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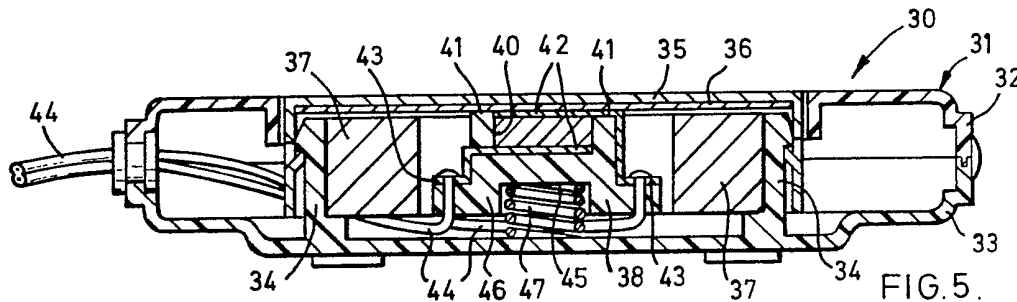
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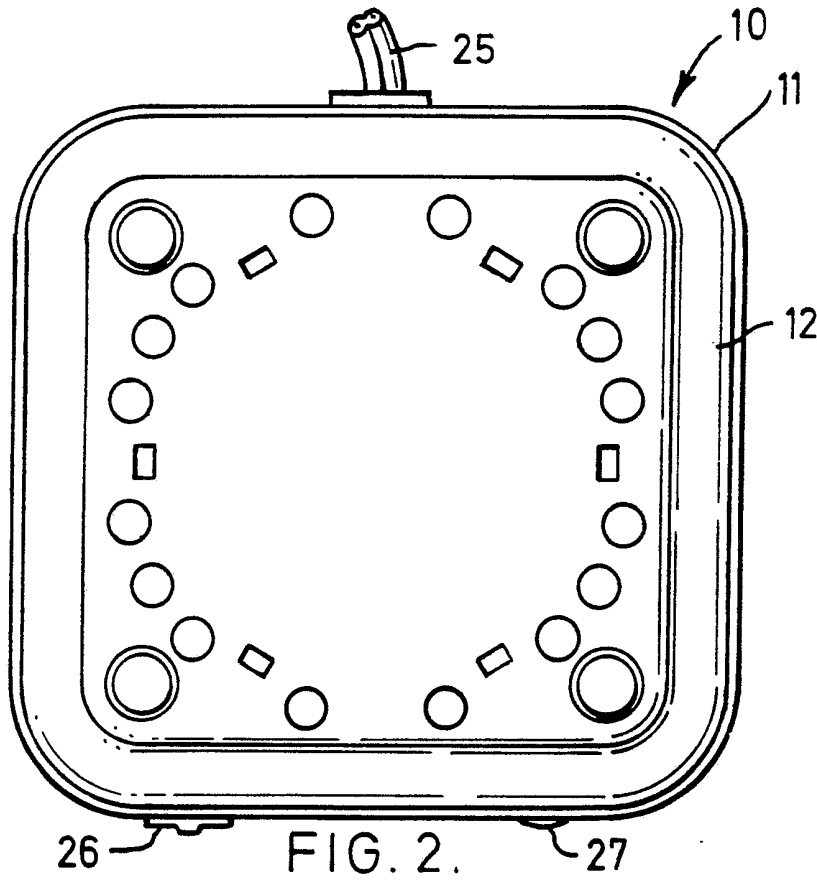
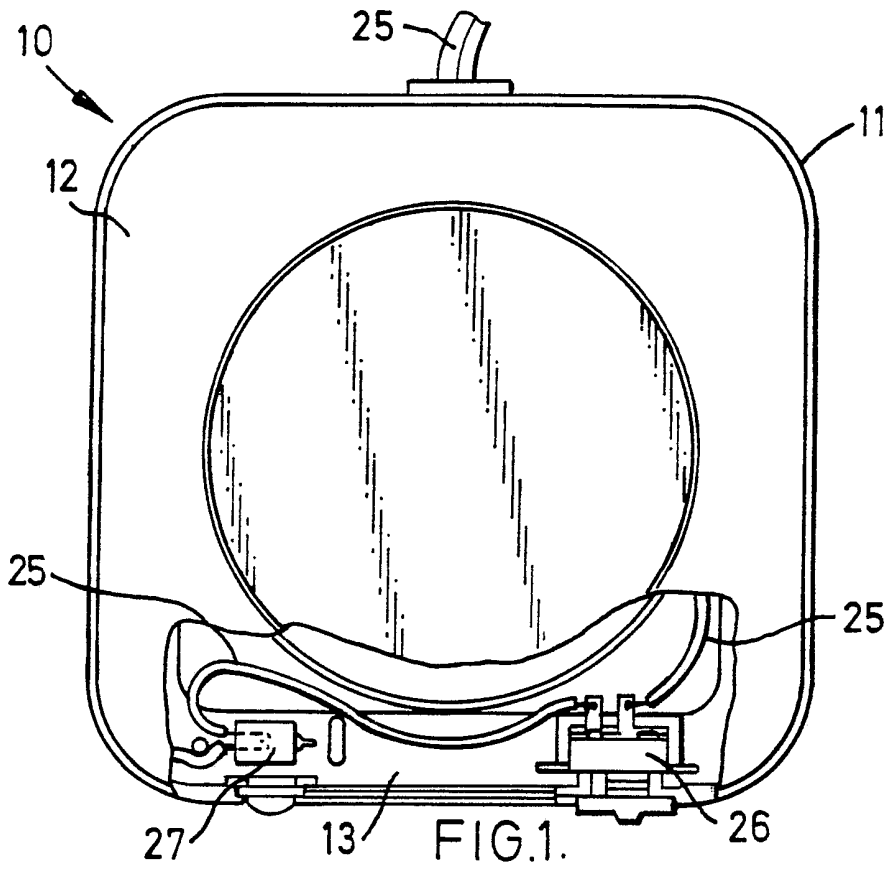
(54) **Magnetic hot plate**

