

OPINION UNDER SECTION 74A

Patent	EP(UK) 0838974
Proprietor(s)	Mrs Susan Murgitroyd
Exclusive Licensee	
Requester	Mr Berni Hambleton, on 6 May 2008
Observer(s)	
Date Opinion issued	23 July 2008

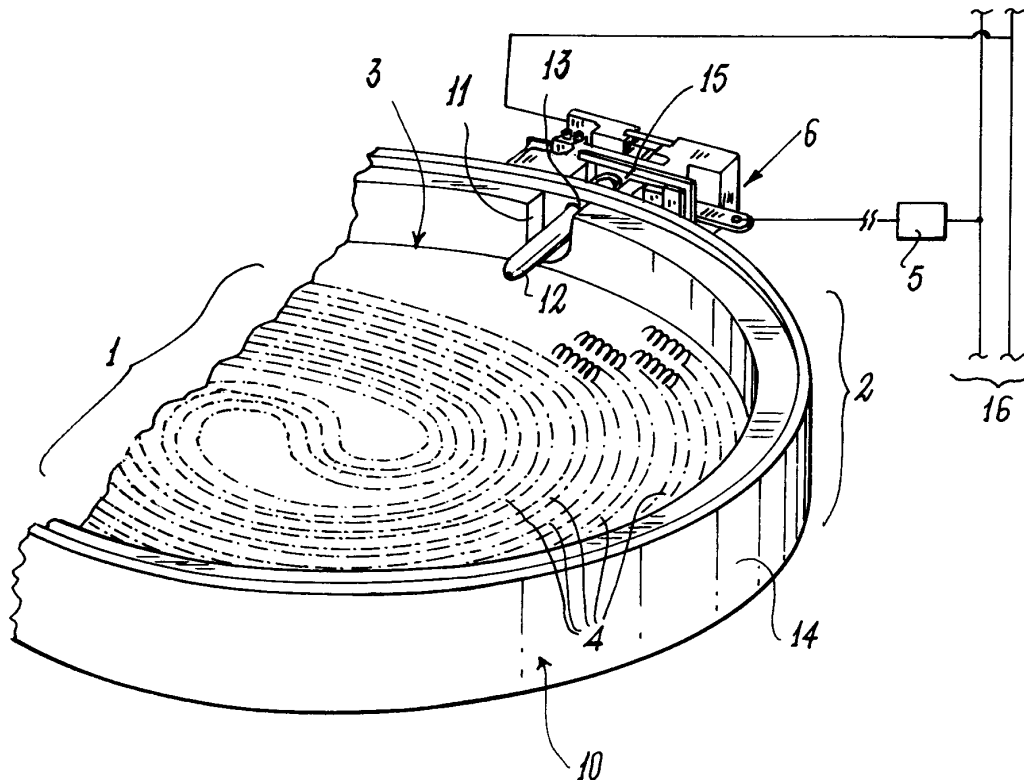
The request

1. The comptroller has been requested to issue an opinion as to whether claims 1 to 6 of EP0838974 ("the patent") are valid in light of patent documents GB2218605 and EP0021107. More specifically the request suggests that claims 1 to 3 of the patent are not novel and/or inventive in view of the disclosure in GB2218605 and that claims 4 to 6 are not inventive in view of the disclosures in GB2218605 and EP0021107 combined.
2. No observations have been received in response to the request.
3. Document EP0021107 was listed on the original search report. However, GB2218605 appears to be a new document, I can find no suggestion that it was considered prior to the grant of the patent.

The patent

4. EP0838974 was filed on 24 September 1997, claiming a priority date of 25 October 1996 from application IT MI960714 U. The patent was granted on 18 April 2007 and remains in force.
5. The patent concerns an arrangement of a glass ceramic cooking hob having a heating element and a safety device. There is a single figure (reproduced below) showing an embodiment of the invention including heating element 1 with heating generators 4, temperature sensitive

member 6, control member 5 and heat transfer enabling part 12:



6. The granted claims are as follows:

- 1 An arrangement of a safety device and a heating element (1) of a glass ceramic cooking hob and arranged to prevent overheating of this latter, said element (1) comprising an insulating body (2) defining a seat (3) containing at least one heat generator (4), said device comprising a measuring member (6) sensitive to the temperature of said heating element (1) and arranged to deactivate the operation of the heat generator (4) whenever this temperature exceeds a predetermined value, said measuring member (6) being associated externally with a side wall (10) of the insulating body (2) and having a measuring part (15) connected to a heat transfer enabling part (12) projecting partially above the heat generator (4), said heat transfer enabling part (12) becoming heated following the generation of heat by said generator (4), said heat being transferred to the measuring part (15) external to the heating element so as to be measured by this latter, characterised in that the heat transfer enabling part (12) is passing through said wall (10) of the insulating body (2), so enabling the measuring member (6) to act on the power supply of said generator, in order to interrupt it

whenever this temperature exceeds the predetermined value.

