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D E C I S I O N
of 29 November 1994

Case Number: T 0326/93 - 3.5.1

Application Number: 84306455.1

Publication Number: 0146215

IPC: G05D 23/27

Language of the proceedings: EN

Title of invention:
Thermal limiter

Patentee:
THORN EMI

Opponent:
E.G.O. Elektro-Geräte Blanc u. Fischer
Ceramasppeed Limited

Headword:

Relevant legal provisions:
EPC Art. 100(a), (c), 54(2), (3), 56

Keyword:
"Public prior use (no)"
"Novelty under Art. 54(3) (yes)"
"Inventive step (yes)"

Decisions cited:
G 0009/91, G 0010/91, T 0219/83, T 0270/90, T 0208/88

Catchword:



Case Number: T 0326/93 - 3.5.1

D E C I S I O N
of the Technical Board of Appeal 3.5.1
of 29 November 1994

Appellant:
(Opponent)

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office dated 4 February 1993
rejecting the opposition filed against European
patent No. 0 146 215 pursuant to Article 102(2)
EPC.**

Composition of the Board:

Chairman: P. K. J. van den Berg
Members: C. G. F. Biggio
 G. Davies

Summary of Facts and Submissions

- I. European patent No. 0 146 215 was granted on 18 January 1989 on the basis of European patent application 84 306 455.1.
- II. The independent claim as granted reads as follows: "A thermal limiting device (10) suitable for controlling power supplied to one or more sources (5, 6, 7, 8) of infra-red radiation arranged, in a heating apparatus, below a cooktop made of a glass ceramic material, said one or more sources being emissive of infra-red radiation in a first wavelength range centred substantially on 1.2 micrometres and said glass ceramic material being effective to re-radiate radiation in a second wavelength range exceeding about 4.5 micrometres, the thermal limiting device (10) comprising a metal wire member (11) a tubular member (12) disposed around the metal wire member (11), and switching means cooperable with the metal wire member and the tubular member (12) and being effective to disconnect a power supply whenever said metal wire member is exposed to a temperature in excess of a prearranged value, said tubular member (12) being made of a material which is substantially transparent to infra-red radiation in said first wavelength range and is absorbent of infra-red radiation in said second wavelength range, the device (10) being characterised by provision of an infra-red reflective coating disposed either on the surface of the metal wire member or on an inner surface of the tubular member thereby to reflect, away from the metal wire member (11), radiation which passes through the tubular member, wherein said infra-red reflective coating, if applied to said inner surface of the tubular member (12), consists of silver or gold and, if applied to said metal wire member (11), includes at least silver."

III. Two oppositions to the patent were filed. Both opponents requested the revocation of the patent in its entirety according to Article 100(a) EPC, for the reason that the subject matter of all the granted claims did not involve an inventive step. Opponent I, not active in the current appeal, further raised the issue of the novelty under Article 54(3) EPC of the independent claim with regard to document

D22: EP-A-0 149 267.

IV. In oral proceedings which took place 13 January 1993, the Opposition Division announced its decision to reject the opposition. The written decision was issued on 4 February 1993.

V. An appeal was submitted by Opponent II on 23 March 1993, together with the appropriate fee. A Statement of Grounds of Appeal was received on 21 May 1993. The Appellant argued, as in the opposition, that the independent claim of the patent lacked an inventive step in the light of a public prior use of a prototype apparatus which was alleged to have taken place on 30 November 1983 at the Interbuild Exhibition at the NEC, Birmingham, England. New evidence to support this alleged public prior use was submitted. In the course of the appeal proceedings, the Appellant sought to raise a new ground for opposition, Article 100(c) EPC, asserting that the patent as granted included material extending beyond the application documents as originally filed.

VI. In a communication pursuant to Article 110(2) EPC dated 11 February 1994, the Rapporteur queried when and if the confidentiality agreement under which the parties had been working had expired. In addition to giving a preliminary assessment of the inventive step argument put forward by the Appellant, it was also suggested that

the novelty objection originally raised by Opponent I should be considered. In this context D22 and the following related applications were mentioned:

D23: EP-A-0 117 346,

D24: EP-A-0 132 888.

