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(54) Tea/coffee-making unit

(57) A tea/coffee making unit comprises a lower base section 1 providing a pressure chamber P, containing an electrical heating element 14 for boiling water in the chamber P which has a filling opening 8 sealed by a removable filler cap 9. An upper tea- or coffee-making jug section 2 rests on top of the base section 1 and provides a brewing chamber B in which the tea or coffee is made. The jug 2 has a detachable lid 5 and a water transfer tube 11 leads from a lower level in the chamber P to discharge into the jug 2 when boiling water is displaced along the tube 11 from the chamber P by steam pressure. The base section 1 has an integral side handle 4 by which the unit can be lifted and carried as a whole, whereas the jug 2 can be lifted by its own handle 3 for pouring out the brewed tea or coffee.

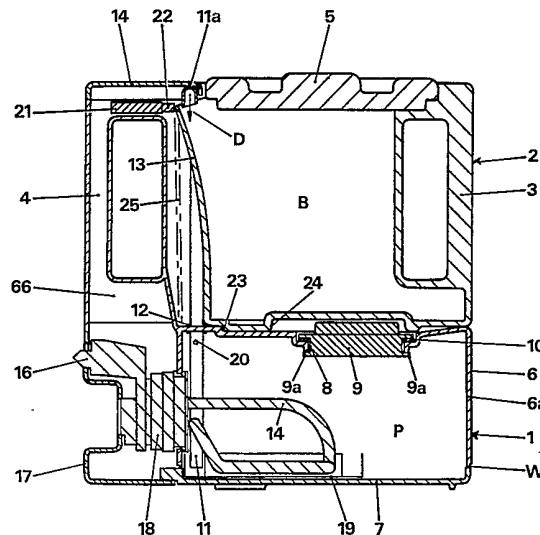


FIG. 3

1/2

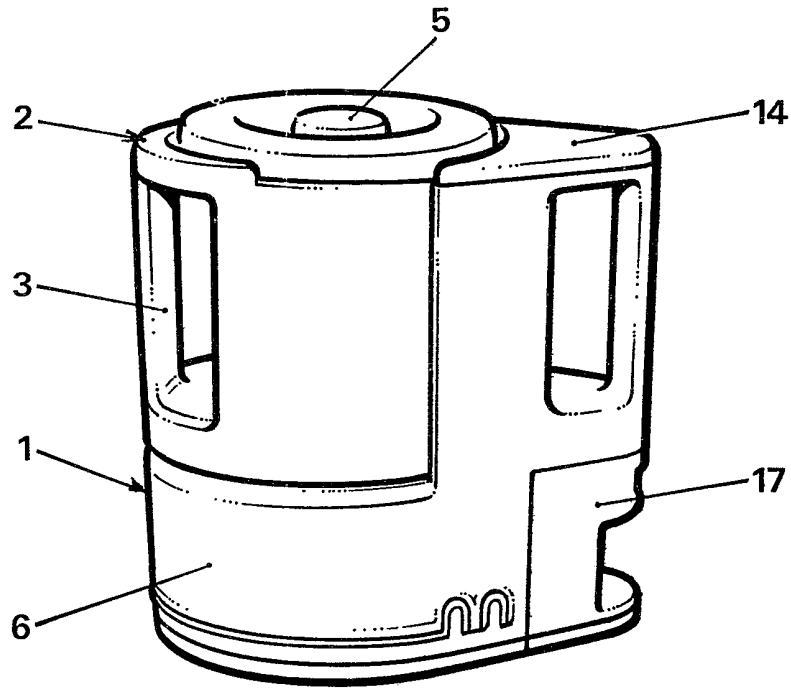


FIG. 1

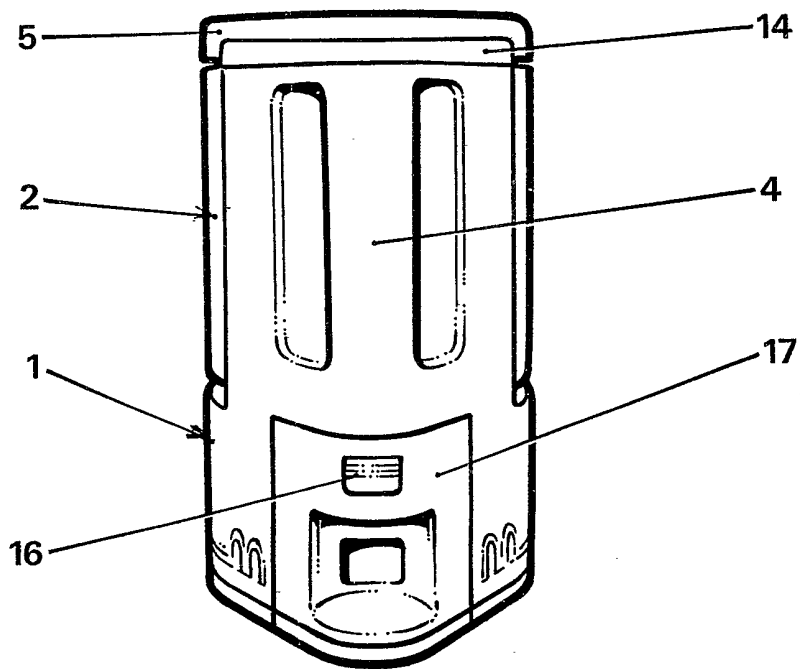


FIG. 2

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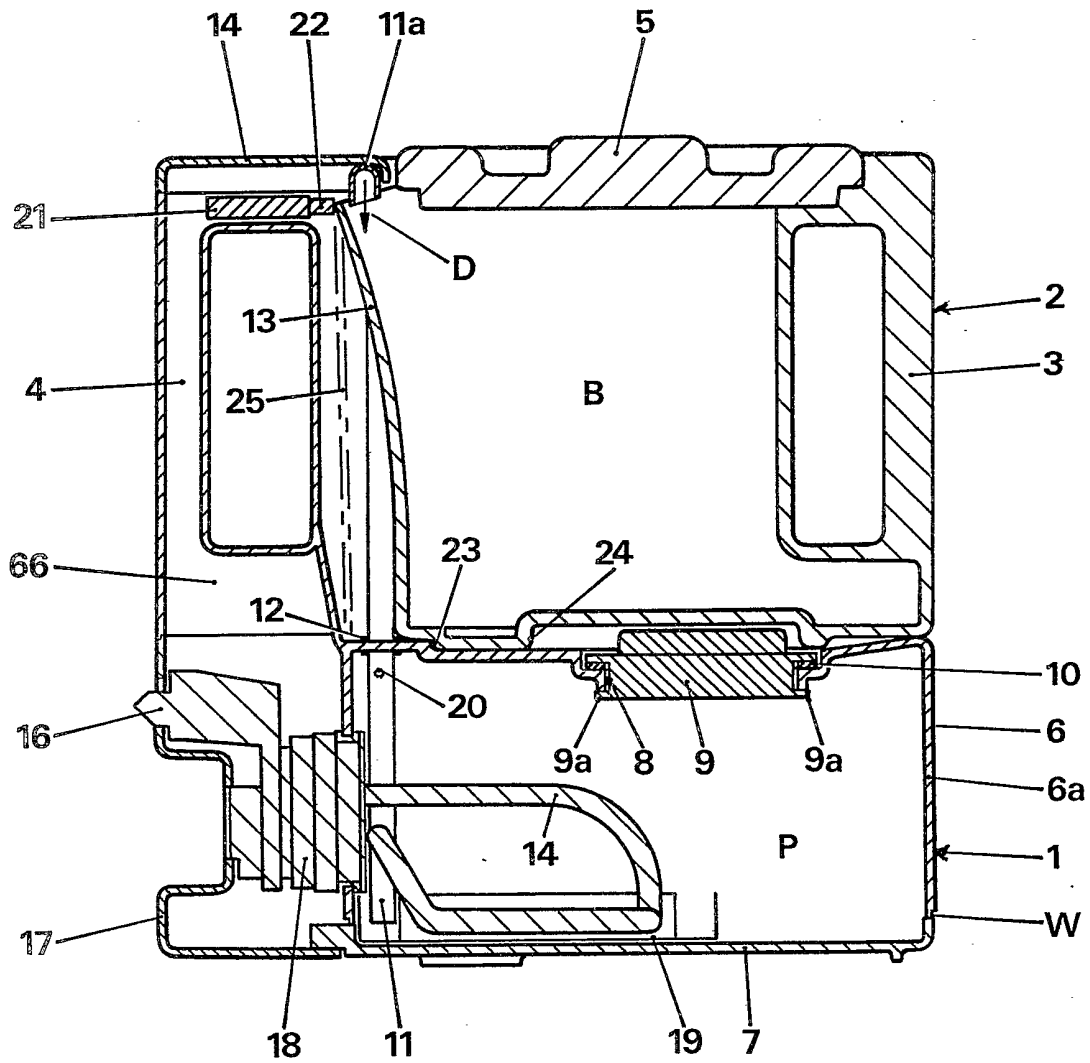