- 2 *An arrangement as claimed in claim 1, characterised in that the measuring member is a thermal safety switch.*
- 3 *An arrangement as claimed in the preceding claims, characterised in that the heat transfer enabling part (12) passes through a hole (15) provided in the wall (10) of the insulating body and projects to a limited extent above the heat generator (4).*
- 4 *An arrangement as claimed in claim 1, characterised in that the measuring member (6) external to the heating element (4) is connected to means (5) for controlling the operation of said element (1).*
- 5 *An arrangement as claimed in claim 4, characterised in that the control means are a control member operating in accordance with a predetermined and pre-programmed procedure for powering the heating element (1) which is able to estimate the temperature of the glass ceramic hob part above said element (1).*
- 6 *An arrangement as claimed in claim 5, characterised in that the control member (5) is a microprocessor unit operating in accordance with fuzzy logic.*

Claim construction

7. Before considering the documents put forward in the request I need to construe the claims of the patent, following the standard principles of claim construction set out in *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 9. I should put a purposive construction on the claims and follow section 125(1) of the Patents Act 1977 and the Protocol on the Interpretation of Article 69 of the European Patent Convention by interpreting the claims in the light of the description and drawings. In other words, the question is always what the person skilled in the art would have understood the patentee to be using the language of the claim to mean.
8. In this case the request makes no mention of who might be the skilled addressee. To my mind the skilled addressee is someone working in the design and manufacture of glass ceramic cooking hobs and their heating elements.
9. However, it is also my view that the claims require little interpretation, they are clear at face value. Only claims 1 and 4 deserve more attention. Claim 1 requires a “measuring member” sensitive to

temperature. One might construe this to mean a device that provides a value for the temperature sensed. However, it seems clear that this is not the case. For example claim 2 requires the measuring member to be a thermal safety switch and the member 6 in the specific embodiment is similarly described as a thermal switch (see paragraph 0011). In fact no alternative forms for measuring member are described in the patent, although the prior art is said to include a controlling thermostat (see paragraph 0003). So it is tempting to say that I should construe measuring member sensitive to temperature to mean only a thermal switch. However, I feel that this is unduly limiting and to my mind a skilled man would understand this term to indicate any device responding to temperature irrespective of the nature of its output, i.e. the term encompasses for example a switch and also a device with an output proportional to the temperature sensed.

10. In claim 4 the measuring member is required to be connected to means for controlling the element. To my mind this is different to the situation where the measuring member itself is a thermally responsive switch and there is no need for any further control means, i.e. claim 4 requires some control means external to the measuring member even if that control means is itself a simple switch.