VII. Oral proceedings, held at the request of both active parties, took place on 29 November 1994. At these proceedings the Appellant announced that the objection under Article 100(c) EPC would not be pursued, and that it was only sought to have the patent revoked for lack of inventive step in the light of the alleged public prior use. The Respondent, however, also wished to address the issue of novelty under Article 54(3) EPC.

VIII. In their arguments the parties made reference to a number of declarations and supplementary evidence which had been submitted during the course of the proceedings. The following remain relevant:

J. A. McWilliams, dated 15 March 1989, at Appeal File page 44 (originally made in opposition to European patent No. 0 150 087);

J. A. McWilliams, dated 25 May 1990, in the Opposition File for Opponent II page 26;

F. J. Davis, dated 9 December 1992, in the Opposition File for Opponent II page 56;

S. M. Warrilow, dated 11 May 1993, at Appeal File page 12;

J. A. McWilliams, dated 18 May 1993, at Appeal File page 26;

B. F. Fellerman, dated 4 August 1993, at Appeal File page 53;

R. D. Smith, dated 17 September 1993, at Appeal File page 65;

W. Rippon, dated 23 November 1994, at Appeal File page 140.

IX. The parties argued essentially as follows:

The Appellant argued that a large number of heaters having gold-foil-wrapped limiters had been delivered to the Respondent in time to be fitted into the cooker displayed at the Interbuild Exhibition, pointing to the declaration and evidence supplied by S. M. Warrilow. The Respondent had the motivation to fit these heaters into the displayed cooker, these being the only heaters which performed satisfactorily at the time. Such limiters gave off a bright glow when in use, in contrast to the normal dark colour of an unwrapped limiter. This assertion was supported by the declaration of F. J. Davis, dated 9 December 1992, and the appended photograph, showing heaters employing a conventional and a gold-foil-wrapped limiter in operation, side by side. Such a glow had been observed by J. A. McWilliams (declaration of 18 May 1993), indicating that the limiters delivered had indeed been fitted. He had observed this in a public demonstration at the Interbuild Exhibition on 30 November 1983, that is one day before the first priority date of the contested patent. A skilled man, attending the demonstration, would also have observed the glow of the limiter and, knowing that the conventional limiter wire appeared as a dark line when the heater was in operation, would have immediately realised that the wire had been coated or wrapped in a highly reflective material. On the basis of his common knowledge, he would easily have come to the conclusion that the most appropriate embodiment of such an idea for production would be a silver-plated limiter wire, so that at least one alternative covered by Claim 1 of the contested patent was obvious.

In the light of the evidence provided, the Respondent accepted that the heaters had been delivered, remarking however that originally the Appellant had argued that different heaters had been fitted to the demonstrated cooker (see the declaration of J. A. McWilliams dated 25 May 1990). It was disputed however, that the heaters delivered represented the only viable alternative for demonstration at that time, and it was further disputed that these heaters had indeed been fitted (declaration of R. D. Smith dated 17 September 1993). As to the glow witnessed by J. A. McWilliams and from which the skilled man should infer the reflective coating of the limiter wire, various reasons why the skilled man might not have noticed such a glow or might not have made the argued inference were put forward. In particular, evidence was provided that under certain circumstances a conventional limiter wire could appear bright or a coated limiter could appear dark (brochures published by the Appellant, appended to the declaration by B. F. Fellerman dated 4 August 1993).

With regard to the novelty objection under Article 54(3) EPC, it was pointed out that the three cited documents were related, D22 and D24 being divisional applications derived from D23. It was therefore only necessary to discuss D23. It was first asserted that in fact D23 was not relevant under Article 54(3), since its date of filing was 2 December 1983, i.e. one day after the (first) priority date of the contested patent. The contents of the priority documents of D23 could not be cited under Article 54(3) EPC, since they were not European applications. Should the Board not agree, D23 anyway did not destroy the novelty of the claimed material, firstly because there was no reference to gold and silver, as such, and secondly because the structure of the limiter as claimed, in particular the tube, was not specified in D23.