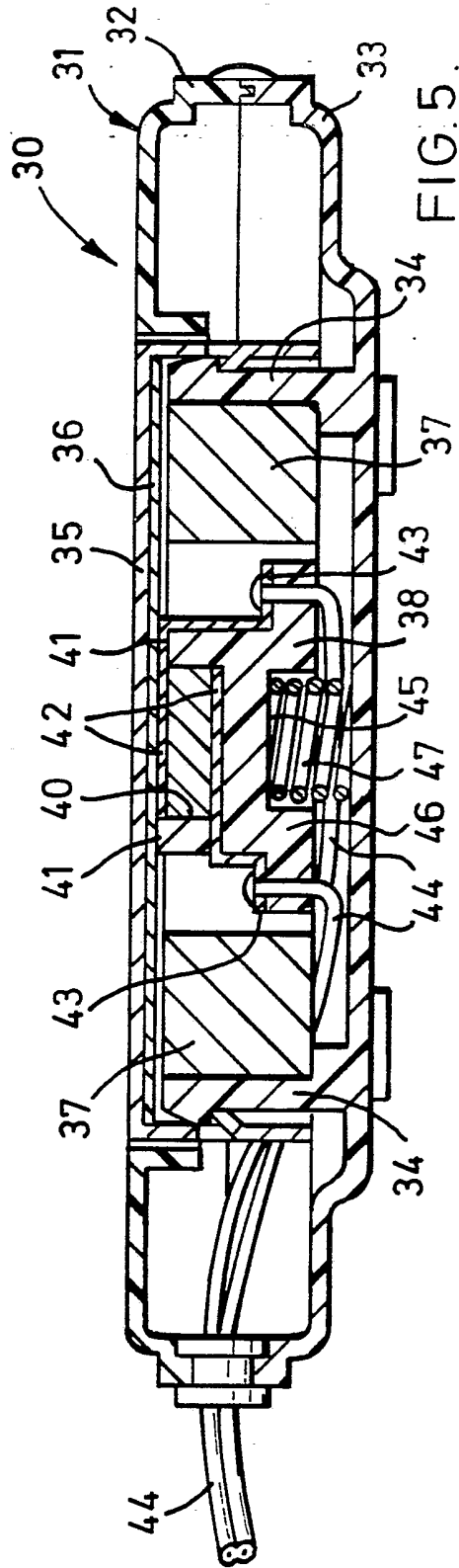
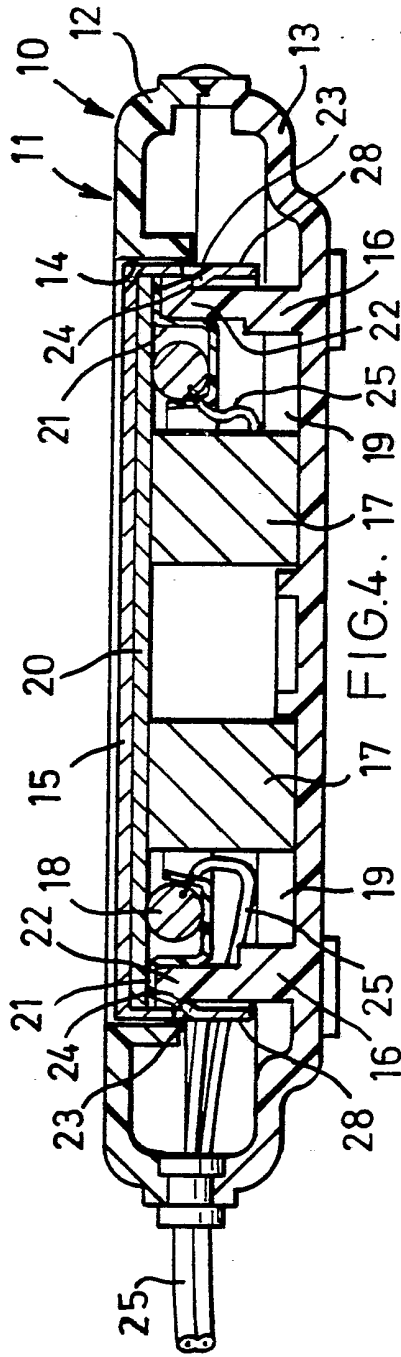
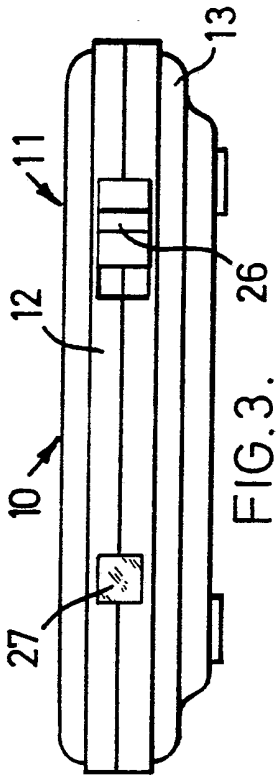
(57) A hot plate (30) comprises a housing (31) having a support surface (35) for supporting a drink or liquid food contained in a vessel. An annular permanent magnet (37) and an electrical heating element (39) are mounted in the housing (31). The magnet (37) provides a substantially vertical magnetic field to a said drink or liquid food, such as a glass of water, placed on the support surface (35). The heating element (39) warms up the glass of water or keeps it warm to enhance the effect of the magnetic field to the water. Spring 47 presses heating element against thermally conducting electrical insulating mica plate 36.