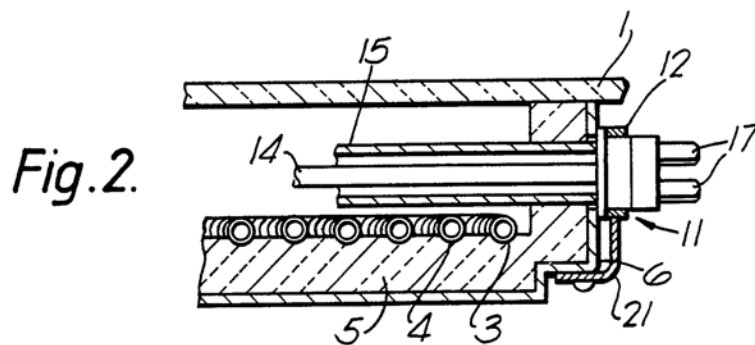
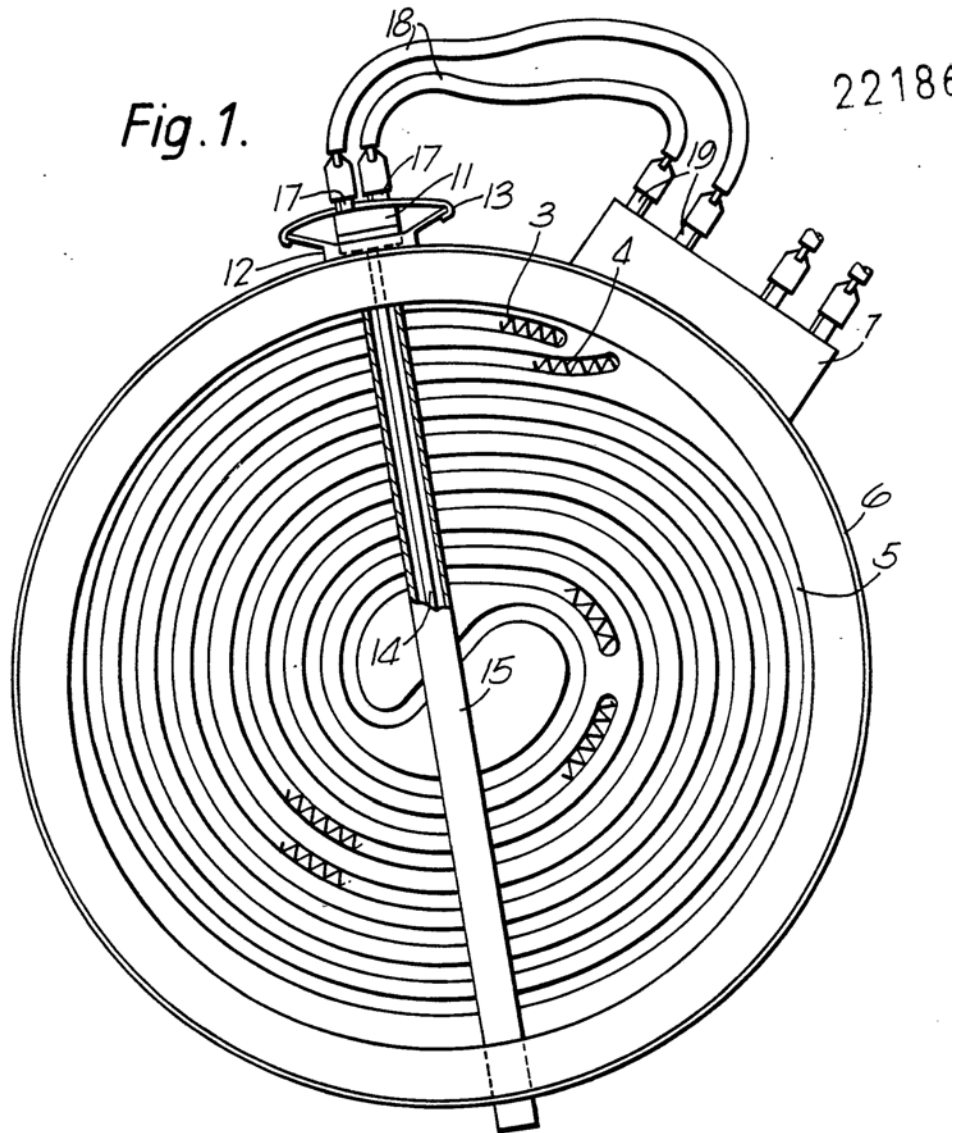
The prior art

11. The following documents are referred to in the request:

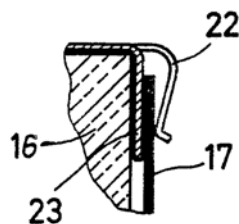
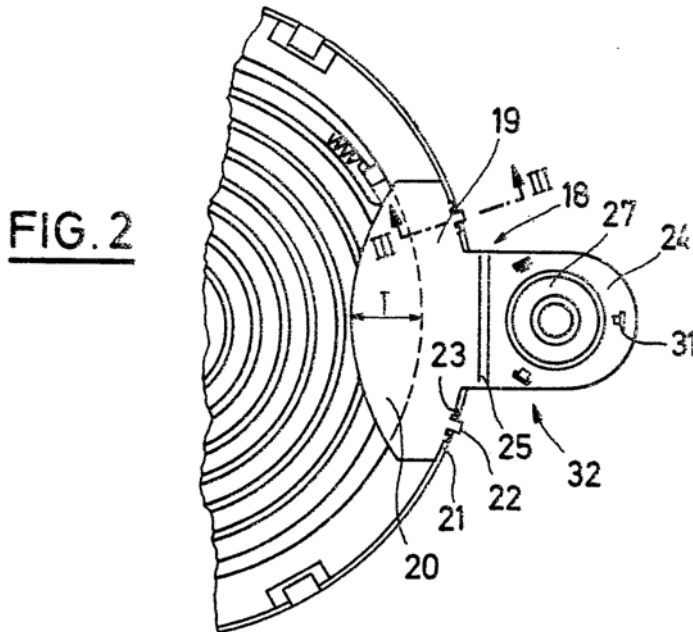
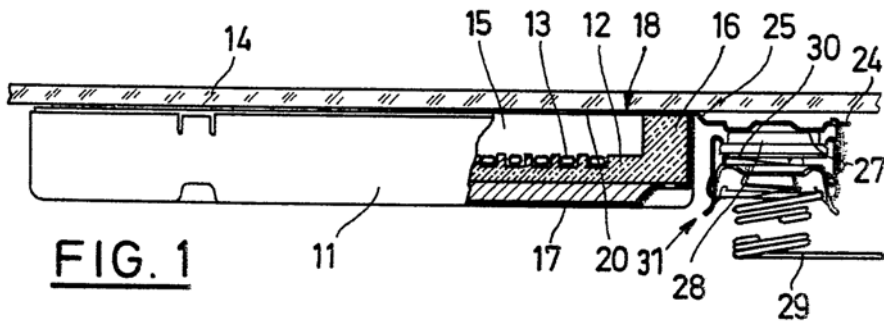
GB2218605
EP0021107