With regard to the brochures cited by the Respondent, the Appellant counter-argued that in the case of the conventional limiter this picture had been manipulated to present four photographs as one picture (declaration by W. Rippon dated 23 November 1994). The coated limiter in the second picture only appeared dark because it had been photographed from directly overhead, whereas it was clear that the glow would be reflected more to the sides. The normal observing position would also be to one side.

- X. The Appellant requests that the decision under appeal be set aside and that the European patent No. 0 146 215 be revoked for lack of inventive step on the basis of prior use.

The Respondent requests that the appeal be dismissed and that the patent be maintained.

Reasons for the Decision

1. The appeal is admissible.
2. *Added Subject-Matter - Opposition under Article 100(c) EPC*

In the course of the appeal proceedings, the Appellant raised a new ground for opposition, namely Article 100(c) EPC. However, at the oral proceedings the Appellant stated that this issue would not be pursued. Given that the Respondent did not consent to the introduction of this new ground, the Board anyway cannot consider it, following the decisions G 9/91 and G 10/91 of the Enlarged Board of Appeal, OJ EPO 1993,408 (in particular Point 18).

3. *Novelty under Article 54(3) EPC*

3.1 Article 89 EPC states that "The right of priority shall have the effect that the date of priority shall count as the date of filing of the European patent application for the purposes of Article 54, paragraphs 2 and 3". Article 54(3) in turn states that "the content of European patent applications as filed, of which the dates of filing are prior to the date referred to in paragraph 2" (the date of filing of the European patent application) "and which were published under Article 93 on or after that date, shall be considered as comprised in the state of the art." The effect of these provisions is that the dates to be considered, both for the patent attacked and for the document which is alleged to destroy the novelty of the claimed material, are their respective effective priority dates. In this case the document D23 has priority dates, the latest being 1 August 1983, which are earlier than those of the patent, whose first priority date is 1 December 1983. Hence, to the extent that its priority dates are valid, D23 can indeed be cited against the novelty of the disputed patent under Article 54(3) EPC.

3.2 D23 makes two references to features of the limiter. Firstly, it is described as comprising a bimetallic rod arranged to operate a microswitch (page 4, lines 20 to 22). Secondly, it is stated that "the thermal limiter may be shielded from incident infra-red radiation so that it responds primarily to the temperature of the glass ceramic layer 2. The shield may take the form of a suitable infra-red reflective coating, such as a metallic-oxide coating, or the limiter may be enclosed in a tube of ceramic fibre, or other suitable material" (page 10, lines 14 to 19). Further, Figure 1 shows a limiter having the general shape of the conventional limiter described in the contested patent. D23 however

gives no teaching which, in the Board's opinion, could be considered an implicit disclosure of a gold or silver coating. It does not specify the wavelengths at which the coating should reflect incident radiation (in contrast to claim 1 of the contested patent), nor does it give any other indication of the considerations which would make a particular coating suitable. Even ignoring the fact that D23 only mentions metallic oxides, there is clearly a number of metals from which one might choose. The choice of gold or silver might be obvious, but the Board considers that it is clearly not so direct as to be considered implicit in the disclosure of D23.

- 3.3 Hence the Board concludes that the invention specified in the independent claim of the contested patent is novel with respect to the disclosure of D23.

4. *Public Prior Use and Inventive Step*

- 4.1 It is common ground between the parties that the sale by the Appellant of heaters employing gold-foil limiters to the Respondent was not of itself evidence of public prior use, in consequence of the confidentiality agreement into which they had entered.

