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Electric Kettle

This invention relates to electric kettles and more particularly to an electric kettle of the kind (hereinafter termed a kettle of the kind referred to) having a handle which extends over and in vertically spaced relationship to the water boiling chamber of the kettle body. Most commonly such a handle is attached to the kettle body both at the front and at the rear thereof and thereby spans the central part of the water boiling chamber which is usually provided with a central removable lid.

An electric kettle of the kind referred to further comprises and is heated by an electric heater, normally an electric immersion heater mounted within the water boiling chamber. Connection of the heater to an electric power supply is usually effected through a two part pin and socket connection respectively provided on the kettle and either on a supply cord or, for a so-called "cordless" kettle, on a stand for the kettle to which stand an electrical supply is connectable.

Electric kettles of the kind referred to also incorporate control means including switch means for interrupting the electrical supply to the heater in the event that the kettle boils dry or is switched on dry. In a so-called automatic kettle the control means is also effective to interrupt the electrical supply to the heater in response to the kettle boiling. Such control means are well known and take various forms and will be termed "kettle control means of the kind referred to".

It is also quite common to provide kettles of the kind referred to with manually-actuatable switch means to enable the user to switch the kettle on and off at the kettle as well as at a switched power supply point. Such manually-actuatable switch means may be combined

with the said kettle control means of the kind referred to. An on/off finger-actuatable member of such switch means is often located to the rear of the kettle at or adjacent the base of the handle.

It is good practice for a kettle user to switch off the power supply to the kettle either at the kettle or at a switched supply power point before lifting and emptying the kettle of heated water. This applies particularly to cordless kettles where the act of removing the kettle from its stand interrupts the power supply to the kettle since otherwise when the kettle is replaced on the stand the heater would be energised unless provided with a kettle control means of the kind referred to which has operated in response to the kettle boiling before the kettle is removed from its stand.

According to the present invention there is provided a kettle of the kind referred to having manually-actuatable switch means to enable the user to switch the kettle on and off at the kettle, a manually-actuatable switching-off member of such switch means for switching the kettle off being located on the underside of the handle so that in normal usage the act of lifting the kettle by the handle will actuate said switching-off member to operate said switch means to switch off the kettle.

Thus with a kettle according to the present invention the switching off of the kettle prior to its being emptied will occur automatically as the fingers are placed underneath the handle and upward pressure is exerted so that the potential dangers of the kettle possibly not being switched off before being emptied, particularly with regard to cordless kettles, are avoided. Likewise, the use of the kettle is simplified since preliminary switching-off action is not required by the user before picking up the kettle. Locating the switching-off member on the underside of the handle means that it will be operated when the kettle is lifted

even if the user does not grip the handle tightly. Advantageously, the member may be located on the handle above the centre of gravity of the kettle in use, this being the part of the handle naturally gripped by the user.

The switching-off member may be pivotably or slidably mounted in the underside of the handle so as when pressed by the fingers to retract into or towards the handle. A switching-on member for the switch means may be directly connected to the switching-off member and may be retractably disposed on top of the handle so that with the switching-off member actuated the switching-on member assumes an actuatable position protruding above the surface of the handle and vice versa. However in order to guard against the possibility of the kettle being switched on whilst lifted, the switching-on member could be located elsewhere, for example, at the rear of the kettle body.

The manually-actuatable switch means could be located in the handle and remotely electrically connected with the heater. However it is preferred that the switch means be combined with or form part of a kettle control means of the kind referred to. Such control means are usually located at the rear lower part of the kettle body and may be mounted on the head of an immersion heater which carries the heater element and is itself mounted in an opening in the kettle water boiling chamber.

With such an arrangement, movement of the switching-off member, and of the switching-on member if located in the handle above the kettle body, has to be transmitted to the remotely located part of the switch means. Any convenient motion transmission means may be employed for this purpose, for example, a mechanical lever linkage, Bowden cable or fluid coupling. It may also be preferable to locate the switch means remote from the handle for safety reasons regardless of whether

or not the switch means forms part of a kettle control means of the kind referred to.

