a cup of coffee or a known fraction of a cup and the valves being of the flexible membrane type are surrounded by the filter which is of an annular type. This allows a good packaging arrangement as well as a large cross-section for the filter working at the larger diameters.

On such preferred embodiment the filling system into the first tank and pouring from a spout connected to the second tank in the filter or kettle appliance is performed through a system of ball valve on the water admission into the first tank and a flap valve on the pouring from the spout. Such arrangement allows filling and pouring from the same spout without the need to manually actuate any device by the user.

On such a system the first admission valve is of the membrane type and is formed by using a plurality of holes in the piston at a radius greater than that of a support hub but less than the internal diameter of the cylinder. Such holes allow the water through when the piston is moved inside the first water tank on an upstream direction, causing a deflection of the flexible membrane which is supported at the hub on the downstream side of such piston.

The end of the pump cylinder further downstream is closed and is perforated with a plurality of holes at a similar diameter to those of the piston. It too has a flexible membrane on its underside that can cover these holes when the water moves in one direction. Thus when the piston is moved in the downstream direction the first admission valve is now closed but the second valve at the end of the cylinder allows the water through into the filter chamber.

After the filter chamber and before the second tank a siphon system as described earlier should be used to prevent any leaks through the flexible valves since these are not spring loaded.

The filter must retain the filtering material while allowing the water to pass through and come into contact with such material. For this to happen the filtering material must be contained inside a mechanical filter barrier or it will be washed away with the water into the second tank. This can be done either by using two filter barriers one at the entry point into the filter and one at the exit point, or by containing the filter material inside a porous bad which constitutes the barrier itself.

If the filter cartridge is made to open and close by the user the filtering material can be removed and replaced with new one. This can be done in bulk from a container having the filter material or in the case of the bag system, the old bag can be removed and a new one moved into its place inside the filter.

In the case of an annular filter that may be placed around the pump assembly as described, the filter bag would also possess an annular, doughnut shape that would fit inside the filter housing.

Embodiments of the invention will now be described, by way of example only with reference to the accompanying drawings in which:

Fig 1 describes a known jug kettle with a separate water tank and a flat heating element.

Fig 1a describes a jug kettle having a separated water reservoir 4 and a controllable valve 3 which allows a measured amount of water to fall from the water tank 4 to the bottom of the kettle to be heated.

Fig 2 is a jug kettle, according to the invention, with a separate water tank with an in-built water pump.

Fig 3a describes a jug kettle according to the invention, where the water tank is separate from the jug, but the pump is still on the kettle unit. Fig 3b is a similar arrangement with a separate tank but where the water pump is placed together with the separate water tank.

Fig 4 describes a jug kettle, according to the invention, with a separate tank and a water filter combination.

Figure 5 describes a more powerful type of hand pump for a jug kettle system according to the invention.

Figure 6 describes the more powerful hand pump associated with the water tank according with the invention. Both the mains power and water feeding to the base disconnect from the jug upon pouring.

Figure 7 describes a kettle, according to the invention, with a separate tank and a water filter using another type of manually operated pump (a rotary hand pump).

Figure 8 describes a stand alone water filter appliance, according to the invention, with an associated pump to speed the water filtration.

Figure 9a to 9e shows a filter kettle, according to the invention, using a piston as a hand pump and measurement system as well as other advanced features.

Figure 9a shows the kettle during the filling from the spout.

Figure 9b shows the up-stroke of the pump.

Figure 9c shows the down stroke of the pump.

Figure 9d shows the heating stage.

Figure 9e shows the pouring from the spout.

Figure 10 shows a filter bag being placed inside a filter housing of a kettle, according to the invention.

Figure 1 shows a known jug kettle 1 which can be removed from its base station 11 and possesses a flat heating element at the bottom 2. The jug also has at the top a separate water reservoir 4 and a gravity fed water filter 12, allowing water filtration into the bottom of the jug before heating takes place. Pouring will happen as normal from the spout which is in communication with the bottom of the kettle. The cold water tank, 4, is fed through an opening in the top lid.

Figure 1a describes a jug kettle having a separated water reservoir 4 and a controllable valve 3 which allows a measured amount of water to fall from the water tank 4 to the bottom of the kettle to be heated. This allows the user to completely fill tank 4 without

having to heat all this water next time the kettle is used. The amount of water to be heated is only the quantity required and is measured and released by valve 3.

Figure 2 shows a kettle according to the invention which uses a small piston type pump and in which components which are similar to components of the known kettle of figure 1 are given the same reference numerals. In the presence of two one way valves 3a and 3b water is scooped from the bottom of the water tank 4 on the up movement of the piston 6 and discharged into the bottom section of the kettle when the piston moves down. The displacement volume of the piston provides an easy measure of the water to be heated. This displacement volume could be the typical volume of a mug or cup. Force is provided by the user via the handle 7 connected through the piston through rod 8.

Figure 3 describes a similar kettle to Figure 2 but where the water tank 9 is a separate unit from the kettle. It is connected to the base station 11, through a special connector 10 to the inlet of the pump. When pouring, the jug can be lifted from the base station and thus separated not only from the electrical supply but also from the water line for convenience.

Figure 3b is a similar arrangement to figure 3 but the water pump 23 is located in the separate water tank.

Figure 4 describes a similar kettle where the outlet of the water pump is connected to a water purification filter 12. Here a typical mixture of ion exchange resins and activated carbon which is a well known type of water filter, removes the minerals that cause the water to be "hard" as well as metal pollutants and other chemicals that produce an aroma or can be harmful to health.

Filter 12 can be a self contained filter incorporating a typical plastic cartridge shown in figure 4 or it can be a vessel with two filters, one at the entrance to the filter vessel after the pump and the other at the exit point of the filter vessel, entrapping the bulk filtration material but allowing the water through, figure 4b.

Here the resin mixture is poured into the vessel and a cap is then screwed on. The resin is thus supplied in bulk and replaced by the user once it is exhausted. Figure 4 also shows the output of the filter system. Here tube 15 is raised inside the kettle up to a spout 16 which drops the water above the normal kettle spout 24. This allows the user to check that the water is reaching the bottom of the kettle so that it can be heated. It also allows the user to collect this purified water to a separate container, for example, as drinking water to place in a refrigerator.

Figure 5 provides a hand pump where the rod 8 is connected through a link 19 to arm 22. Arm 22 is pivoting on point 18 supported by part 17 on the cover of the water vessel 24. This arrangement amplifies the force exerted at the end of handle 22 along well known principles, making the pumping action easier or faster.

In figure 6 the separate water tank 4 is associated with its own hand pump and filter which pump and filter work in a substantially similar way to those described above.

A different variant of the kettle described in figure 7 uses a rotary pump connected to a handle or operated by an electric motor.

