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D E C I S I O N
of 7 April 2006

Case Number: T 0884/05 - 3.4.03

Application Number: 98904301.3

Publication Number: 1013148

IPC: H05B 3/82

Language of the proceedings: EN

Title of invention:
Electric heaters

Patent Proprietor:
STRIX LIMITED

Opponents:
Otter Controls Ltd.
Koninklijke Philips Electronics N.V.

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56, 123(2)

Keyword:
"Prior use by sale - (yes)"
"Novelty - (yes)"
"Inventive step - (yes)"
"Amendment of claim permissible - (no)"

Decisions cited:
T 0191/93

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0884/05 - 3.4.03

D E C I S I O N
of the Technical Board of Appeal 3.4.03
of 7 April 2006

Appellant: (Opponent)	Otter Controls Ltd. Hardwick Square South Buxton, Derbyshire SK16 6LA (GB)
Representative:	Cross, James Peter Archibald R.G.C. Jenkins & Co. 26 Caxton Street London SW1H 0RJ (GB)
(Opponent)	Koninklijke Philips Electronics N.V. Groenewoudseweg 1 NL-5621 BA Eindhoven (NL)
Representative:	Cross, James Peter Archibald R.G.C. Jenkins & Co. 26 Caxton Street London SW1H 0RJ (GB)
Respondent: (Patent Proprietor)	STRIX LIMITED Forrest House Ronaldsway Isle of Man IM9 2RG (GB)
Representative:	Samuels, Adrian James Frank B. Dehn & Co. St. Bride's House 10 Salisbury Square London EC4Y 8JD (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted 12 April 2005 concerning maintenance of European patent No. 1013148 in amended form.**

Composition of the Board:

Chairman: R. G. O'Connell
Members: E. Wolff
U. Tronser

Summary of Facts and Submissions

I. This is an appeal by opponent I against the maintenance of European Patent 1 013 148 in amended form.

II. The appellant opponent requests that the decision under appeal be set aside and that the patent be revoked.

III. The following evidence cited in the opposition proceedings and relevant to the board's decision was cited by the appellant opponent in the course of the appeal proceedings:

Dl: Article by Robert B. Schabacker of Ferro-EECA Electronics Company entitled "The Porcelain Enameled Metal Substrate and its Application for Electronic Circuitry"

Dl0: First declaration of Mr. R. Martter dated 06.06.03

D15: WO-A-9 617 496

D22: Second declaration of Mr. R. Martter dated 12.09.03

D23: Third declaration of Mr. R. Martter dated 16.02.04

The following evidence considered relevant by the board was relied on by the appellant opponent for the first time in the course of the appeal proceedings:

Mr. R. Martter, called as witness by the appellant opponent

and

Exhibit A: A sample of a soup bowl

Documents

D27: WO 96 18 331 A

D28: Certification of invoices and delivery notes concerning sales of soup bowls to the State University of New York, St Anthonys Hospital, Lousiville, Kentucky, and AMI Palmetto General Hospital

D29: Fourth declaration of Mr. R. Martter dated 12 August 2005

IV. The respondent proprietor requested that the appeal be dismissed or that the patent be maintained on the basis of claim 1 of an auxiliary request filed 7 March 2006.

V. Claim 1 of the patent as maintained (main request) reads as follows:

1. "1. A thick film printed electric heater (1) for a liquid heating vessel comprising a substantially circular stainless steel support plate on which is provided an insulating layer of glass, glass-ceramic or ceramic, said layer being provided with a thick film resistive heating track (7) being substantially of a first track material and printed in a pattern including at least two discrete sections in the form of concentric C-shaped rings connected electrically in

series by a bridge of second track material (11) formed as a printed section of ink comprising a high proportion of conductive material such as silver, said bridge thereby having a lower resistivity than the first track material, the arrangement of said bridge being such that the overall heating track including said resistive heating track sections and said bridge forms a continuous electrical path from a terminal portion to another terminal portion, such that in use failure of the track due to overheating by current crowding between said track sections is prevented by said bridge."