The Appellant (Opponent) however alleges that there was a public prior use of heaters with gold-foil-wrapped limiters at the Interbuild Exhibition on 30 November 1983. In assessing this issue, the Board notes that the burden of proof lies with the Appellant (T 219/83 OJ EPO 1986,211) and that he must show, on the balance of probabilities (T 270/90 OJ EPO 1993,725), firstly that such heaters were publicly demonstrated at that time and secondly that the skilled man would have taken the necessary teaching from the demonstration (T 208/88 OJ EPO 1992,22).

The Board accepts that a sufficient quantity of such heaters, in fact ninety, were delivered to the Respondent in the time shortly before the exhibition; they were dispatched by the Appellant on 15 November 1983, according to the document annexed to and interpreted in the declaration of S. M. Warrilow dated 11 May 1993. This is not disputed by the Respondent. However, it is noted by the Board that even in these documents prepared at the time there is some confusion as to precisely what was delivered - the documents originating from the Appellant refer to gold-plated limiters, rather than the gold-foil limiters specified by the Respondent in the Purchase Order.

- 4.2 The Appellant's argument that these gold-foil limiters were then actually installed in the cooker displayed at the exhibition is twofold. Firstly it is argued that they must have been installed, since they were the only effectively working heaters available at the time. This has been disputed in the declaration of R. D. Smith dated 17 September 1993, where he points to alternatives which both the Appellant and Respondent had been developing, including the use of a ceramic tube over the normal fused silica tube. This alternative may also be seen from the above-cited document D23 (page 10, lines 18, 19) to constitute a plausible solution. The counter-argument put forward by the Appellant in the oral proceedings, that such tubes would not have been used because they introduce a thermal lag into the system, does not seem very convincing. It would appear that such tubes did offer a solution, even if not an ideal one, and could have been chosen for the exhibition for other reasons, such as that they had been more thoroughly tested. It is further to be noted that according to Mr. Smith's declaration, the gold-foil limiters not only **need** not have been used, but to the best of his recollection they **were** not used in the

cooker exhibited, although his statement also implies that other limiters employing a reflective coating may have been used.

- 4.3 The Appellant's second argument that the heaters with the gold-foil limiters were displayed rests on the declaration by J. A. McWilliams dated 18 May 1993 that there is a distinct visual difference between conventional and gold-foil limiters and that he had observed such a difference at the exhibition. Firstly, it must be observed that Mr. McWilliams cannot be said to have been an independent and detached observer. He was a director of the Appellant company and it is clear, by virtue of the Appellant's first argument, that he assumed the gold-foil limiters would be used, and therefore would have expected to observe such a difference. Under these circumstances, it would have been easy to misinterpret as being due to a gold-foil limiter visual effects which might have had other causes. Further, it is possible that other limiters having reflective coatings were used, as mentioned above. It would seem plausible that these too might "glow" due to reflected radiation and might be mistaken for the Appellant's gold-foil limiters, given that such gold-foil limiters were expected. In addition, it is noted that the previous declaration by Mr. McWilliams dated 25 May 1990 makes no reference to having observed any visual effect which might be ascribed to a gold-foil limiter, the argumentation in this declaration being limited to the first argument above. The still earlier declaration by Mr. McWilliams dated 15 March 1989, in support of an opposition to European Patent number 0 150 087, makes no explicit argument at all as to how he knew that the heaters demonstrated contained the gold-foil limiters, merely stating that "I ... witnessed the heater units supplied by my company being demonstrated in operation ...". Here he seems to have

been relying implicitly on the assertion contained in the same declaration (paragraph 12), that "Heater units incorporating these modified limiters were manufactured in November 1983, and 3 were provided by my company to TEDA **for display at the Interbuild Exhibition**. These units were delivered by hand to TEDA at the Exhibition site" (emphasis added) [TEDA was at that time the affiliate of the Patentee with which the Appellant was collaborating]. This view of the events clearly contradicts the current suggestion that the cookers demonstrated had already been fitted with heaters having gold-foil limiters which had been delivered in the fortnight previous to the exhibition. While it has not been disputed that the hand delivery at the exhibition did take place, it now seems to be accepted by both parties that the three heaters referred to in this earliest declaration were not in fact delivered for use in the cooker on display at the exhibition. This would also seem to be most probable to the Board in that the delivery date was apparently 30 November 1983, according to the Project Progress Sheet (Appeal File page 52), this date being in the middle of the exhibition, and the same date on which Mr. McWilliams witnessed the cooker being demonstrated. Hence it would seem that Mr. McWilliam's original recollection and interpretation of the events surrounding the exhibition was mistaken.