In a different embodiment of this invention, figure 8, the water tank 4, the pump 23 and the jug constitutes a stand alone water purification system. There is no heating element 2 as this is not a kettle. The water just rests at the bottom of the unit 27 until it is poured away into a glass or for example storage in the refrigerator. The advantage of such a system is the greater speed provided by the pump in purifying the water in relation to well known water filter jug systems.

Figures 9a to 9e show a more advanced embodiment of the invention. Here water contained in holding tank 4 is admitted into the pump through valve 3b. Valve 3b is a simple rubber membrane or equivalent acting in the bottom surface of the piston surface. The piston contains holes to allow the water through when the membrane is pushed away. It is thus open on the upward movement of the piston. Similarly a second valve, 3a, again formed by a plate with holes and a rubber membrane underneath, which forms the bottom of the cylinder pump, opens on the down ward movement of the piston.

Valves 3a and 3b are not spring loaded. They thus leak easily. To prevent leakage as the water passes through the filtration chamber containing the ion exchange resins 12 it is directed up siphon system 28. The water will go up and down this channel and down into the flat bottom of the kettle. When left alone the water will reach the same level in the siphon channel as on the water tank 4. Any leakage through the valves is thus contained. The same principle can be used on a forced water filtration system independent of the kettle.

Figure 9 also shows a special spout containing two valves 30 and 31. Here spout 24 leads to holding tank 4 through a ball valve 33 arrangement similar to a snorkel. The bottom of the spout 34 is in communication with the main tank 1 of the kettle. Spout 24 has two non return valves inside and in close contact to it.

In this embodiment valve 30 is a light flap valve pivoting around axis 32. Valve 31 is formed by a stainless steel ball or other dense sphere, contained in a housing 37. When the kettle is substantially in the horizontal position the ball rests at the end of the housing opposite valve seat 38. When the kettle is tilted forward for pouring, the ball is in contact with seat 38 blocking the flow of water from tank 4 to the spout.

If the kettle's spout is placed under running water for example from a tap 35, flap valve 30 remains close while valve 33 is open. As a consequence the water fills holding tank 4, figure 10a. The kettle is then operated in the way described before.

After the water has boiled and the kettle is tilted for pouring, ball 33 closes tank 4's exit to the spout, while flap valve 30 opens under the weight of the water allowing normal pouring from the kettle's bottom, figure 9e. Such an arrangement does not need a special filling point for holding tank 4 as it can be filled and poured in a normal way.

It is understood that valves 30 and 31 could be made in different ways and consist of different types in order to perform the function described above, which is just a particular embodiment of the invention.

In figures 9a to 9e the action of the piston pump could be replaced with an electric pump and an electronic volume flow measurement system. That way, when the user wants to heat up a known number of cups of water, the control system incorporating a volume flow sensor, a simple timer, a revolutions counter on a fixed displacement pump or similar device, will activated the pump so as to transfer the correct amount of water through the filter system and into the heating chamber.

The filter 12 described in the previous figures can be designed to be a complete cartridge that is thrown away when spent, or it can be a chamber that can be opened and refilled with fresh filtration material when the old one is spent.

When just replacing the filtration material on a reusable filter, at least two ways of operating can be devised. The "resin" can be replaced either in bulk, as described earlier, or contained in bags formed of a filter like cloth containing the required amount of material, figure 10.

In the case of a bag reusable filter, upon opening the filter chamber, the old filter bag would be replaced by a fresh one containing new material. The filter like "cloth" bag would contain the filter material inside while at the same time allowing the water to pass through to be filtered. In the form of a porous bag the substitution of the filtration material is cheaper than that of a plastic cartridge and more environmentally friendly. It is also a lot easier than replacing filtering material in bulk.

In the case of a filter chamber as the one described before the filter bag replacement would have the shape of an annular bag containing the resins, figure 10. This bag fits snugly inside the filtration chamber.

CLAIMS

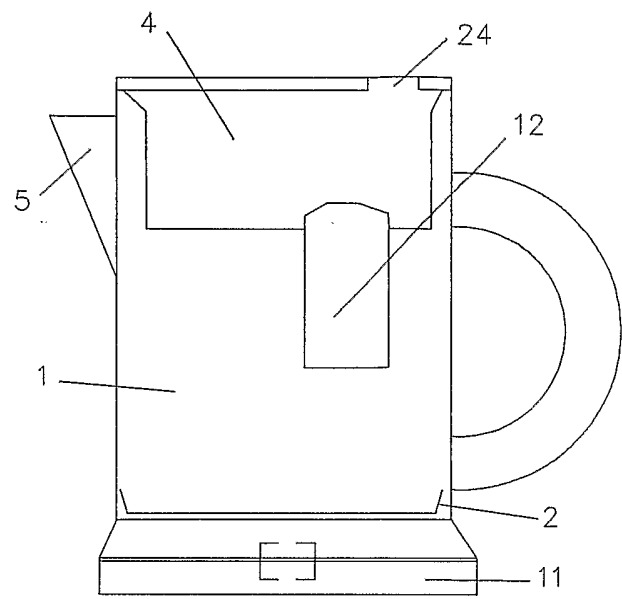
1. A filtered-water dispenser comprising first and second tanks connected via a filter and a pump operative to transfer the contents of the first tank through the filter to the second tank.
2. An appliance according to claim 1 where the second tank is associated with an electric heating element that can be switched on to boil the water in said tank constituting a filter kettle.
3. An appliance according to any of the preceding claims where the pump displaces a determined and known amount of water for each pump displacement cycle such that said amount of water is a multiple of the volume of one cup of coffee or tea.
4. An appliance according to any of the preceding claims where the pump is a manually operated pump.
5. An appliance according to claim 4 where the manually operated pump is formed by a piston working in a cylinder, the contact between the two being performed by a seal and two valves are used to allow the water to flow in a determined way in and out of the pump.
6. An appliance according to claim 5 where the piston surface has a plurality of holes and a flexible membrane on its downstream side such that the water can flow through the holes and around the flexible membrane on an upstream movement of the piston but not on a downstream movement of the piston because the membrane covers the holes.
7. A cylinder according to claim 5 or 6 where the end of the cylinder is closed but possesses a plurality of holes and a flexible membrane on the downstream side of the cylinder closure such that the water can flow through the holes and around the flexible membrane on a downstream movement of the piston assembly but block the flow on an upstream movement of the piston assembly.
8. An appliance according to claim any of the previous claims where the filter substantially surrounds the cylinder constituting the pump.