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## HOT PLATE

The present invention relates to a hot plate.

For health reasons, it is known to apply a magnetic field to alter certain characteristics, such as alkalinity, of a drink or liquid food. In prior art systems, a permanent magnet or an electro-magnet is provided in an electric kettle to apply a magnetic field to the water whilst it is being heated. However, once the treated water has been poured out of the kettle, the altered characteristics will gradually return to normal.

The invention seeks to mitigate or alleviate this disadvantage by providing a hot plate for applying a magnetic field to a drink or contained liquid food ready to serve.

According to the invention there is provided a hot plate comprising a housing having a support surface for supporting a drink or a liquid food contained in a vessel, an electrical heating element in the housing, and means in the housing for generating a magnetic field in a said drink or liquid food contained in a vessel placed on the support surface.

Preferred and/or optional features of the invention will be apparent from the following description and the

accompanying claims.

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

5 Figure 1 is a partly sectioned plan view of a first embodiment of a hot plate in accordance with the invention;

Figure 2 is an underneath plan view of the hot plate of Figure 1;

Figure 3 is a side view of the hot plate of Figure 1;

10 Figure 4 is a sectional side view of the hot plate of Figure 1; and

Figure 5 is a sectional side view of a second embodiment of a hot plate in accordance with the invention.

Referring to Figures 1 to 4 of the drawings, a first  
15 embodiment of a hot plate 10 shown therein comprises a two-part housing 11 formed by upper and lower parts 12 and 13 preferably of plastics material. The upper housing part 12 has a central circular aperture 14 in which a circular top plate 15 is placed. The lower housing part  
20 13 has a central upstanding cylindrical partition wall 16

in which a stationary annular permanent magnet 17 and an annular electrical heating element 18 are located.

