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GB A 2080660 GB A 2044057 GB 1580909
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(54) Electric grill

(57) An electric grill is provided by a coiled wire electric heating element (4) accommodated in a recess (3) in the downwardly facing surface of an electrically and thermally insulating support (1), and a glass ceramic plate (7) secured across the mouth of the recess. The material of the support preferably has good thermally reflective properties, the glass ceramic plate serving to protect it against soiling by substances emitted from material being grilled.

The grill may be pivotally mounted to fold back to form a splash back to an upwardly facing cooking surface or reversibly mounted with the glass ceramic plate uppermost to provide a hob surface.

Fig.1.

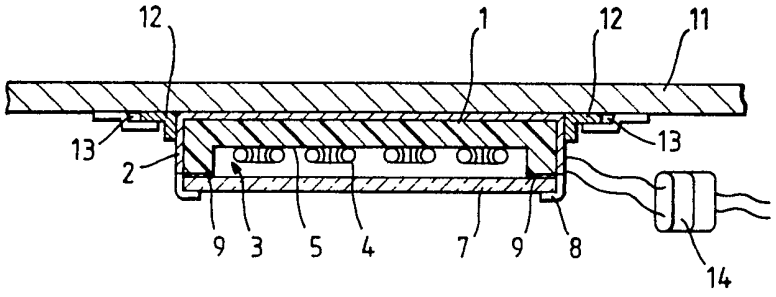

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Fig.1.

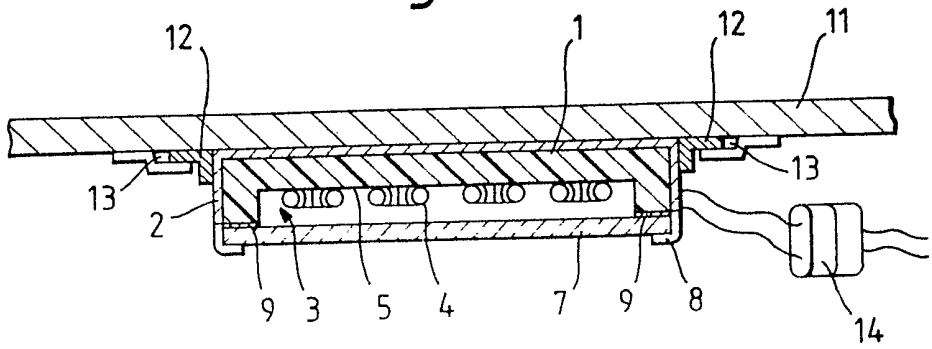
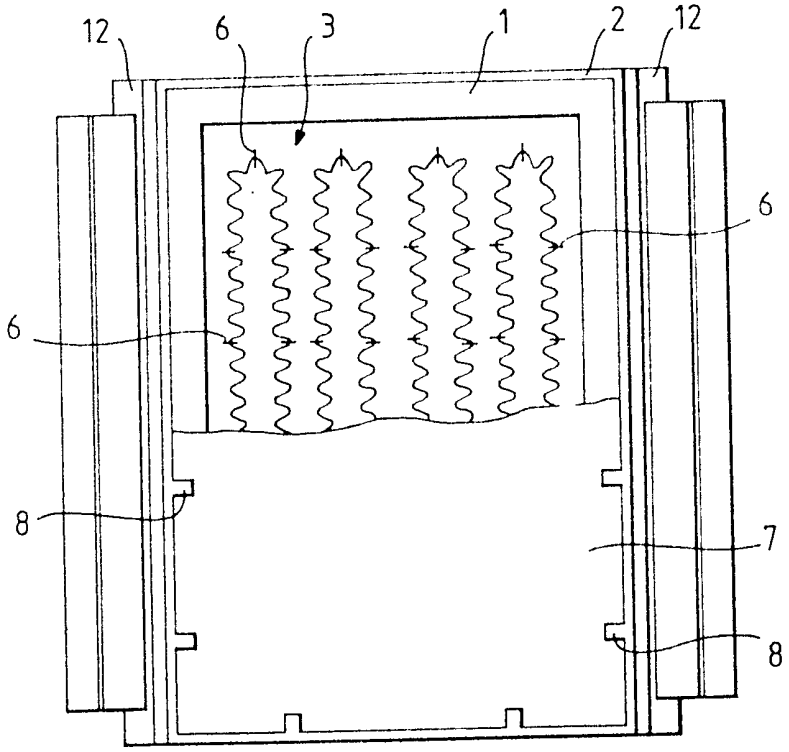


Fig.2.



SPECIFICATION

Electric grill

This invention relates to electric grills.

According to the invention an electric grill comprises a support of electrically insulating material having a recessed surface and means for securing the support to a carrier with its recessed surface directed downwards, at least one coiled wire electric heating element secured to the support within said recess, and a heat transmissive glass ceramic plate secured across the mouth of the recess.

The transmissive properties of the glass ceramic plate are preferably such that it is substantially transparent to infra-red radiations so that in use very little heating of the plate itself takes place as a result of the absorption of such radiations in use of the grill.

Preferably the support also has good thermal insulating properties, and is conveniently formed of a mixture of ceramic fibres and a silica or alumina aerogel pressed into shape.

Such a support enables the heating element or elements to be secured thereto by means of staples, although other methods of securing the element or elements to the support can alternatively be employed.