9. An appliance according to any preceding claim where the filter comprises a cartridge that can be opened by the user to replace filter material in bulk.
10. An appliance according to any of the previous claims where the filter material is contained in a porous bag and where replacement of said filter material consists of replacing the existing bag with a new one inside the filter chamber which may be opened and closed.
11. An appliance according to any previous claim where a siphon is used in the water path between the two holding tanks, such that no water flow will occur when the pump is not actuated, preventing any leaks.
12. An appliance according to any previous claim where the exit channel or spout of said appliance has a valve system allowing filling from the tap as well as pouring from the second water tank through the same spout without operator intervention.
13. An appliance according to claim 12 where the valve arrangement on the spout is similar to that shown in figure 9.
14. An appliance substantially as described with reference to figure 9.
15. A filter appliance design of any type where the filter cartridge may be opened by the user and have its material replaced in the form of a porous bag containing said filter material where the shape of the bag and the amount of said filter material are appropriate for the size and shape of the cartridge.
16. A kettle or water filter appliance comprising a first water tank and a second water tank in communication, and a spout, which spout allows filling of the first water tank and pouring from the second water tank through the spout without manipulation of any valves or controls by the user.
17. A filtered-water dispenser comprising first and second tanks connected via a filter a metering valve that allows a fixed amount of water to flow from the first tank into the second tank.
18. An appliance according to any preceding claim wherein metering is approximately proportional to pump displacement.

19. An appliance according to claim 3, wherein markings associated with the metering means allows metering of the water in multiples of predetermined volume such as about one cup of water.
20. An appliance according to any preceding claim, wherein the filter comprises a cup like chamber.
21. An appliance according to claim 20, wherein the cup like chamber is arranged in the vessel and has an opening which is towards an upper end of the vessel so as to maximise the distance between the opening of the cup like element and the base of the receptacle.
22. An appliance according to claims 20 or 21, wherein the cup like chamber acts as a housing for the pump or at least part thereof and as a piston.
23. An appliance according to claim 22, wherein an activating plate of the piston locates in an aperture of a side wall of the cup like chamber.
24. An appliance according to claim 23, wherein the said location takes place by movement of the plate in a direction transverse to the direction of plunging motion of the piston.
25. An appliance according to any preceding claim, wherein holes or a hole are provided in a base of the cup like chamber in which the piston locates.
26. An appliance according to claim 25, wherein a flexible membrane or the like is arranged on said holes or hole in base of cup like chamber.
27. An appliance according to claim 26, wherein the flexible membrane is arranged on a lower side of the holes or hole in the cup like chamber base.
28. An appliance according to any preceding claim, wherein the vessel is arranged so that water is moved through the filter to the receptacle on a down stroke of the piston.
29. An appliance according to claim 1, wherein the resin that holds about two to three times as much resin as in conventional filters for kettles.
30. An appliance according to claim 1, wherein the filter comprises ion exchange resin and activated carbon.

31. An appliance according to any preceding claim, wherein the filtering means and the pump are designed so that a cup of water can be passed through the filter into the receptacle or second tank in several seconds or less, and preferably less than a second.
32. An appliance according to any preceding claim, wherein a non-return valve allows water to be moved from a water supply to a point up-stream of the filtering means and in communication with the filtering means by the mass of water.
33. An appliance according to any preceding claim, wherein a non-return valve is arranged between the filtering means and the receptacle.
34. An appliance according to any preceding claim, wherein a water tank housing the filtering means is a separate, but connected, unit to the receptacle.
35. An appliance according to any preceding claim, wherein a water tank housing the filtering means is itself housed within the receptacle.
36. An appliance according to any preceding claim, wherein the filtering means has an output in communication with a spout of the receptacle.
37. An appliance according to any preceding claim wherein a pivoting arm is connected to the piston to minimise the required force to be exerted.
38. An appliance for heating water the vessel comprising a receptacle and a filtering means for filtering water into receptacle, wherein a rotary pump is designed to communicate water through the filter to the receptacle.
39. An appliance for heating water substantially as described herein with reference to any of the embodiments shown in figures 2, 3, 4, 5, 6, 7, 8 and 9a to 9e of the drawings.
40. A water filter appliance according to any preceding claim comprising a housing which surrounds the second tank and where the first tank is located remote from the housing.
41. A water filter appliance according to claim 40 where the first tank is detachable from the housing.

42. A water filter appliance according to claim 40 or 41 where the pump is located within the housing.
43. A water filter appliance according to claim 40 or 41 where the pump is located within the first tank.
44. A water filter appliance according to any preceding claim where the pump comprises a lever and pivot which amplifies the force of the pump.
45. A water filter appliance according to any of claims 2 to 44 when dependent on claim 2 where the water is visible to a user when travelling from the filter to the second tank.
46. A water filter appliance according to any of claims 2 to 44 when dependent on claim 2 wherein the outlet of the filter is exposed such that filtered water can be drawn off into a container before it reaches the second tank.
47. A filter kettle of any type where the filter cartridge may be opened and have its filter material replaced in bulk by the user.