There now follows, by way of example only, a description of an embodiment of the invention with reference to the sole accompanying drawing which is a schematic side elevation of a kettle according to the invention.

The drawing shows a kettle 1 comprising a water boiling chamber 2 and a handle 3 overlying and spaced from the upper part of the chamber 2. An immersion heater having an element (not shown) in the chamber 2 is connectable to the power supply by means of terminal pins 4 engageable with the mating socket of a power supply cord. The supply of the current from the pins 4 to the heating element is controlled by control means 5 of the kind referred to, the switch means of which is also controllable by manually-actuatable switching members 6, 7 via a mechanical linkage 8. A well-known control means 5 includes a spring-based push-rod (not shown) displaceable by a sprung lever mechanism 11 operated by a steam-responsive actuator (not shown) to switch the kettle off when it boils and this push rod may be acted upon by the members 6, 7 via the mechanical linkage 8 and lever mechanism 11.

The mechanical linkage 8 comprise two interengaging levers 9 and 10 mounted on pivots 12 and 13, respectively, fixed in the handle 3. A sliding connection is provided between levers 9 and 10 and between lever 10 and lever mechanism 11. Lever mechanism 11 is pivoted at 14. Lever 10 acts on lever mechanism 11 to the same effect as the steam responsive actuator. Thus depression of the member 6 causes the lever mechanism 11 to move inwards to switch off the power supply.

The handle 3 can comprise two halves, clipped together in use to sandwich the pivots 12 and 13 between them.

The member 6 which operates to terminate power to the heater element when depressed is mounted on the underside of the handle 3 at a point generally in line with the centre of gravity of the kettle. Thus, when the user lifts the kettle by the handle the member 6 will be depressed relative to the handle and the power supply terminated. Locating the member 6 on the underside of the handle means that it will be depressed when the kettle is lifted even if the user does not grip the handle tightly. The part of the handle above the centre of gravity of the kettle is the part naturally gripped by the user as providing the best balance when picking up the kettle. Depression of the member 6 causes operation of the linkage 8 to switch off power to the element utilising the steam-responsive switching function of the control means 5.

A further finger actuatable switch-on member 7 is mounted on the top side of the handle 3 and is depressable to operate control means 5 to switch on power to the element. Members 6 and 7 are both mounted on lever 9 and are mutually operable such that depression of one causes the other to be reset to a protruding position.



Claims

1. A kettle of the kind referred to having manually-actuatable switch means to enable the user to switch the kettle on and off at the kettle, a manually-actuatable switching-off member of such switch means for switching the kettle off being located on the underside of the handle so that in normal usage the act of lifting the kettle by the handle will actuate said switching-off member to operate said switch means to switch off the kettle.
2. A kettle as claimed in claim 1 wherein the switching-off member is pivotably or slidably mounted in the underside of the handle so as when pressed by the fingers to retract into or towards the handle.
3. A kettle as claimed in claim 2 further comprising a switching-on member directly connected to the switching-off member.
4. A kettle as claimed in claim 3 wherein the switching-on member is retractably disposed on top of the handle so that with the switching-off member actuated the switching-on member assumes an actuatable position protruding above the surface of the handle and vice versa.
5. A kettle as claimed in any preceding claim wherein the manually actuatable switch means is located at the rear lower part of the kettle body remote from the handle and wherein movement of the switching-off member is transmitted to the switch means by a suitable motion transmission means.
6. A kettle as claimed in claim 5 wherein the motion transmission means comprises a mechanical lever



linkage.

7. A kettle as claimed in claim 5 or 6 wherein the manually actuatable switch means is combined with or forms part of a kettle control means of the kind referred to.

8. A kettle as hereinbefore described and with reference to the accompanying drawing.