By utilising a thermal insulating material for the support the temperature above the grill in use are greatly reduced compared with those commonly employed at the present time, and the stressing of other electrical components is therefore also considerably reduced.

Moreover the reduced thermal mass compared with conventional grills employing sheathed electric heating elements or other heating means allows quicker heating of the grill to its operating temperature, with a consequent saving in energy.

Furthermore the light ceramic material of the support enhances the grilling effect by reflection, and the material of the support may have dispersed within it or on its surface a finely divided material which enhances its heat reflecting properties. Such a material may consist for example of heat reflective beads of ceramic material.

It will be seen that the reflective backing is enclosed by the glass ceramic plate, and is therefore protected against soiling. Thus any substances, such as fat and the like, which are emitted from material being grilled, will be deposited on the outer surface of the glass ceramic plate from which they can be readily removed.

The removal of stubborn soiling from the surface of the glass ceramic plate could be facilitated by constructing the grill to be readily removable as a complete unit from the carier, the electrical connections to the element or elements conveniently being by means of plug and socket couplings.

A grill in accordance with the invention has the added advantage of enhanced safety as the heating element or elements is/are contained within an electrically insulated enclosure.

The support may incorporate a plurality of recesses each containing a respective heating element, or one or more recesses each containing a plurality of heating elements. Where the grill incorporates more than one heating element the elements may be separately controlled.

The grill unit may be mounted on a pivotable carrier, capable of being folded back to form a splash back to an upwardly facing cooking surface, which may be in the form of a conventional glass ceramic hob.

Alternatively the grill unit may itself be reversibly mounted so that it can be alternatively supported with the glas ceramic plate faces uppermost to provide a hob surface for heating pans and like utensils.

One grill in accordance with the invention will now be described by way of example with reference to Figs. 1 and 2 of the accompanying schematic drawing, in which

Figure 1 illustrates a sectional elevation of the grill, and

Figure 2 a view of the grill from below.

Referring to the drawing the grill comprises a support 1 of thermal and electrical insulating material, formed by lightly pressing a slurry containing an intimate mixture of ceramic fibres and a silica aerogel particles to shape and drying. The support is in the form of a flat, approximately rectangular, block held in a similarly shaped metal dish 2, and having in its exposed surface a recess 3 in which is accommodated a coiled wire electric heating element 4 secured to the base 5 of the recess by means of staples 6 (Fig. 2). The mouth of the recess is closed by a glass ceramic plate 7 secured in place by the bending over of tongues 8 spaced around the sides of the dish 2. A sealing gasket of heat resistant material may be provided between the plate 7 and the support, as at 9, if desired.

In use the grill unit is arranged to be supported with the glass ceramic plate 7 facing downwards from a carrier member 11, and for this purpose the dish 2 is provided with flanges 12 at its sides which can be slid into co-operating slots 13 beneath the carrier member to facilitate its removal for cleaning purposes, connections being made to the heating element by means of a plug and socket coupling shown diagrammatically at 14 (Fig. 1). Retaining means (not shown) may be provided for holding the grill unit in its operative position.

The base of the recess 3 may be planar as shown or provided with a suitably shaped groove into which the heating element 4 is fitted.

In a modification, two or more separately controlled heating elements may be located

within the recess 3 each connected to respective leads by a plug and socket coupling. Such an arrangement could, for example, incorporate one element disposed in a central region of the recess with two further elements located one at either side of the first. Alternatively the support may be formed with a plurality of recesses each accommodating one or more heating elements, with a single glass ceramic plate extending across the mouths of all the recesses, or each recess closed by an individual glass ceramic plate. Other configurations are clearly possible.

Moreover alternative methods of securing the glass ceramic plate 7 across the recess 3, and of mounting the complete unit on the carrier member 11 can be employed if desired.

CLAIMS

1. An electric grill comprising a support of electrically insulating material having a recessed surface and means for securing the support to a carrier with its recessed surface directed downwards, at least one coiled wire electric heating element secured to the support within said recess, and a heat transmissive glass ceramic plate secured across the mouth of the recess.

2. An electric grill according to Claim 1 in which the support is formed of a mixture of ceramic fibres and a silica or alumina aerogel pressed into shape.

3. An electric grill according to Claim 2 wherein the heating element is secured to the support by means of staples.

4. An electric grill according to Claims 1, 2 or 3 wherein the material of the support has dispersed within it a finely divided material which enhances its heat reflecting properties.

5. An electric grill according to Claim 4 wherein the finely divided material consists of heat reflective beads of ceramic material.

6. An electric grill according to any preceding Claim in which the grill is removably secured to the carrier, and electrical connections to the heating element or elements incorporate one or more plug and socket couplings to permit complete removal of the grill from the carrier.

7. An electric grill according to any preceding Claim in which the support incorporates a plurality of recesses each containing a respective heating element, or one or more recesses each containing a plurality of heating elements.

8. An electric grill according to Claim 7 in which the heating elements are separately controllable.

9. An electric frill according to any preceding Claim in which the grill is mounted on a pivotable carrier, capable of being folded back to form a splash back to an upwardly facing cooking surface.

10. An electric grill according to any preceding Claim which is reversibly mounted so that it can alternatively be supported with the glass ceramic plate uppermost to provide a hob surface for heating pans and like utensils.

11. An electric grill substantially as shown in and as hereinbefore described with reference to Figs. 1 and 2 of the accompanying drawing.

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