Prior Art

Figure 1

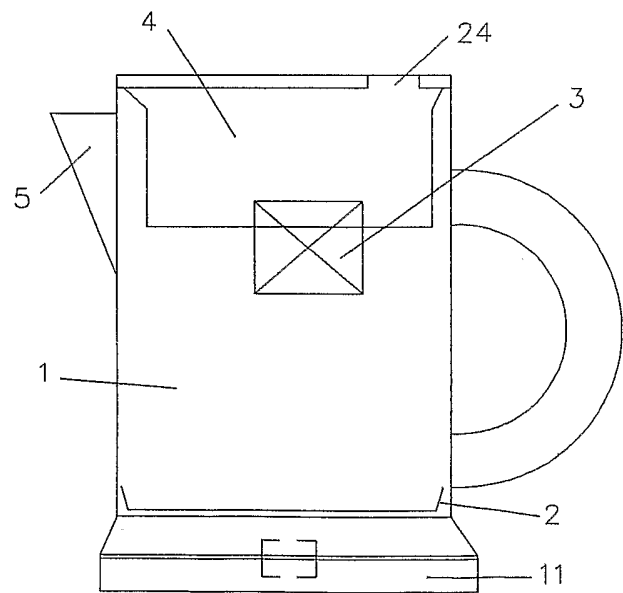


Figure 1a

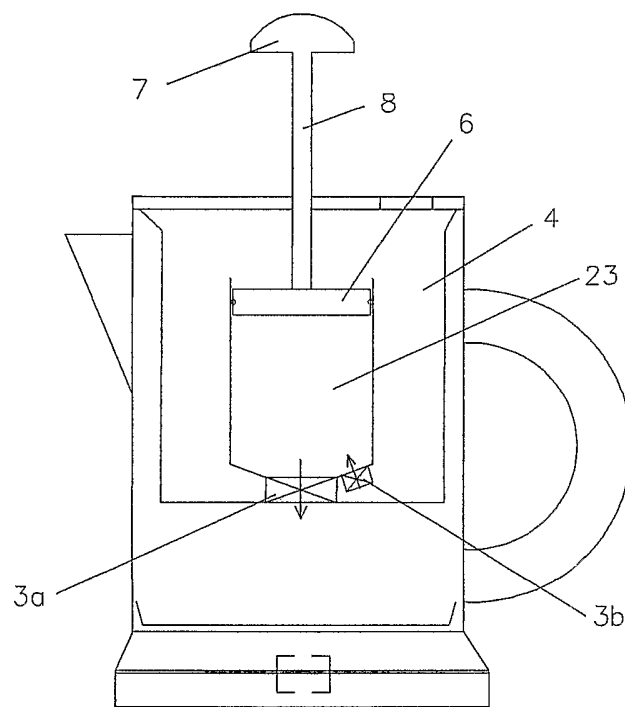


Figure 2

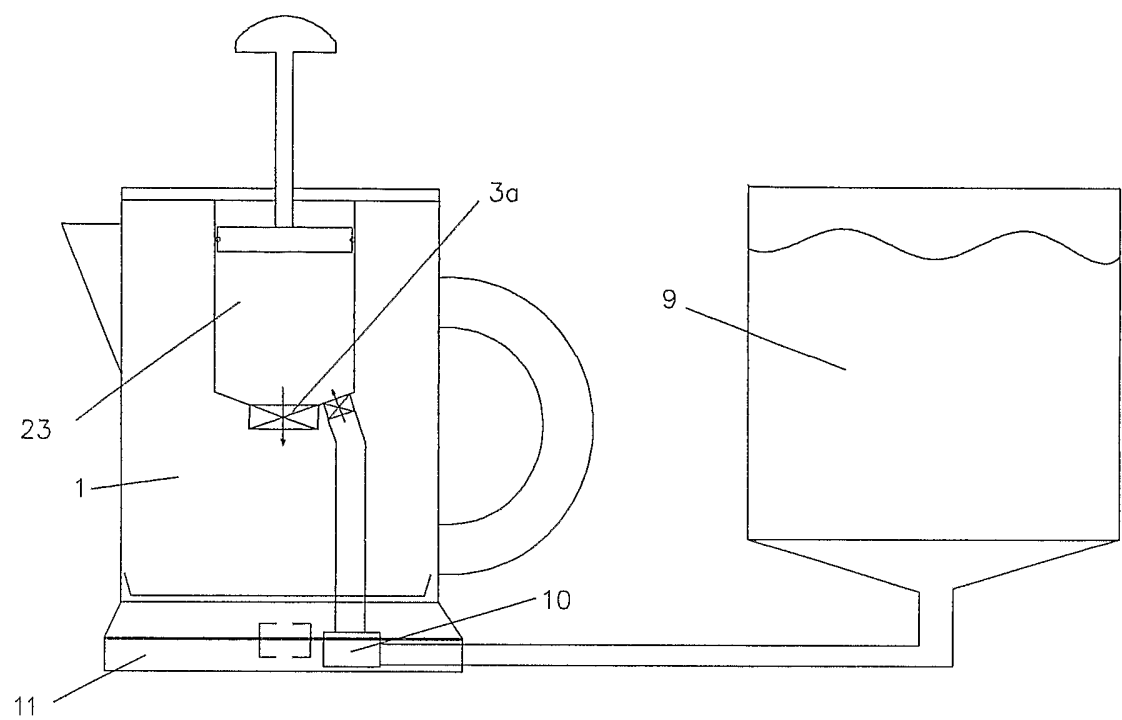


Figure 3