Claim 1 of the auxiliary request reads as follows:

"1. A thick film printed electric heater (1) for a liquid heating vessel comprising a substantially circular stainless steel support plate on which is provided an insulating layer of glass, glass—ceramic or ceramic, said layer being provided with a thick film resistive heating track (7) being substantially of a first track material and printed in a pattern including at least two discrete sections in the form of concentric C—shaped rings connected electrically in series by a bridge of second track material (11) formed as a printed section of ink comprising a high proportion of conductive material such as silver, said bridge thereby having a lower resistivity than the first track material, the arrangement of said bridge being such that there is a single current path into the bridge from one of the track sections and out of the bridge to the other track section so that the overall heating track including said resistive heating track sections and said bridge forms a continuous electrical

path from a terminal portion to another terminal portion, such that in use failure of the track due to overheating by current crowding between said track sections is prevented by said bridge."

VI. During oral proceedings, the appellant opponent (I) and opponent II were represented by a common representative who stated at the outset that opponent II agreed with all submissions made by the appellant opponent (I).

VII. The appellant opponent's arguments, in so far as they are relevant to the board's decision, can be summarized as follows.

Prior use 1, that is, use of a heated soup bowl as disclosed in document D1, was found by the opposition division not to have been substantiated. The newly furnished evidence including the proffer of Mr. Martter as a witness, was submitted in response to the findings of the opposition division.

In arriving at its conclusion, the opposition division had set the standard of proof too high; it should have evaluated the evidence before it on the basis of the balance of probabilities. The present case was closer to T 254/98 than T 472/92 (OJ 1998, 161); this was not a case where all the relevant information about the prior use was held by the appellant opponent.

The choice of material, which constituted the only difference between claim 1 of the main request and the prior art soup bowl, was not just an option well known in the industry and therefore obvious, but had to be considered as the solution to a different, unrelated

problem which could not confer an inventive step which the claimed invention otherwise lacked.

The additional feature of claim 1 of the auxiliary request constituted an impermissible intermediate generalisation.

VIII. The respondent proprietor's arguments, in so far as they are relevant to the board's decision, can be summarized as follows.

The evidence relating to prior use 1 was submitted only after the expiry of the nine-month opposition period. It did not, as it should have done in the given circumstances, provide conclusive proof of prior use 1. The independence of the witness proffered was not beyond doubt. Moreover, the witness was, at the time, responsible for marketing and would not have been concerned with the technical details of the products sold. Even if prior use 1, that is, manufacture and sale of soup bowls, were proved, it would not be technically relevant since the claimed invention concerned kettles for boiling water, not bowls for warming soup.

The choice of the material for the metallic base distinguished claim 1 clearly from the prior art soup bowl and was an important element of the claimed invention.

As regards the feature added to claim 1 of the auxiliary request, this was directly and unambiguously derivable from the drawings of the application as filed.

Reasons for the Decision

1. The appeal is admissible.

2. *Admissibility of the evidence presented after the nine-months period for opposing the patent*

2.1 The respondent proprietor argued that nearly all the evidence relating to prior use 1 had been submitted after the expiry of the period of nine months for filing a notice of opposition, and that it had therefore not been submitted in due time. The same applied to the further evidence submitted by the appellant opponent for the first time at the appeal stage.

2.2 Prior use through the sale of thousands of soup bowls of the kind illustrated in document D1, referred to as prior use 1, was alleged in the notice of opposition. Evidence for this prior use was provided in the form of affidavits.

2.3 In its decision, the opposition division found document D1 to have been made available to the public before the priority date of the patent, but also that document D1 did not disclose unambiguously what the technical features were of the soup bowl illustrated there. The opposition division further found that the assertion that the soup bowls shown in document D1 were the same as the soup bowls referred to in Mr. Martter's declarations as having been sold had been insufficiently substantiated.

2.4 For these reasons the board sees no reasons for objecting to the appellant opponent providing during the appeal proceedings additional responsive evidence - including the calling of a witness - in respect of the prior use 1 alleged at the outset but found to be insufficiently substantiated during the opposition proceedings.

3. *Prior Use 1*

3.1 As discussed in greater detail in paragraph 5.1 below, the soup bowl of exhibit A consists of enamelled steel. As seen from above, it has a roughly square outline with gently outwardly curved sides and rounded corners. Within that outline is a well having a similar outline. The bottom section of the well has the shape of an inverted shallow dome, with its deepest point lying at the centre. The underside, that is to say the outside of the dome-shaped section, has formed on it a series of concentric thick-film resistor heating strips interconnected by silver conducting sections and terminals for electrical connection.

