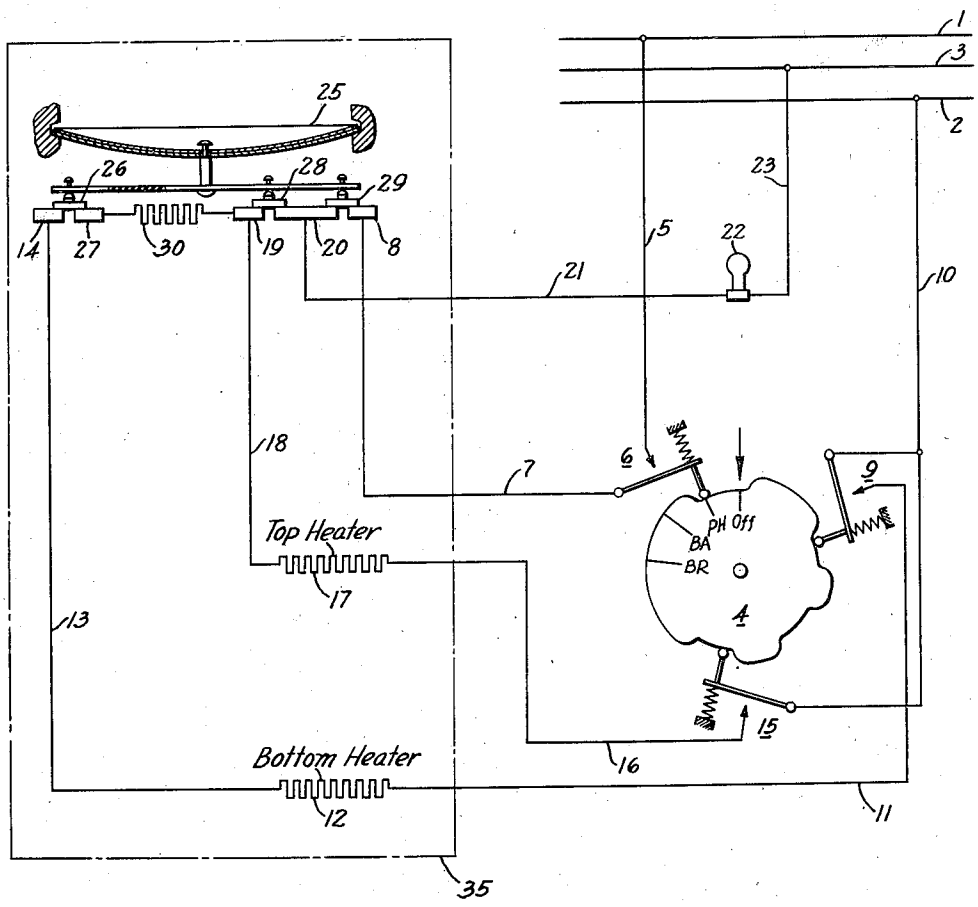
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PILOT LIGHT FOR OVENS

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PILOT LIGHT FOR OVENS

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This invention relates to electric ovens and particularly to an indicating means for indicating when the oven is using power.

It is an object of this invention to indicate to the operator when the oven is working or when it has ceased to work.

It is a further object of this invention to indicate the condition of a thermostat controlling the oven so that the operator shall not be required to listen for the click of the thermostat when it is changing connections.

It is a further object of this invention to provide such an indicator which will operate in all "on" positions of the operating switch.

Other objects of the invention and details of the proposed construction will be apparent from the following description and the accompanying drawing, in which the single figure is a circuit diagram illustrating the apparatus and connections used in this invention.

In the diagram, power mains 1 and 2 and neutral wire 3 of the three-wire system are shown. A switch is provided which I have illustrated by means of a diagram including a cam 4. This illustration is not restrictive. Any switch which will make the described connections may be used. No invention in the switch per se is the subject of this application.

A connection 5 from the main wire 1 to the blade 6 of the switch is continued, when the cam 4 has been rotated to close the switch 6, through the wire 7 to one terminal 8 of the thermostat. This occurs when the cam 4 has been rotated clockwise until the mark BA comes into the position opposite the reference mark indicated as an arrow. The mark "off" is shown as opposite said reference mark in the drawing.

A connection 10 from the main wire 2 to the switch blade 9 is continued, when the switch 9 is closed, over wire 11 to the heater 12 in the bottom of the oven, and from the heater 12 a wire 13 extends to a terminal 14 of the thermostat. The heater 12 is located near the bottom of the oven, which is diagrammatically indicated by the rectangle 35.

Another blade operated by a separate projection on the cam is shown at 15, and controls a connection from the wire 10 to the wire 16 which goes to the top heater 17 of the oven and from there a wire 18 extends to a terminal 19 of the thermostat. Between the terminal 19 and the terminal 8, the thermostat has a conducting block 20 which is connected by wire 21 to a lamp 22 and thence through a wire 23 to the neutral wire 3.

The thermostat as illustrated is of the familiar snap-action disc type, but any suitable form of thermostat may be used. The disc 25 is illustrated in its cold position. When heated, this disc moves with a snap action to a position in which all the circuits controlled thereby are opened. The mechanical details of the way this is done are illustrative only and are intended merely to indicate the control of the circuits by the thermostat.