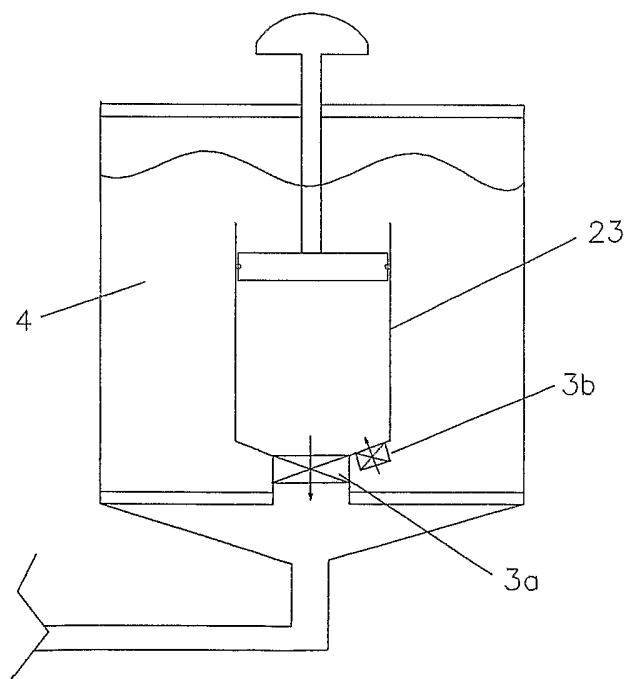


Figure 3b

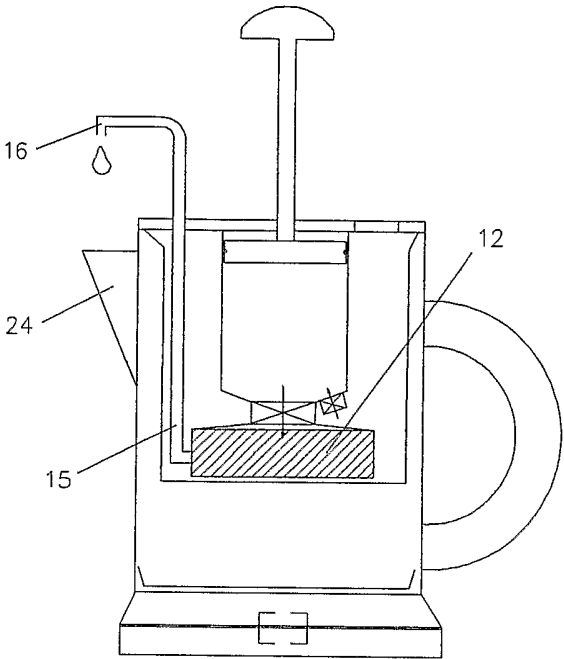


Figure 4

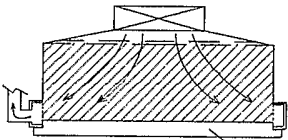


Figure 4b

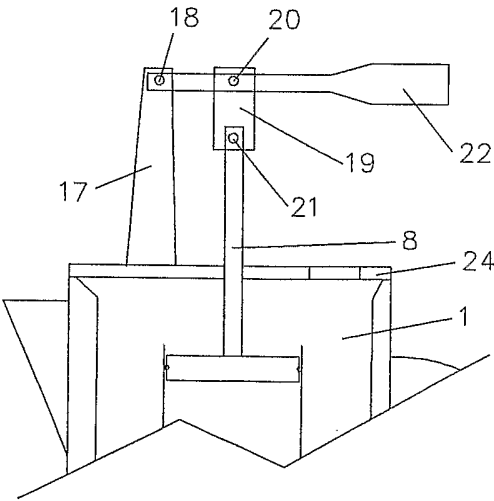


Figure 5