3.2 According to the witness, the soup bowl of exhibit A was representative of tens of thousands of soup bowls of the same construction which had been manufactured and sold to hospitals and other public institutions between the early 1980s and the mid-1990s. The basic design of the soup bowls had not changed in that period, although there had been some colour changes. There had also been some changes in the design of the plastic casing in which the bowls were mounted. These peripheral changes explained the reference to new style bowls in some of the submitted invoices. The witness, a

qualified mechanical engineer, had been in charge of sales during a major part of the period during which these bowls were made and sold.

3.3 The witness further stated in response to a direct question that he knew of no connection between, on the one hand, Ferro Techniek BV, a Dutch company against whom the proprietor had initiated infringement proceedings under the patent and, on the other hand, Heatron, the company in which he was Vice President of Thick Film Products and General Manager of the ECA Electronics Division. He himself had previously worked for Ferro Corporation and then for Ferro ECA, both US corporations. Ferro ECA had been set up as a joint venture between Ferro Corporation and ECA (Erie Ceramic Arts) to manufacture, among a small number of other products, the soup bowls of which exhibit A represented an example.

3.4 Ferro Corporation had been attempting at the time to repeat in Europe the success the Ferro-ECA joint venture was having in the US, and together with the Dutch company Ferro Enamelling had founded a joint venture called Ferro Elektronik BV. However, the success of the US joint venture could not be replicated by the European joint venture, and Ferro Corporation had withdrawn from it. It was his recollection that Ferro Elektronik BV later became Ferro Techniek BV. Heatron and Ferro Techniek BV were competitors. There was no connection between Heatron and Strix Limited, the patent proprietor, nor had there been any contact between these two companies.

3.5 The board sees no reason to doubt either the veracity of Mr. Martter's declarations or that of his testimony given during the oral proceedings. Moreover, as the geometric shape of the bowl of exhibit A is fairly distinct and the layout of the electric tracks on its underside relatively simple, the board is convinced that the witness was in a position positively to identify exhibit A as being a sample of the soup bowls as they were actually made and sold in large numbers.

3.6 The board concludes that exhibit A is relevant prior art for the purposes of these proceedings.

The main request

4. *Novelty*

4.1 The soup bowl of exhibit A comprises a liquid vessel having a thick film printed electric heater. Its shallow inverted dome-shaped bottom forms a substantially circular support plate on which is provided an insulating layer of glass, glass—ceramic or ceramic in the form of enamel. The heating strips of the bowl are thick film resistive heating tracks made of a resistive film that constitutes the first track material. It is printed in a pattern which includes several discrete sections in the form of concentric C-shaped rings which are connected electrically in series by silver conductors, that is, by bridges of a second track material. This second track material is formed as a printed section of ink comprising a high proportion of conductive material such as silver, so that the bridge has a lower resistivity than the first track material. The arrangement of the bridge is such that a

heating track is formed as an electrically continuous path is formed that includes the resistive heating track section and the bridge. These are the features which the soup bowl and the invention as claimed in claim 1 have unquestionably in common.

4.2 Claim 1 also requires

(a) that the support plate be stainless steel and

(b) that in use failure of the track due to overheating by current crowding between said track sections be prevented by said bridge.

4.3 The requirement of paragraph (b) is in the board's view fulfilled by the track arrangement of the soup bowl inasmuch as the presence of the silver conductor tracks avoids any sharp radii - and hence the problem of current crowding - in the thick-film resistor tracks. The feature that track failure through current crowding is avoided can be considered merely as a desideratum which, moreover, cannot be shown not to have been achieved as long as the tracks do not fail in operation.

4.4 It follows that the soup bowl differs from the claimed arrangement only in that the latter requires the support plate to be of stainless steel. For this reason, the invention as claimed is new with regard to the soup bowl of exhibit A.

5. *Inventive step*

5.1 The appellant opponent submitted that the enamelled soup bowl was a liquid heating vessel in the sense of

claim 1 of the main request and that the sole distinguishing feature was the material of the support plate which according to claim 1 must be stainless steel.