FIG. 3

SPECIFICATION

Tea/coffee-making unit

5 This invention relates to a unit for making tea or coffee, in which water is boiled and the tea or coffee is then automatically made with the boiling water. The beverage produced depends upon whether the unit is pre-charged with tea leaves or coffee grounds (or
10 extract) but for convenience the invention will be described hereinafter solely with reference to the making of tea, the alternative use for making coffee being taken as understood.

Such units are known comprising kettle and teapot
15 components which are separately removable from the unit, for filling with water and for pouring out of the tea, respectively. However, such units are rather bulky and not readily portable so that they tend to remain in one place, for example in a bedroom, with the kettle
20 and teapot being carried to the kitchen and back for filling and cleaning. Thus the degree of utilisation tends to be low and research shows that in time they often become unused.

The object of the invention is to provide a tea-
25 making unit which materially overcomes the major disadvantages of prior units. Accordingly, the invention has for its purpose to provide a compact and readily portable unit, which can conveniently be carried as a whole from room to room and particularly
30 to and from a kitchen for filling and cleaning.

According to the invention a tea-making unit has a lower section providing a pressure chamber containing an electrical heating element for boiling water therein, which section has a sealed opening for filling
35 purposes, an upper tea-making section which is positioned on top of the lower section and provides a brewing chamber in which the tea is made, and a water transfer tube which leads from a low level in the pressure chamber and which has an outlet to discharge into the brewing chamber when water is
40 displaced from the pressure chamber along the tube by the steam pressure when the water in the pressure chamber boils, and a handle integral with the lower section by which the unit can be lifted.

45 Preferably the lower pressure chamber section provides a base section of the unit, with a tea-making section of jug-like form which rests on top of the base section so as to be removable therefrom. The handle may be disposed at the level of and to one side of the
50 jug-like upper section. The water transfer tube may extend upwardly from the pressure chamber of the base section between the tea-making section and the side handle, terminating at an upper level so as to discharge into the brewing chamber at a pouring lip of the tea-making jug. The latter may have a lid which
55 does not impede entry of the boiling water or subsequent pouring out of the brewed tea, and this lid is preferably removable with the jug in operative position in the unit.

60 The tea-making section preferably sits freely on the

base pressure chamber section, with the base formation of the former co-operating with the top surface of the latter to locate the tea-making section in position. Alternatively, the tea-making section may be detachably fixed to the base section, in which case the act of fixing the upper section to the lower section may seal the filling opening in the latter.

In preferred constructions in which the tea-making section is not fixed but sits freely on the lower section,
70 the filling opening of the latter may have a filler cap concealed by the tea-making section when the latter is in place. A safety device actuated on contact by the tea-making section may operate to isolate the heating element when that section is not correctly located in position on the lower section.

The lower section of the unit is preferably of moulded plastics construction. It may comprise a main moulding which substantially provides the base pressure chamber section and also the side handle,
80 and a dished plate-like closure moulding which closes the bottom of the main moulding to complete the pressure chamber. The transfer tube is fitted to the main moulding as is the heating element. The heating element may of a type commonly used with electrical
85 kettles, fitted through a side aperture in the pressure chamber portion of the main moulding below the handle portion thereof.