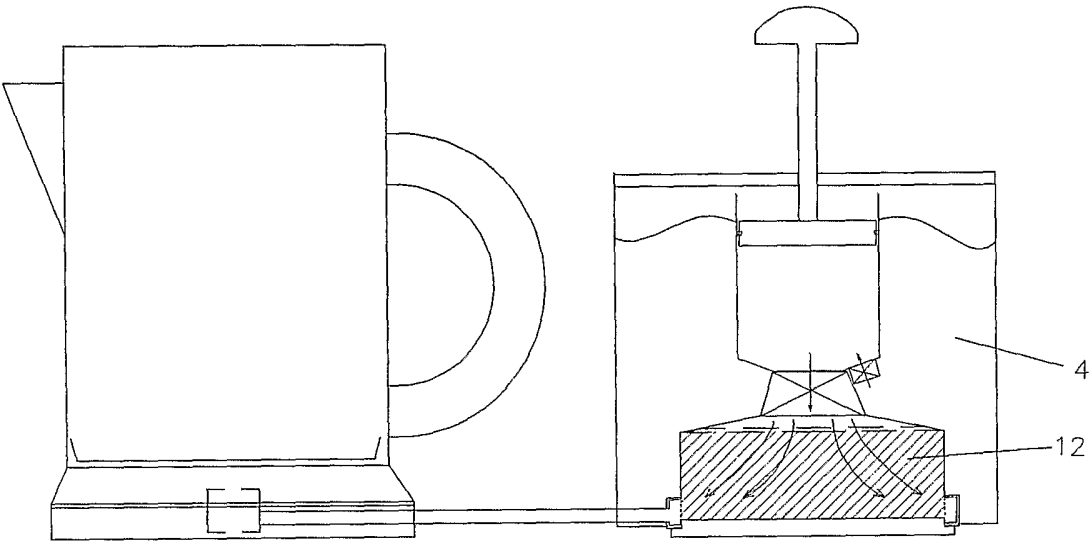


Figure 6

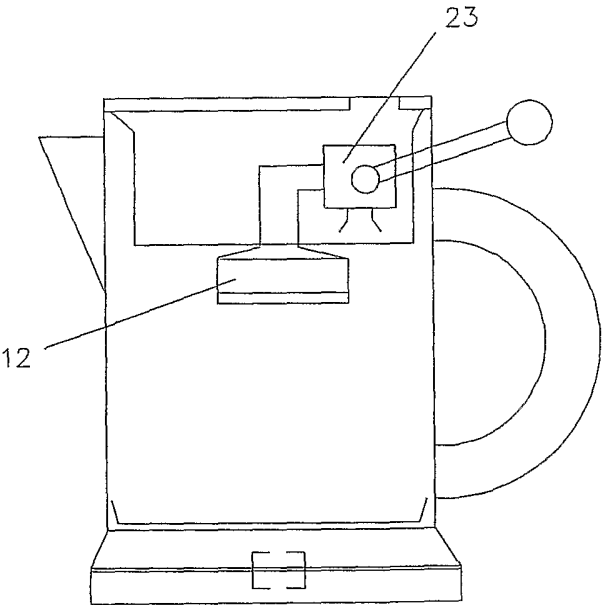


Figure 7

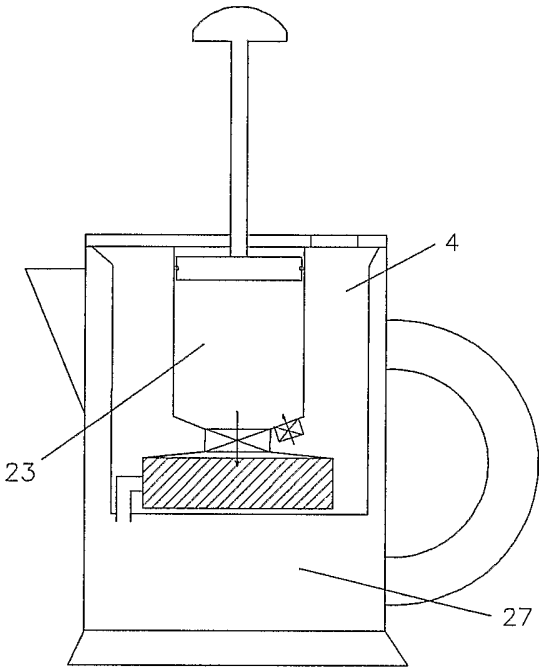


Figure 8

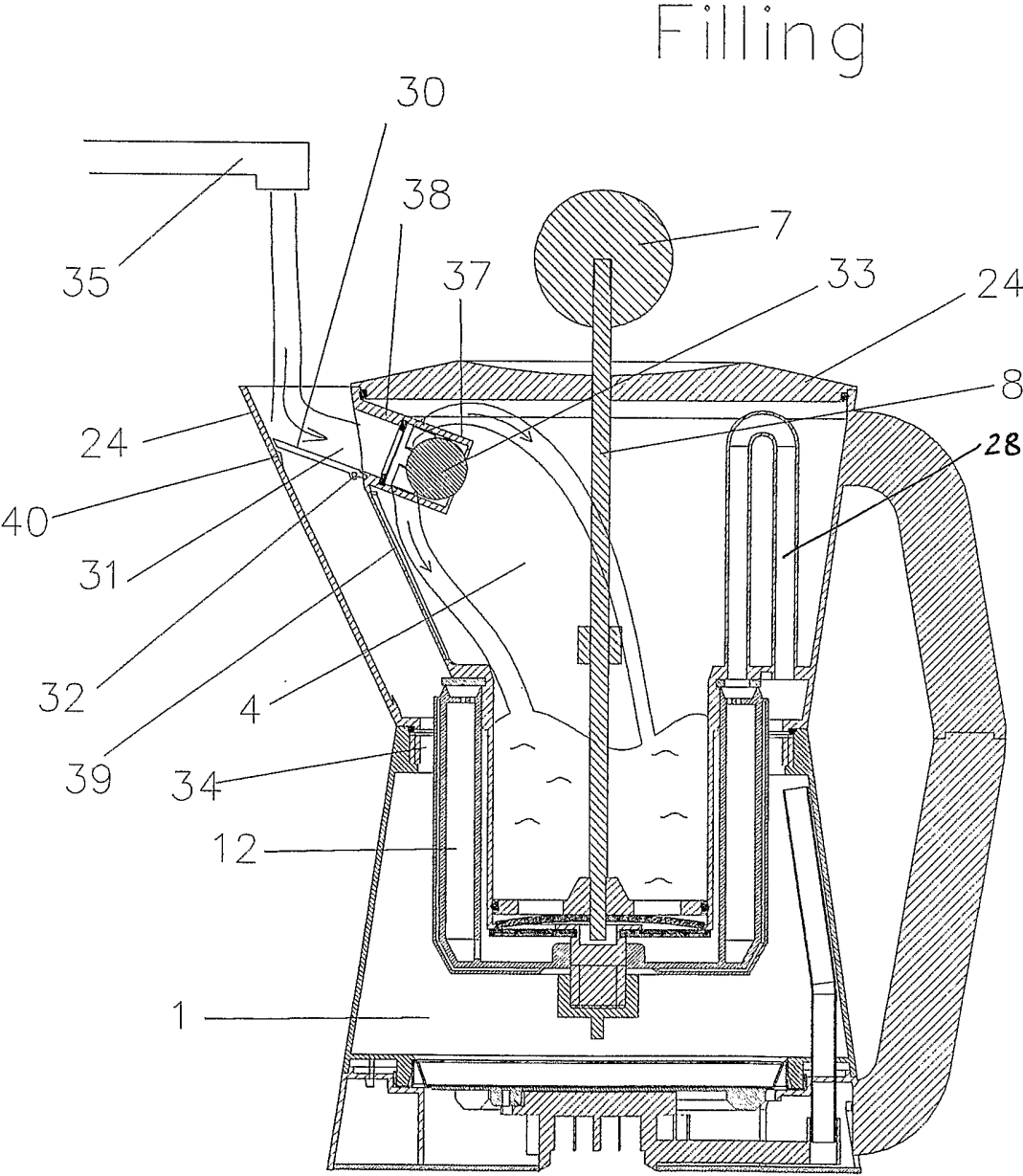


Figure 9a