5.1.1 The requirement that the support plate is stainless steel was not specified in claim 1 as granted. It was mentioned only peripherally in a single sentence of the description. It had never been presented as an important feature of the invention. No explanation was given in the description for choosing stainless steel.

5.1.2 There was also no apparent connection between the choice of stainless steel for the support plate and the problem of current crowding which, according to the contents of the description read as a whole, is the problem the claimed invention seeks to address.

5.1.3 The choice of stainless steel for the support plate could at best be seen as a solution to an unrelated problem which was not, however, discussed anywhere in the patent. A solution to an unrelated problem could not possibly confer an inventive step on the solution to a technical problem.

5.2 The respondent proprietor argued that the invention was directed to heating vessels of the kind described in the patent applications WO 96/18331 (document D27) and WO 96/17496 (document D15), that is, electric kettles, to which reference was made in the introductory part of the description. The invention as claimed was therefore not of the same kind as the soup bowl of exhibit A and on proper interpretation of claim 1 the soup bowl of exhibit A was not relevant prior art.

5.2.1 The soup bowls had heating elements to keep the liquid contained in them warm. These heating elements could not be compared with the kettles for heating water to which the claimed invention relates and for which the power used was much higher. For this reason also, current crowding would not have occurred in the case of the soup bowl.

5.3 The board is unable to subscribe to the respondent proprietor's view. There is no express limitation in the description or claims which corresponds to the respondent's argument that the invention as claimed should be seen as being limited to heating vessels as disclosed in documents D15 and D27, so that the basis for such an interpretation of the claim would be nothing more than the general reference in the description to the cited prior art documents.

5.4 The board agrees with the view expressed by the appellant opponent that there is no apparent connection between the problem of current crowding and the choice of stainless steel for the support plate. Moreover, replacing mild steel with stainless steel as support plate for use in vessels that are used to heat water appears a trivial and hence obvious choice. That this choice is obvious is confirmed by the content of the two documents D15 and D27 which are cited by the respondent proprietor in the introductory part of the description. Both these documents disclose heating vessels in which the plate providing the support for the resistive heating element is stainless steel.

5.5 It follows that the invention claimed in claim 1 of the main request does not involve an inventive step as required by Art. 56 EPC.

The auxiliary request

6. *Amendment*

6.1 Claim 1 of the auxiliary request includes additionally to all the features of claim 1 of the main request the further requirement that the arrangement of said bridge is "such that there is a single current path into the bridge from one of the track sections and out of the bridge to the other track section".

6.2 The respondent proprietor argued that this amendment was based on the drawings and was therefore permissible.

6.3 In the patent, Figures 1 to 5 show five different arrangements of heating tracks. It is the established jurisprudence of the EPO Boards of Appeal that it is permissible to introduce features from the drawings into the claim. However, features cannot be introduced if it is not derivable from the drawings that the newly introduced features can be isolated from the other features shown in the drawings (T 191/93, point 2.1, judging claims amended in a manner not fulfilling this requirement not to be directly and unambiguously derivable from the content of the application as filed).

6.4 The patent contains five different figures of drawings. Each of the Figures 1 to 5 shows a different arrangement of resistive heating tracks connected by bridges of conductive tracks, with four of the drawings

showing merely two contact terminals, and Figure 5 three. The resistive track sections and the conductive track sections shown in different drawings are of significantly different widths and arranged in different sequences of clockwise and anticlockwise resistive track sections. Conductive tracks are arranged in various ways to connect radially adjacent tracks sections or sections which are radially separated by an interposed track section, and in Figures 4 and 5 to connect a terminal to a resistive track section.

6.5 For these reasons, the board considers that the feature that the arrangement of said bridges such that there is a single current path into the bridge from one of the track sections and out of the bridge to the other track section cannot be isolated from the other features shown in the drawings.

6.6 The amendment made to arrive at the wording of claim 1 of the auxiliary request therefore contravenes Article 123(2) EPC.

7. For the foregoing reasons, the board concludes that neither of the respondent proprietor's requests comply with the requirements of the EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

Registrar Chair

S. Sánchez Chiquero R. G. O'Connell