12. Both documents were published well before the priority date of the patent. As I have already mentioned EP0021107 was listed on the search report for the patent and GB2218605 does not seem to have been considered previously in the context of the patent.
13. These documents are concerned with heating elements for glass ceramic cooking hobs including temperature sensors and control means. The specific embodiment in GB2218605 (see figures below) shows a heater unit with heating elements 3 and 4 supported on a ceramic support 5 within a sheet metal casing 6 below a glass ceramic plate 1. Thermal sensor 11 is mounted on one side of conductive plate 12 and thermally conductive rod 14 is connected to the other side of plate 12. The rod 14 extends across the heater unit above the heating elements 3, 4 and is contained within a quartz tube 15. The description makes it clear that the rod 14 may extend partially or completely across the heater unit. The sensor 11 in the embodiment is described as

connected to just one of the two heating elements, but the description makes it clear that the sensor may be used to control one or more heating elements.



14. The figures of EP0021107 (below) show a heating unit with a glass ceramic plate 14 beneath which are heating resistors 13 mounted on an insulator 12 within a support shell 17. A temperature sensor 28 is mounted outside the heating unit and connected to a heat transfer element 18, an inner portion 20 which projects into the space beneath the plate 14 and above the resistors 13.



Validity - novelty

15. The request only relies on GB2218605 to question the novelty of claims 1 to 3.
16. Taking the elements of claim 1 of the patent in turn: it seems clear to me that GB2218605 is concerned with an arrangement of a safety device and a heating element of a glass ceramic cooking hob, arranged to prevent overheating of the hob, indeed GB2218605 discusses overheating of hobs on page 1 of the description. The figures of GB2218605 show an insulating body (reference 5) defining a seat containing at least one heat generator (references 3 and 4). Thermal sensor 11 constitutes a measuring member sensitive to the temperature of the heating element and arranged to deactivate the operation of the heat generator whenever this temperature exceeds a predetermined value. As I have noted above although claim 1 of the patent talks of measurement this is not in the sense of outputting a numerical value, but rather merely responding once the temperature exceeds a particular temperature. The thermal sensor 11 is shown associated externally with a side wall of the insulating body 5 and has its measuring part connected to a heat transfer enabling part 14 projecting partially above the heat generator 3/4 and becoming heated by the heat generator 3/4, the heat being transferred to the measuring part of sensor 11 external to the heating element so as to be measured by the sensor by means of the heat transfer enabling part 14 passing through the wall of the insulating body.
17. Finally claim 1 requires that the measuring member should act on the power supply to the heat generator in order to interrupt it whenever the temperature sensed exceeds the predetermined value. GB2218605 does not show explicitly the electrical connection between the thermal sensor 11 and heating elements 3 or 4 or their power supply, although both the sensor 11 and heating elements 3, 4 are said to be connected to terminal box 7 so that the sensor 11 is in series with one of the heating elements (see page 4 lines 4 to 6) and the sensor or switch is said to switch off one or more of the elements (see lines 17 to 20 on page 3, lines 19 and 20 on page 4 and claim 9). Therefore it seems clear to me that a skilled man would understand the disclosure of GB2218605 to show that thermal sensor or thermally-responsive switch 11 should interrupt the power supply to one or more of the heating elements 3 or 4.
18. Thus it would appear that all of the integers of claim 1 are shown in GB2218605.