The invention will now be further described with reference to the accompanying drawings which illustrate, by way of example, a preferred construction of tea-making unit in accordance with the invention. In the drawings:

Fig. 1 is a view of the unit from one side;

Fig. 2 is a handle-end view thereof; and

95 Fig. 3 is a sectional view of the plane of Fig. 1 from the other side.

The tea-making unit illustrated comprises a lower base section 1 providing a pressure chamber P, a tea-making upper section 2 in the form of a freely removable jug with a handle 3, and a side handle 4 which is integral with the base section 1 and by which the unit can be lifted and carried about, either with or without the jug section 2 in position. A removable lid 5 closes the jug section 2, and is removable (and replaceable) when the jug is positioned in the unit as shown.

Referring particularly to Fig. 3, the base section 1 principally comprises two plastics mouldings. A main moulding 6 has a hollow base portion 6a providing the pressure chamber P and sealed by a dished plate-like bottom moulding 7, and an upstanding portion 6b providing the side handle 4. The tea-making jug section 2, the internal volume of which provides a brewing chamber B, is of ceramics material as is the detachable jug lid 5. The base portion 6a of the main moulding 6 has in its top surface an inset aperture forming a filling opening 8 for the chamber P. This opening 8 is sealed by a removable filler cap 9 with projecting lugs 9a which provide a bayonet-type detachable fixing of the cap 9. A sealing ring 10

The drawing(s) originally filed was (were) informal and the print here reproduced is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

ensures a pressure-tight seal around the filling opening 8 when the cap 9 is fitted.

A vertical water transfer tube 11 fitted to the moulding 6 extends, so as to be shrouded within the open inner side of the handle portion 6b of the moulding 6, from a lower level in the chamber P. This tube 11 traverses the top wall of the chamber P where it passes through a seal 12. At the upper end 11a the tube 11 is of inverted U shape so that it discharges downwardly, as shown by the arrow D, into the brewing chamber B at a pouring lip 13 of the jug 2. A small top cover moulding 14 which closes the hollow upper handle portion of the main moulding 6 engages the U-shaped outlet end section 11a of the tube 11 and retains the latter in position.

An electrical heating element 14, of a type as known with electrical jug-type kettles, is fitted into an aperture 15 in the side of the pressure chamber portion 6a of the main moulding 6. An ON/OFF button 16 controlling the energisation of the element 14 projects below the handle 4, through a small switch cover moulding 17 which encloses a switch 18 which controls the element 14, this being mounted at the outer end of the element 14 and incorporating the usual socket for connection of an end plug of a mains lead.

The bottom plate moulding 7 is permanently secured to the main moulding 6 by a continuous peripheral weld at W achieved by a friction welding process. A metal heat deflector tray 19 is positioned within the pressure chamber P below the element 14 at the bottom of the chamber P, and the lower inlet end of the tube 11 is positioned just above this tray 19. Thus the pressure chamber P substantially completely empties under steam pressure during a tea making operation.

In use the tea-making jug section 2 is removed and the lower section 1 filled with water from a tap through the filling opening 8. The jug section 2 is refitted and the appropriate quantity of tea leaves, which may be in tea bags, is placed in the brewing chamber B after which the lid 5 is replaced. The element is then switched on by depressing the button 16, as a result of which the water heats up and ultimately boils. The resultant steam pressure in the pressure chamber P displaces water therefrom up the tube 11, from which it is discharged into the brewing chamber B to make the tea. When all the usable water has been transferred the temperature rise of the element actuates a 'dry-boil' cut-out in the body of the element 14, which de-energises the element 14 and causes the button 16 to spring up to the OFF position ready to be depressed again to initiate the next tea-making operation. As an alternative to such a cut-out, the dry-boil device may be of the type which ejects the mains lead plug from the socket at 24.

As a safety device, to prevent a dangerous pressure rise in the chamber P in the event that flow through the tube 11 should be obstructed, a pressure relief valve (not shown) is embodied in the filler cap 9. As an alternative to this the wall of the chamber P may be moulded with an area of reduced thickness, designed to burst at a pre-determined pressure in the chamber P.

The unit also incorporates a further safety device in

the form of a switch 21 housed in the handle portion 6b of the moulding 6 below the cover moulding 14. This switch 21 is connected in series with the element 14 and is of normally-open type to isolate the element electrically if the jug section 2 is not correctly positioned in the unit. When it is so positioned the lip 13 engages a switch-actuating member 22 to cause the switch contacts to close. The bottom of the jug 2 is contoured to sit into a recess moulded in the upper surface of the main moulding 6 at 23. This locates the upper section 2 on the lower section 1, and the bottom of the jug is recessed at 24 to clear the filler cap 9.