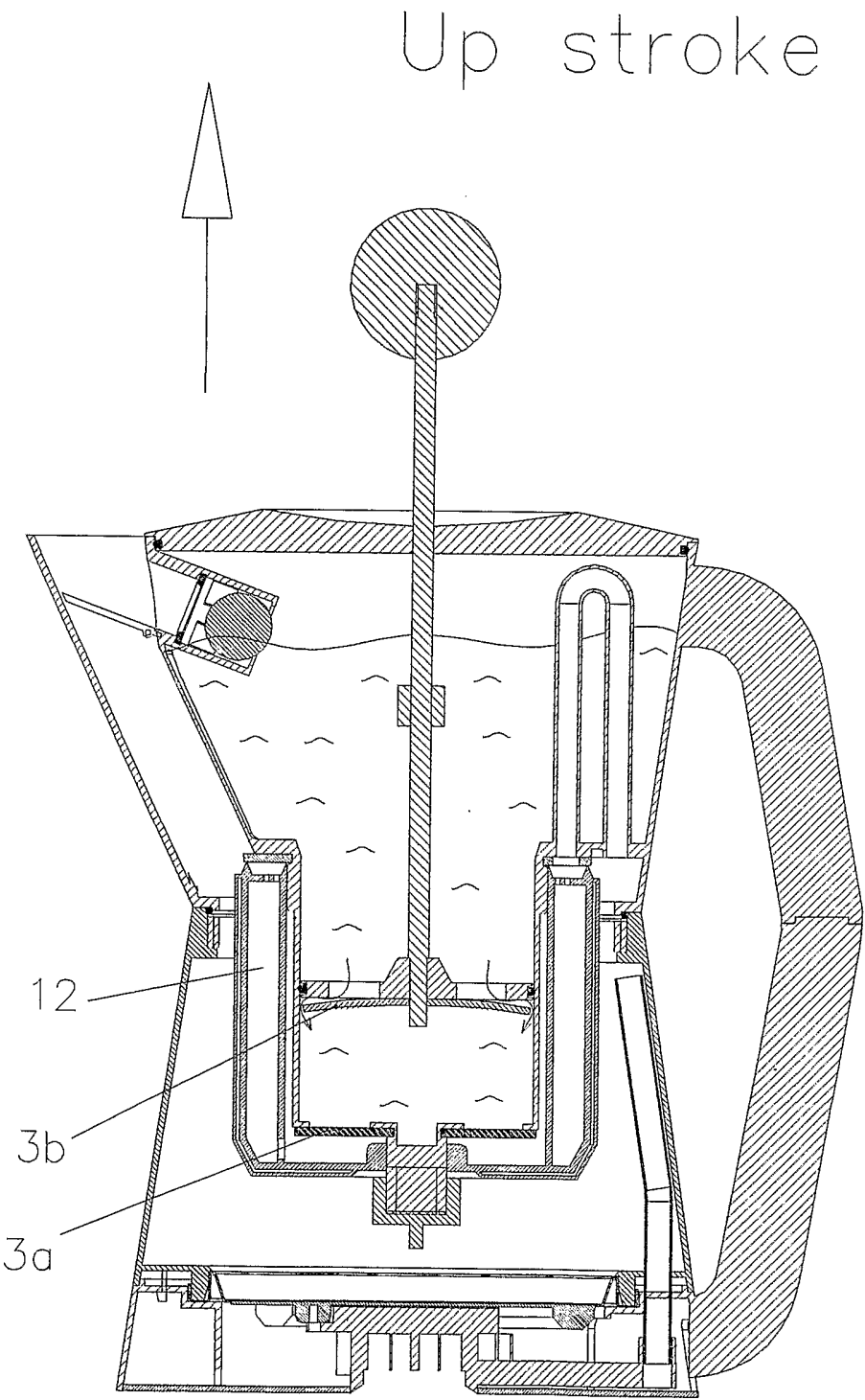


Figure 9b

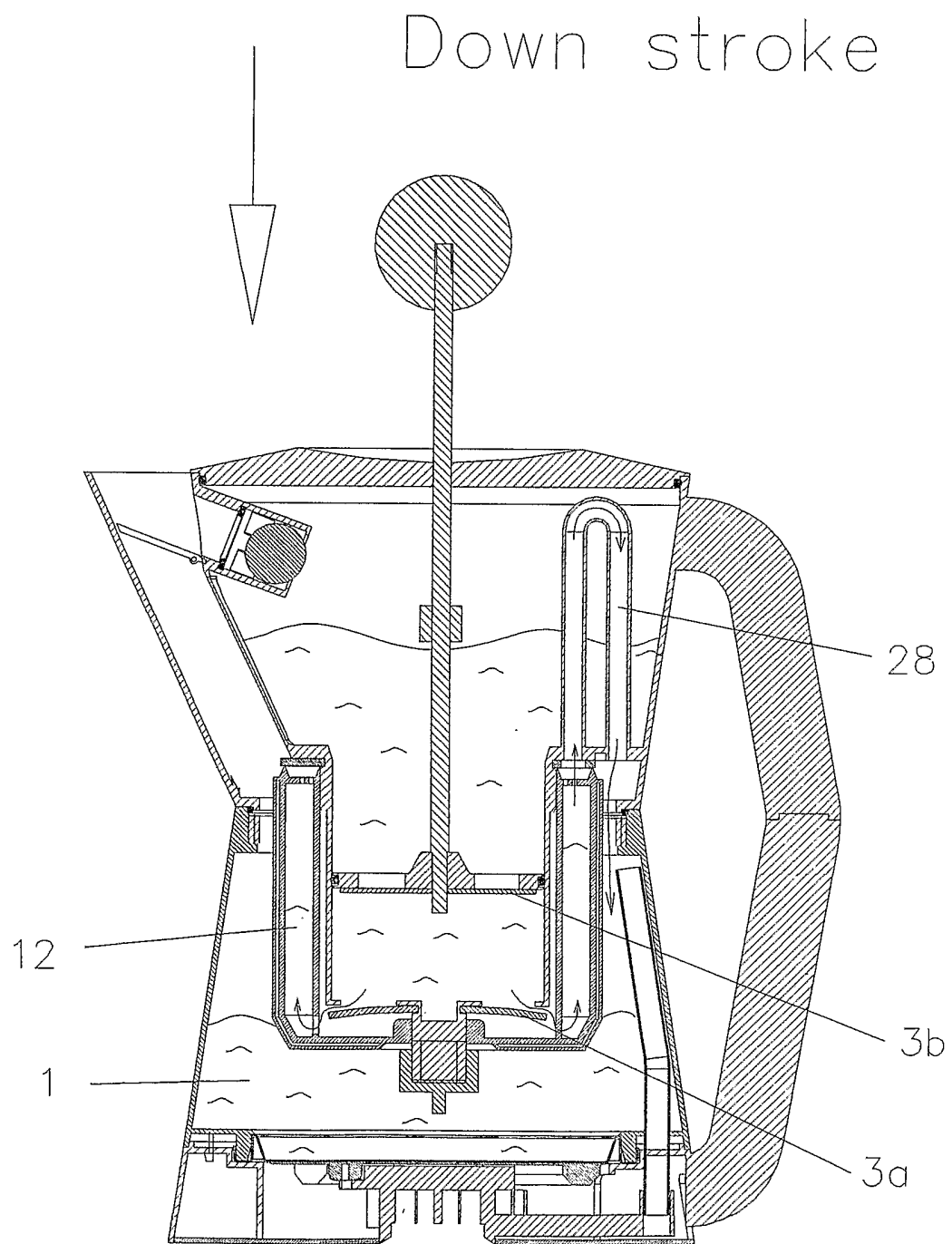


Figure 9c

Boiling

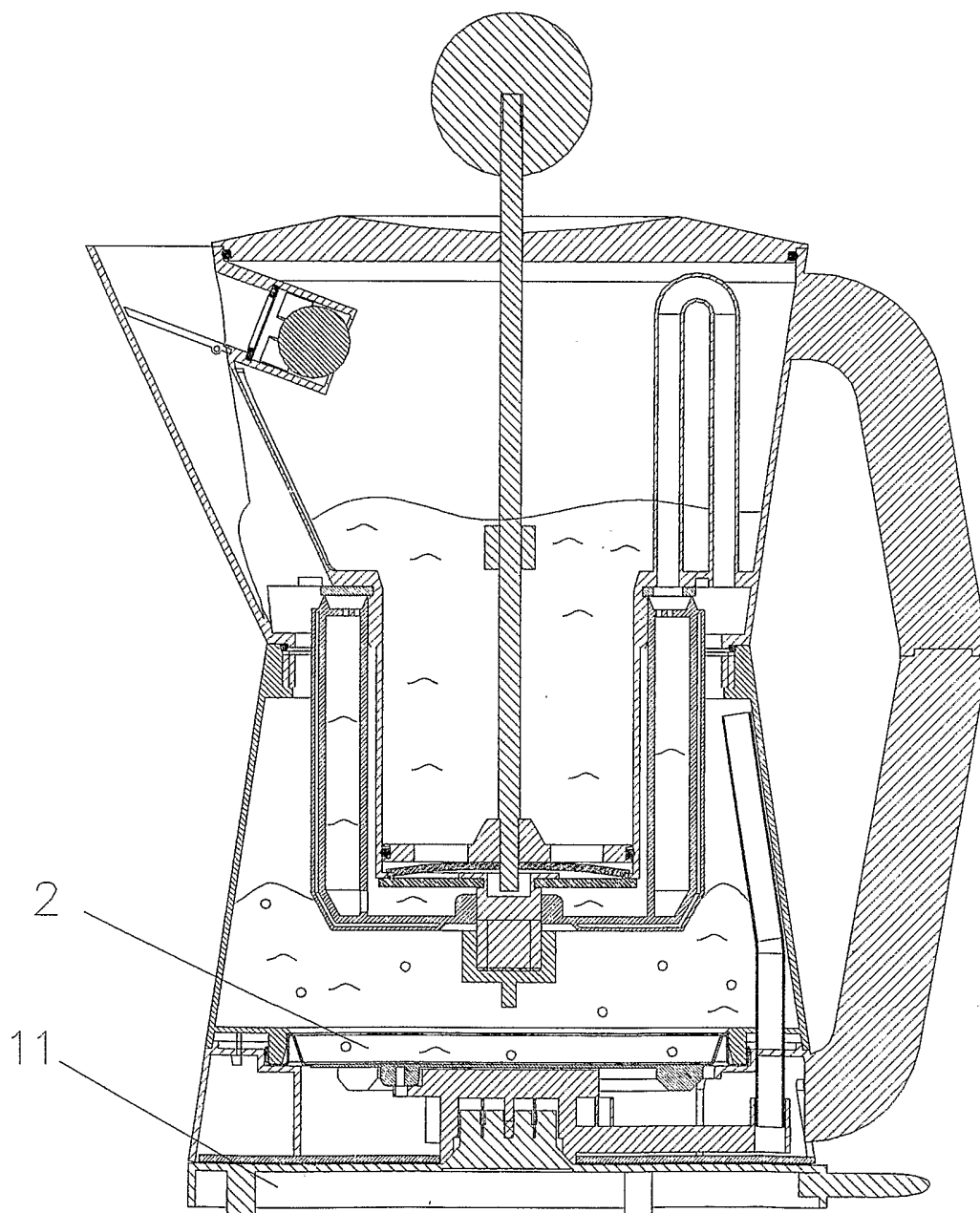
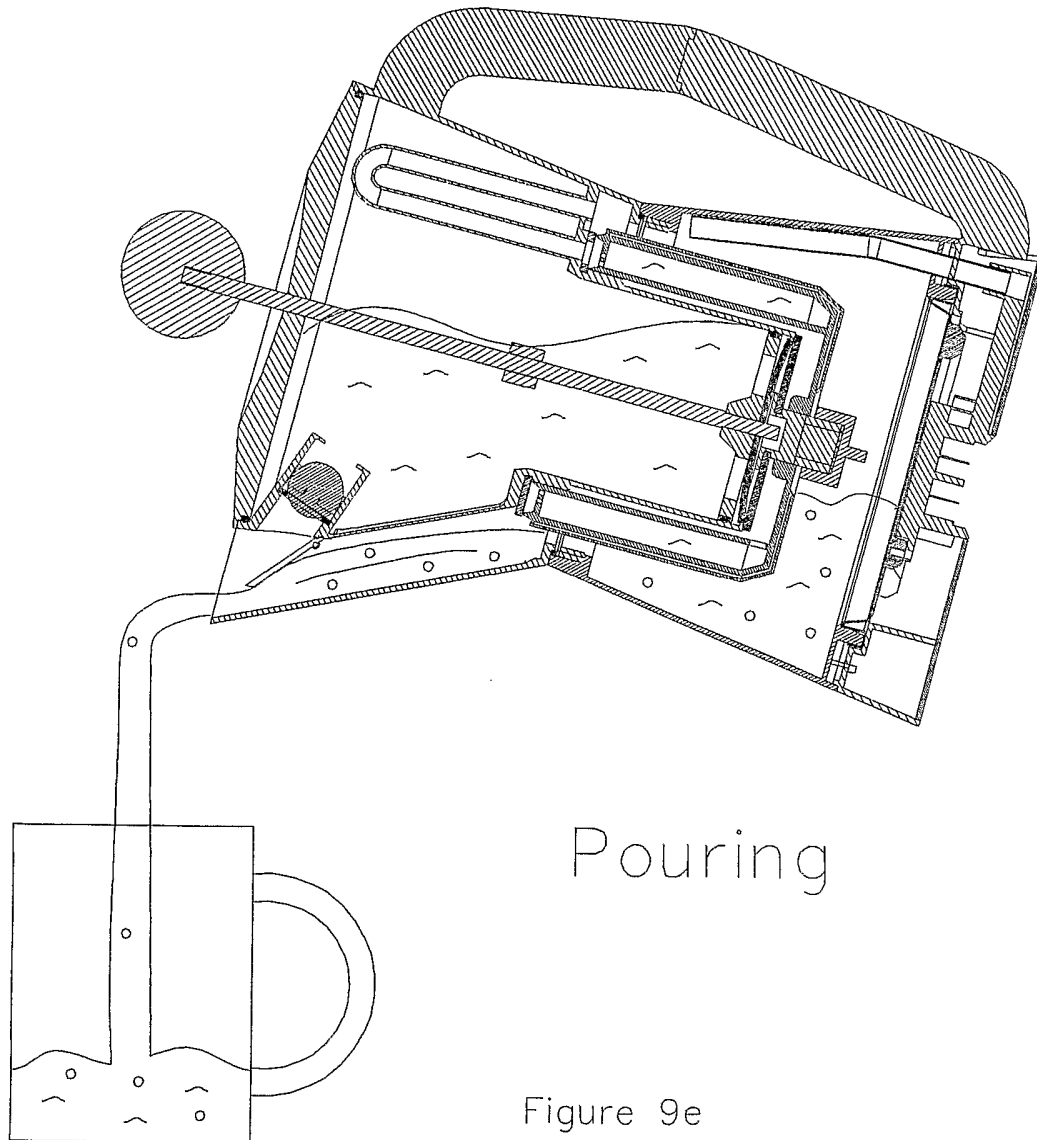