19. The request also seeks an opinion as to whether claims 2 and 3 are novel in light of GB2218605. Claims 2 and 3 are as follows:
 2. *An arrangement as claimed in claim 1, characterised in that the measuring member is a thermal safety switch.*
 3. *An arrangement as claimed in the preceding claims, characterised in that the heat transfer enabling part (12) passes through a hole (15) provided in the wall (10) of the insulating body and projects to a limited extent above the heat generator (4).*
20. The thermal sensor 11 in GB2218605 is described as a thermally responsive switch device (e.g. on lines 27 and 28 of page 3) and the opening part of the description makes it clear that this is in the context of preventing over-heating of the glass ceramic plate, exactly the same risk to which the invention in claim 1 of the patent is directed. Thus the requirements of claim 2 are shown in GB2218605.
21. The thermally conductive rod 14 in GB2218605 corresponds to the body 12 in claim 3 of the patent and is said to pass through close fitting openings in the side wall of the support (see page 3 line 36 and page 4 line 1). On page 4 between lines 10 and 14 it is made clear that the rod 14 need not extend completely across the heater unit. Consequently the requirements of claim 3 are also shown in GB2218605.

Validity – obviousness

22. The request states that claims 1 to 3 of the patent are obvious in light of GB2218605 and that claims 4 to 6 are obvious in light of a combination of the disclosures in GB2218605 and EP0021107.
23. In considering the question of obviousness I shall follow the approach set out in *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*, [1985] RPC 59A as restated and elaborated upon in *Pozzoli SPA v BDMO SA* [2007] EWCA Civ 588. The four steps of the so-called Windsurfing test have been reformulated as follows:
 - (1)(a) Identify the notional “person skilled in the art”
 - (1)(b) Identify the relevant common general knowledge of that person;
 - (2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;
 - (3) Identify what, if any, differences exist between the matter cited as forming part of the “state of the art” and the inventive concept of the claim or the claim as construed;
 - (4) Viewed without any knowledge of the alleged invention as claimed,

do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

24. The request does not follow this approach and there is no discussion of the person skilled in the art, nor of his common general knowledge, except to state that EP0021107 would be considered by the average skilled person. This does not seem to be the same as being part of that skilled person's common general knowledge. To my mind the person skilled in the art would be someone concerned with the design and manufacture of electrically heated cooking hobs and in particular glass ceramic hobs. Both the patent, GB2218605 and EP0021107 discuss prior art hobs comprising a glass ceramic surface beneath which is mounted an insulating body containing one or more heat generators associated with which is a control system responsive to temperature in order to deactivate one or more elements above a predetermined temperature. It seems to me reasonable to suppose that this would form part of the common general knowledge of the skilled man I have identified.
25. I have said above that to my mind claims 1 to 6 are largely clear as they stand. I have also said that I believe that temperature measurement as required by claim 1 need not imply any numerical or proportional output and that the means for controlling the element in claim 4 requires some control means external to the measuring member even if that control means is itself a simple switch.
26. That brings me to the third step, identifying the differences between the state of the art and the inventive concept of the claim. Regarding claims 1 to 3 the request only refers to GB2218605 which is presumably to be considered to be the state of the art. However, no differences between claims 1 to 3 and GB2218605 are identified in the request, it is merely asserted that if any of claims 1 to 3 are novel over GB2218605 then they are obvious in light of GB2218605. I cannot identify any differences between claims 1 to 3 and GB2218605. Since the subject matter of claims 1 to 3 is not novel it follows that it is also not inventive and I shall not consider the fourth step of the test from *Pozzoli/Windsurfing* concerning these claims.
27. The request does not make it clear whether GB2218605 or EP0021107 is to be considered the state of the art in respect of claims 4 to 6. This obviously has a bearing on what differences there are between the state of the art and the claimed invention. I shall take GB2218605 and EP0021107 as alternative starting points.
28. Claim 4 reads as follows:

4. An arrangement as claimed in claim 1, characterised in that the measuring member (6) external to the heating element (4) is connected to means (5) for controlling the operation of said element (1).