- 4.4 It is not disputed that a cooker employing infra-red heaters was publicly demonstrated at the Interbuild Exhibition on 30 November 1983. If the gold-foil limiters were in fact used in the equipment demonstrated, it still remains to be considered what the skilled man would have learned from the demonstration. The Appellant is of the opinion that the man skilled in the field of cooker heater design would have noticed a visually distinctive glow of a limiter wire when coated with gold-foil and would then have appreciated that some

form of reflective coating had been applied to the limiter wire. A photograph of two otherwise identical heaters in use side by side, one with an uncoated limiter and one with a gold-foil-wrapped limiter, was submitted with the statement of F. J. Davis dated 9 December 1992. A difference in the appearance of the two limiters may indeed be observed in the photograph (Appeal File page 70), the gold-foil-wrapped limiter appearing brighter. However, the Respondent has put forward a number of counter-arguments which make the Appellant's position less convincing. Firstly, it is pointed out that even in this photograph it may be noted that not only do the limiters have differing appearances, but also the heater lamps themselves apparently have different brightnesses, even though they were supplied with equal power. This suggests that the brightness observed may be affected by other factors, such as varying transparency of the ceramic cooking surface, even within one cooker. Secondly, the Respondent has pointed out that a visitor to the demonstration would not have been in a position to compare a wrapped and an unwrapped limiter directly next to each other. Thirdly the visitor would have been seeing infra-red heaters for the first time; they would have been in general much brighter than the then conventional radiation heaters, since they operate at around 2400°K instead of the conventional 1000°K. Any "glow" from the limiter could have been ascribed to the generally brighter environment. Finally, the Respondent has supplied two other pictures, both from brochures produced by the Appellant, which show the variability of the appearance of limiters (Annexes BFF2 and BFF3 to the declaration by B. F. Fellerman dated 4 August 1993 - Appeal File pages 60 and 63). In the first, one conventional limiter clearly does not appear as a dark line against the background of the heating coils. In the second, a limiter with a reflective coating clearly does

appear as a dark line. The Appellant has explained (declaration by W. Rippon dated 23 November 1994) that the first picture is actually made up of four separate photographs, manipulated and touched up to make one picture wherein the heating elements all have similar brightness. However, this declaration does not suggest that constituent parts of a single photograph, e.g. heating element and limiter, have been manipulated differently, and hence does not rebut the observation that there are circumstances in which a conventional limiter may appear almost as bright as the associated heating element. The Appellant's explanation of the visual effect in the second picture, that it is the result of the photograph being taken from vertically above the heater, seems plausible. Nonetheless, this picture also illustrates that the appearance of a limiter may be influenced dramatically by factors (in this case the angle of observation) other than its coating.

4.5 Taking into account the inconclusive nature of the evidence that gold-foil-wrapped limiters were in fact included in the equipment demonstrated at the Interbuild Exhibition on 30 November 1983, and the doubts which the Respondent has successfully raised as to whether the skilled man would anyway recognise that such limiters had been covered in a reflective material, the Board concludes that the Appellant has not established on the balance of probabilities that the alleged public prior use took place.

4.6 Since the Appellant's attack on the inventive step of the claimed invention was dependent on the alleged public prior use, this attack as a whole is therefore not convincing. Neither are there any other documents or

information in the file which would cause the Board prima facie to doubt the inventiveness of the claimed material.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

M. Kiehl

P. K. J. van den Berg