Figure 9d



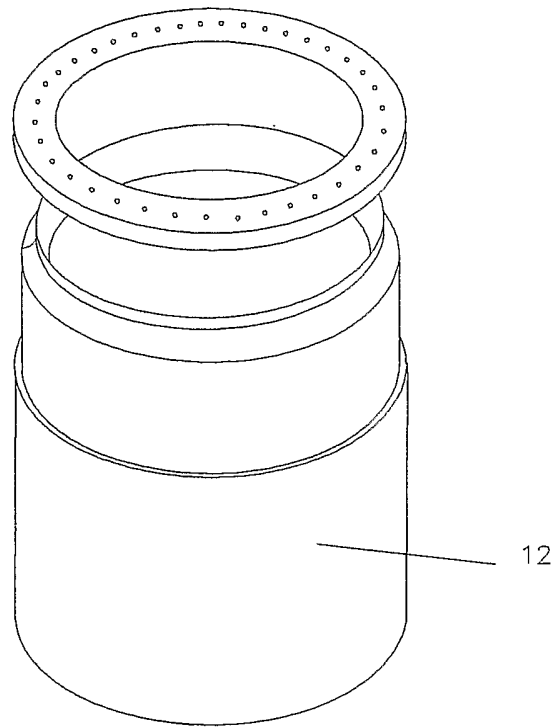


Figure 10

PATENT COOPERATION TREATY

PCT

DECLARATION OF NON-ESTABLISHMENT OF INTERNATIONAL SEARCH REPORT

(PCT Article 17(2)(a), Rules 13ter.1(c) and Rule 39)

Applicant's or agent's file reference	IMPORTANT DECLARATION	Date of mailing(day/month/year) 11/11/2002
International application No. PCT/GB 02/ 03410	International filing date(day/month/year) 25/07/2002	(Earliest) Priority date(day/month/year) 25/07/2001
International Patent Classification (IPC) or both national classification and IPC A47J27/21		
Applicant MONTEIRO, André		

This International Searching Authority hereby declares, according to Article 17(2)(a), that **no international search report will be established** on the international application for the reasons indicated below

1. ☐ The subject matter of the international application relates to:
 - a. ☐ scientific theories.
 - b. ☐ mathematical theories
 - c. ☐ plant varieties.
 - d. ☐ animal varieties.
 - e. ☐ essentially biological processes for the production of plants and animals, other than microbiological processes and the products of such processes.
 - f. ☐ schemes, rules or methods of doing business.
 - g. ☐ schemes, rules or methods of performing purely mental acts.
 - h. ☐ schemes, rules or methods of playing games.
 - i. ☐ methods for treatment of the human body by surgery or therapy.
 - j. ☐ methods for treatment of the animal body by surgery or therapy.
 - k. ☐ diagnostic methods practised on the human or animal body.
 - l. ☐ mere presentations of information.
 - m. ☐ computer programs for which this International Searching Authority is not equipped to search prior art.
2. ☒ The failure of the following parts of the international application to comply with prescribed requirements prevents a meaningful search from being carried out:

☒ the description
☒ the claims
☒ the drawings
3. ☐ The failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions prevents a meaningful search from being carried out:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.
4. Further comments:

SEE ADDITIONAL SHEET

Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Sandrine Polenzani
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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 203

In view of the large number and also the wording of independent claims presently on file, which render it difficult, if not impossible, to determine the matter for which protection is sought, the present application fails to comply with the clarity and/or conciseness requirements of Article 6 PCT (see also Rule 6.1(a) PCT) to such an extent that a meaningful search is impossible. Consequently, no search report can be established for the present application.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.