The permanent magnet 17 is located in a central position by a plurality of radial ribs 19 extending between the magnet 17 and the partition wall 16. The magnet 17 extends up from the lower housing part 13 to a mica disk 20 which underlies and is in contact with the top plate 15. The heating element 18 is placed on an annular thermally insulating sheet 21 disposed on the ribs 19, and immediately below the mica disk 20. The mica disk 20 provides electrical insulation between the heating element 18 and the top plate 15, but good thermal conduction therebetween, whilst the sheet 21 provides thermal insulation between the heating element 18 and the ribs 19.

The top plate 15 has a downwards peripheral flange 28 which fits over an upper end 22 of the partition wall 16, on which end 22 the sheet 21 and the mica disk 20 are placed. The flange 28 has on its inside a plurality of upturned fingers 23 which snap-fit behind corresponding steps 24 provided in the outside of the partition wall 16 so as to fix the top plate 15, the mica disk 20 and the sheet 21 in position.

The heating element 18 is connected to a mains power supply (not shown) by means of wire leads 25 in series

connection with an on-off switch 26 and lamp indicator 27. The switch 26 serves to control power to the heating element 18 and the lamp 27 indicates power on.

In use, a drink or liquid food contained in a vessel, such as a glass of water (not shown), is placed on the top plate 15 of the housing 11. The magnet 17 generates a stationary, substantially vertical magnet field in the glass of water to change certain characteristics of the water. The heating element 18 serves to warm up the water or, if the water is originally warm, keep it warm. It is believed that the effect of the magnetic field is enhanced when the water is at an elevated temperature. Moreover, the heating element 18 will generate convection currents in the water in the glass to circulate relatively cooler water at the top of the glass down to the bottom of the glass where the magnetic field is stronger.

A second embodiment of a hot plate 30 shown in Figure 5 has a similar construction to the hot plate 10. The hot plate 30 comprises a two-part housing 31 having upper and lower housing parts 32 and 33. The lower housing part 33 has a central upstanding cylindrical partition wall 34, and a top plate 35 snap-fittably engages with the partition wall 34. A mica disk 36 is gripped between the top plate 35 and the partition wall 34.

A stationary annular magnet 37 is located inside the partition wall 34. A thermally insulating support 38 is axially slidably located in the magnet 37. A flat cylindrical heating element 39 is received in a cylindrical recess 40 in an upper end 41 of the support 38. Connection to the heating element 39 is provided by a pair of copper strips 42. The copper strips 42 are soldered at their respective free ends 43 to a pair of wire leads 44 for connection to a mains power supply (not shown) via an on-off switch and a lamp indicator (not shown). The support 38 has a cylindrical recess 45 in its lower end 46 in which a compression spring 47 is received. The spring 47 bears against the lower housing part 33, and thereby urges the support 38 upwards to ensure good contact between the heating element 39 and the mica disk 36, and between the mica disk 36 and the top plate 35 for efficient thermal conduction from the heating element 39 to the top plate 35.

The peripheral edge of the housing of either hot plate 10 or 30 can be raised to form, for example, a cylindrical wall for locating a glass of water on the housing.

Various modifications and/or alterations to the invention may be made by persons skilled in the art without departing from the scope of the accompanying claims.



CLAIMS

1. A hot plate comprising a housing having a support surface for supporting a drink or a liquid food contained in a vessel, an electrical heating element in the housing, and means in the housing for generating a magnetic field in a said drink or liquid food contained in a vessel placed on the support surface.
2. A hot plate as claimed in claim 1, wherein said means is stationarily mounted in the housing.
3. A hot plate as claimed in claim 1 or claim 2, wherein said means comprises a permanent magnet arranged so as to generate a substantially vertical magnetic field in a said drink or liquid food contained in a vessel placed on the support surface.
4. A hot plate as claimed in claim 3, wherein the magnet is annular and is disposed around the heating element.
5. A hot plate as claimed in any one of claims 1 to 3, wherein the heating element is annular and is disposed around said means.
6. A hot plate as claimed in any one of the preceding

claims, wherein the heating element is biased upwards by a spring against an upper wall of the housing.

7. A hot plate as claimed in any one of the preceding claims, wherein a light emitting indicator is provided for  
5 indicating the operation of the heating element.

8. A hot plate as claimed in any one of the preceding claims, wherein the peripheral edge of the housing is raised to locate a said vessel.

9. A hot plate substantially as hereinbefore described  
10 with reference to Figures 1 to 4 or Figure 5 of the accompanying drawings.