29. Taking GB2218605 as the state of the art there is no suggestion in GB2218605 of any additional control means beyond the sensor itself. Therefore the difference is the inclusion of such additional control means. I note that EP0021107 refers to the temperature sensor 28 being connected to a separate temperature regulator, which is not shown, by means of capillary tube 29 and also to the possibility of using electrical temperature sensors.
30. Taking EP0021107 as the state of the art, it shows the separate control means of claim 4, but not all of the requirements of claim 1, from which claim 4 depends. Therefore the difference between EP0021107 and claim 4, by virtue of its depending on claim 1 is that the heat transfer part does not pass through the wall of the insulating body, but rather between the insulating body and the glass ceramic plate. By contrast GB2218605 does show a heat transfer element projecting through the wall of an insulating body.
31. There seems to me no reason to suppose that these differences would be common general knowledge to the skilled man, I certainly have no evidence to suggest otherwise. However, between them GB2218605 and EP0021107 show all the elements of claim 4. So I must ask would it be obvious for the skilled man to combine these disclosures. Certainly the two come from the same art, but neither seems to embody common general knowledge and I can see no reason why starting from either document a skilled man would be led to the other and seek to combine the two. Therefore I do not believe that claim 4 would be obvious in light of the prior art referred to in the request.
32. Claim 5 reads as follows:

5. An arrangement as claimed in claim 4, characterised in that the control means are a control member operating in accordance with a predetermined and pre-programmed procedure for powering the heating element (1) which is able to estimate the temperature of the glass ceramic hob part above said element (1).
33. The control means of GB2218605 operates according to a predetermined procedure and is able to estimate the temperature of the glass ceramic part above the heating element, since it is seeking to avoid damage to that part. So the difference between claim 5 and GB2218605 is the inclusion of additional control means, by virtue of claim 5 depending on claim 4.

34. Starting from EP0021107 the presence of a temperature regulator in EP0021107 implies a predetermined and pre-programmed procedure for powering the heating element and the heat transfer element is shown in contact with the glass ceramic plate and inevitably therefore estimates its temperature. So to my mind the only difference between EP0021107 and claim 5 appears to be that the heat transfer part does not pass through the wall of the insulating body, by virtue of claim 5 depending on claim 1 by way of claim 4.

35. Since the differences between claim 5 and the state of the art are the same as those between claim 4 and the state of the art it follows that logically I must reach the same conclusion regarding the inventiveness of claim 5 that I reached regarding claim 4, in other words claim 5 would not be obvious in light of the prior art referred to in the request.

36. Claim 6 reads as follows

6. An arrangement as claimed in claim 5, characterised in that the control member (5) is a microprocessor unit operating in accordance with fuzzy logic.

37. The differences between the invention of claim 6 and the disclosures of GB2218605 and EP0021107 are the same as those differences identified above between the invention of claim 4 and GB2218605 and EP0021107 plus the requirements that the control member should be a microprocessor unit operating in accordance with fuzzy logic. I have already concluded that claims 4 and 5 are inventive in light of GB2218605 and EP0021107 and it therefore follows logically that claim 6 must also be inventive in light of that prior art. Unlike claim 5 however there is an additional requirement introduced by claim 6 that is not shown in the prior art, namely the microprocessor employing fuzzy logic. In the event that I am wrong above and that claim 4 is obvious then I should comment on whether this additional feature of claim 6 would be inventive. Neither GB2218605 nor EP0021107 discloses a microprocessor controller, nor the use of fuzzy logic. The request states that a microprocessor and the operation of fuzzy logic were both well-known and that therefore there was no invention in their selection. Although no evidence is adduced to support the assertion that microprocessors and fuzzy logic were known at the priority date I am sure that this is true. However, I am much less sure that they would have been common general knowledge to the man skilled in the art of glass ceramic hobs and that he would consider their use obvious. The prior art gives no indication that any control systems more complex than thermally responsive switches and thermostats were known in the art. So I have no reason to conclude that it would be obvious for the skilled

man to employ a microprocessor or fuzzy logic in the control systems shown in GB2218605 and EP0021107. Consequently I believe that claim 6 is inventive in light of GB2218605 and EP0021107.

Opinion

38. I conclude that the claims 1 to 3 of the patent are not novel in light of the disclosure in GB2218605 and that claims 4 to 6 are inventive in light of GB2218605 and EP0021107.

Application for review

39. Under section 74B and rule 77H, the proprietor may, within three months of the date of issue of this opinion, apply to the comptroller for a review of the opinion.

NOTE

This opinion is not based on the outcome of fully litigated proceedings. Rather, it is based on whatever material the persons requesting the opinion and filing observations have chosen to put before the Office.

40.

Karl Whitfield
Examiner