The terminal 14, when the thermostat is in circuit-closing position, is connected by the bridging-piece 26 to a block 27. Similarly, the bridging-piece 28 connects the terminal 19 with the block 20, when the disc is in the illustrated position, and at the same time the bridging piece 29 connects the block 20 to the terminal 8. A resistor 30, which acts as a radiant heating coil to narrow the temperature differential of the thermostat, is connected between the block 27 and the terminal 19.

In the operation of the device, when the cam 4 is rotated clockwise from the illustrated position to the position in which BA is uppermost, (opposite the reference arrow) the switches 6 and 9 are closed and switch 15 is open. A circuit is then established from the main wire 1 over the wire 5, switch blade 6, wire 7, terminal 8, bridging-piece 29, block 20, wire 21, lamp 22 and wire 23 to the neutral wire 3.

A circuit is also established over the wire 10, switch blade 9, wire 11, bottom heater 12, wire 13, terminal 14, bridging-piece 26, block 27, resistor 30, terminal 19, bridging-piece 28 to block 20, bridging-piece 29, terminal 8, wire 7, switch 6 and wire 5 to the main wire 1.

It will thus be seen that with the cam 4 in the BA position described, the bottom heater 12 is connected between the main wire 2 and the main wire 1. It is also connected through the lamp 22 to the neutral 3. The top heater 17 is disconnected, the switch blade 15 being in open-circuit position. This position of the cam switch 4 is the position used for baking. It gives a medium heat.

When the cam 4 is being moved to the BA position it passes through the position in which the mark PH is opposite the reference mark. If it be stopped in this PH position, the switches 9, 6 and 15 are all closed. The circuit is through switch 9, wire 11, bottom heater 12 to block 20 as before, and there is now established a circuit from the main wire 2 over wire 10, switch blade 15, wire 16, top heater 17, wire 18 to the terminal 19 and from there to block 20. From

the block 20 both of these circuits are completed over bridging-piece 29 and switch 6 to the other main wire 1. The lamp 22 is also energized by reason of the difference in potential between block 20 and neutral wire 3.

The position of the cam is for preheating. It is the position used when the oven is first energized, and its purpose is to bring the oven quickly to the desired temperature. After the oven has reached the desired temperature, the cam is turned to one of the other positions.

If the switch be turned until the mark BR is at the index point, the switches 6 and 15 are closed and the switch 9 is open. There is then established a circuit from main wire 2 over wire 10, switch 15, wire 16, top heater 17, wire 18, terminal 19 and bridging-piece 28, the block 20, bridging piece 29, terminal 8, wire 7, switch 6 and wire 5 to main wire 1. There is again a connection from block 20 through the lamp 22 to the neutral wire 3.

This is the broiling position in which a medium heat differing in degree from the before-mentioned medium heat is obtained. The difference in degree of these two medium-heat positions is effective even when the energy for which the two heaters 12 and 17 are designed to be equal, because one of these two is farther from the object to be heated than the other. The broiling is obtained by placing the article to be heated near the top of the oven, and, the top heater being close thereto, the cooking is by radiant heat. In the baking position of the switch, the cooking is principally done with heated air heated and circulated by the bottom heater.

It will be observed that the lamp 22 is in the connection from block 20 to the neutral wire and that this connection does not include any of the cam-operated switches. Moreover, the connection from main wire 1 to block 20 does not include any of the heaters. When any of the heaters are working, therefore, block 20 is at a different potential from neutral wire 3 and the lamp 22 will shine. The connections herein traced from main 2 through one or both heaters to the block 20 are, when the thermostat is closed, equivalent to a connection, not to the neutral wire 3, but to the main 1 because of the difference of potential just mentioned. Only when the thermostat has opened is the lamp extinguished. It is thus a reliable indication of when the oven is drawing current.

It will be evident to those skilled in the art that many modifications may be introduced without departure from the spirit of this invention, and I desire that the diagram and description shall be considered as illustrative only. The invention is not limited, except by the express limitations in the claims or as required by the prior art.

I claim as my invention:

1. The combination with a three-wire circuit including two main wires and a neutral wire, of a pair of current-consuming devices, means including a control switch, a manual switch for selectively connecting said devices to one of said main lines and for effecting connection of the control switch to the other main line, an indicator, and means including said control switch for connecting both said devices and one terminal of said indicator to said other line through said manual switch, the other terminal of said indicator being connected to said neutral wire.

2. The combination with a three-wire circuit including two main wires and a neutral wire, of a plurality of current-consuming devices, first switch means, means including second switch means for selectively connecting said devices to one of said main lines and for effecting connection of said first switch means to the other main line, an indicator, and means including said first switch means for connecting said devices and one terminal of said indicator to said other line through said second switch means, the other terminal of said indicator being connected to said neutral wire.

3. The combination with a three-wire circuit including two main wires and a neutral wire, of a plurality of heating elements, control means opening in response to predetermined temperature conditions, means including switch means for selectively connecting said elements to one of said main lines and for effecting connection of said control means, when closed, to the other main line, an indicator, and means including said control means, when closed, for connecting said heaters and one terminal of said indicator to said other main line through said switch means, the other terminal of said indicator being connected to said neutral wire.

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