As an alternative to the safety switch 21 a mechanical switch/jug interlock arrangement may be provided comprising a flap member 25, as shown in broken lines in Fig. 3, which is pivotally mounted at its lower end and engaged by the jug lip 13 as shown. With the jug 2 removed the flap is forwardly inclined, so that its upper end is disposed outwardly of the upper end 11a of the tube 11, and it has a mechanical connection (not shown) to the switch 18 such that the element 14 cannot be switched on with the jug removed.

The size of unit is chosen according to the number of cups of tea to be made at one time, and typically the capacity is 6 teacups. The handle 4, being integral with the lower section 1, is usable at all times — either for lifting and holding the section 1 by itself during filling thereof, or for lifting and holding the complete unit for transport from room to room, for example.

The unit illustrated is of pleasing modern design with clean-cut lines making it equally suitable for domestic use, in kitchens, dining rooms and bedrooms, and for commercial use in offices, hotel bedrooms and motels, for example.

100 CLAIMS

1. A tea-making unit comprising a lower section providing a pressure chamber containing an electrical heating element for boiling water therein, which section has a sealed opening for filling purposes, an upper tea-making section which is positioned on top of the lower section and provides a brewing chamber in which the tea is made, and a water transfer tube which leads from a lower level in the pressure chamber and which has an outlet to discharge into the brewing chamber when water is displaced from the pressure chamber along the tube by the steam pressure when the water in the pressure chamber boils.

2. A tea-making unit according to claim 1, further comprising a handle integral with the lower section by which the unit can be lifted and carried.

3. A tea-making unit according to claim 1 or claim 2, wherein the lower pressure chamber section provides a base section of the unit, with the tea-making section resting on top of the base section so as to be removable therefrom for pouring out of the brewed tea.

4. A tea-making unit according to claim 3, wherein the tea-making section is of jug-like form.

5. A tea-making unit according to claims 2 and 4, wherein the handle is disposed at the level of and to one side of the jug-like upper section.

6. A tea-making unit according to claim 5, wherein the water transfer tube extends upwardly from the pressure chamber of the base section between the

tea-making section and the side handle, and terminates at an upper level so as to discharge into the brewing chamber at a pouring lip of the tea-making section.

5 7. A tea-making unit according to claim 6, wherein the tea-making section has a lid which does not impede entry of the boiling water of subsequent pouring out of the brewed tea.

8. A tea-making unit according to claim 7, wherein
10 said lid is removable with the jug in an operative position in the unit.

9. A tea-making unit according to any one of the preceding claims, wherein the tea-making section sits freely on the base pressure chamber section, with the
15 base formation of the former co-operating with the top surface of the latter to locate the tea-making section in position.

10. A tea-making unit according to any one of claims 1 to 8, wherein the tea-making section is
20 detachably fixed to the base section.

11. A tea-making unit according to claim 10, wherein the act of fixing the upper section to the lower section seals the filling opening the latter.

12. A tea-making unit according to claim 10,
25 wherein the filling opening of the lower section has a filler cap concealed by the tea-making section when the latter is in place in the unit.

13. A tea-making unit according to any one of claims 9 to 12, wherein a safety device actuated on
30 contact by the tea-making section operates to isolate the heating element when that section is not correctly located in position on the lower section.

14. A tea-making unit according to any one of the preceding claims, wherein the lower section of the
35 unit is of moulded plastics construction.

15. A tea-making unit according to claims X and 14, wherein the lower section comprises a main moulding which substantially provides the base pressure chamber section and also the side handle,
40 and a dished plate-like closure moulding which closes the bottom of the main moulding to complete the pressure chamber.

16. A tea-making unit according to claim 16, wherein the transfer tube and the heating element are
45 fitted to said main moulding.

17. A tea-making unit according to claim 15 or claim 16, wherein the heating element of a type as commonly used with electrical kettles and is fitted through a side aperture in the pressure chamber
50 portion of said main moulding below the handle portion thereof.

18. A tea-making unit constructed and arranged substantially as herein particularly described with reference to the accompanying drawings.