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D E C I S I O N
of 25 November 1998

Case Number: T 0775/95 - 3.4.2

Application Number: 88301520.8

Publication Number: 0286217

IPC: H05B 3/10, H05B 3/26, H05B 3/74

Language of the proceedings: EN

Title of invention:
Thick film electrically resistive tracks

Patentee:
Strix Limited

Opponent:
Ceramaspeed Limited
E.G.O. Elektro-Geräte Banc u. Fischer

Headword:
-

Relevant legal provisions:
EPC Art. 54

Keyword:
"Novelty - no"

Decisions cited:
T 0198/84, T 0075/87, T 0017/85

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0775/95 - 3.4.2

D E C I S I O N
of the Technical Board of Appeal 3.4.2
of 25 November 1998

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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 14 July 1995 revoking European patent No. 0 286 217 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: E. Turrini
Members: R. Zottmann
V. Di Cerbo

Summary of Facts and Submissions

I. The appellant (patentee) lodged an appeal against the decision of the Opposition Division revoking the patent No. 0 286 217 granted on the basis of the application No. 88 301 520.8.

The opposition was based on the grounds of opposition laid down in Article 100(a) EPC that the subject-matter of the patent was not novel and did not involve an inventive step and on the ground of opposition laid down in Article 100(b) EPC.

The reason of the Division's decision was - among others - lack of novelty of the independents claims with respect to document

A1: GB-A-1 460 603 (corresponds to E5: DE-A-2 411 663).

Reference was also made to document

A5: P. J. Holmes, R. G. Loasby: "Handbook of Thick Film Technology", Electrochemical Publications Limited, 1976, pages 1 to 6, 10, 111, 153 to 155, 164, 192 and 198.

II. Oral proceedings were subsidiarily requested by all parties and appointed. In a communication accompanying the summons, the Board - among other points - expressed its preliminary opinion that claim 1 as granted was not novel with respect to document A1 also when taking into account the results of the experiments carried out by the appellant ("Exhibit IR 1"). The appellant informed

the Board that he did not wish to be represented at the oral proceedings and that a decision should be issued based upon the papers on file. After that, the oral proceedings were cancelled.

III. The appellant requested that the decision under appeal be set aside and that the patent be maintained as granted with the exception of column 2 of EP-B-0 286 217 of which the first sentence has been deleted.

Respondent I (opponent I) in effect requested that the appeal be dismissed.

Respondent II (opponent II) requested that the appeal be dismissed.

IV. Claim 1 reads as follows:

"1. A heating unit comprising a thick film electrically resistive track (1) of substantially constant width along its length, the track being supported on a substrate (3) of electrically insulative material, the track (1) being configured to achieve a predetermined heating profile, characterised in that the width of said track (1) lies in the range from 1.2mm to 2.1mm."

Claims 2 to 9 are dependent on claim 1.

V. The arguments of the appellant are summarized as follows:

A prior art document is novelty destroying only if the claimed subject-matter is derivable directly and unambiguously from said prior art document. Prior art document A1 makes no suggestion at all that the width of the tracks has any particular significance. The only track widths are given in the description of the two

embodiments and are 2.79 and 1.17 mm. Both lie clearly outside the claimed range. These separate embodiments may not be combined and there can be no range disclosed. Even if it is held that a combination of the two embodiments discloses such a range, then the claimed range is still novel. Decision T 75/87 states that for a sub-range to be patented, (a) the sub-range must be narrow and sufficiently far removed from the known range and examples and (b) have properties distinct from those of the known range. Test (a) as well test (b) are satisfied. As to test (b), the results of experiments of the appellant ("Exhibit IR 1") show that the claimed range provides a significant advantage over the state of the art.

VI. The arguments of respondent I are summarized as follows:

The curve of "Exhibit IR 1" is the result of unjustified extra- and interpolation. Claim 1 lacks novelty in view of A1 since the tests set out in decisions T 17/85 and T 198/84 cannot be satisfied. In particular, the range specified in claim 1 of the disputed patent fails all of them. Having regard to decision T 17/85, it is clear that the specific widths of A1 are not pointed out in a restricting way and that it is possible to derive from A1 an implied range of 1.17 to 2.79 mm.

VII. The arguments of respondent II are summarized as follows:

The results of "Exhibit IR 1" are contested. They are not convincing since important test conditions are missing. Own experiments show that there is no unexpected effect in the claimed range.

Reasons for the Decision

1. The appeal is admissible.

2. *Novelty of claim 1*

2.1 It is undisputed that prior art document A1 discloses a heating unit with all features of claim 1 except for the feature of the characterizing part (hereinafter called feature F or range F), see in A1 in particular page 1, lines 12 to 13, page 2, lines 58 to 60 and 83 to 91, page 2, line 101 to page 3, line 18, page 3 lines 81 to 106.

In particular, although A1 refers to so-called thin film strips or thin films etc., it will be instantly recognized by the skilled person from the method of deposition - as explained on page 3, lines 6 to 13, where it is said that the strips (14) are applied to the lower surface of the plate by the well-known silk-screen process and are subsequently subjected to a heat treatment to make the strips an integral part of the plate (11) - that it relates to thick film technology (see also document A5, chapter "DEVELOPMENT OF THICK FILM TECHNOLOGY", Section 1.1.1 on pages 1 and 2). This has not been contested by the appellant.

2.2 As regards the disclosure of the range of width of the tracks, the following is obvious from A1: The heating unit according to Figure 1 has 9 tracks (called strips 14) with, for example, a width w_1 = 0.110 inch = 2.79 mm, see page 2 lines 116 to 123. Moreover, it is said there: "...the number of such strips can be slightly reduced or substantially increased if found expedient or desirable to do so." A slight reduction means that at least 7 tracks are provided. The heating unit according to Figure 2 has 21 tracks (called strips

34) with, for example, a width w_2 = 0.046 inch = 1.17 mm (see page 4 lines 50 to 62). It is obvious that said number is meant by "substantially increased" mentioned in the description of Figure 1. Therefore, the lower limit of the track width for the heating units is preferably 1.17 mm. From said numbers and widths follows that w is approximately inversely proportional to the number of tracks: $w_1 \times n_1$ = 2.79 mm x 9 = 25.11 mm; $w_2 \times n_2$ = 1.17 mm x 21 = 24.57 mm; $w_i \times n_i \approx$ 25 mm. This is quite reasonable. A slight reduction of the number of tracks of the first example to at least 7 tracks means that the track width is then at the utmost ca. 3.5 mm (25 mm : 7 = 3.47 mm). A substantial increase of the number of tracks of the first example (9 strips) means that the width range extends from 2.79 mm to lower widths. Thus, the preferred range of widths of the tracks according to A1 lies between 1.17 mm and ca. 3.5 mm, the examples have widths of 1.17 and 2.79 mm.

2.3 The claimed range F of 1.2 to 2.1 mm covers ca. 40% of said preferred range of A1. According to decisions T 75/87 following the earlier decisions T 17/85 and T 198/84, for a sub-range to be patented, such a sub-range must be narrow and sufficiently far removed from a broad range illustrated by means of examples. Both conditions are not fulfilled by range F when compared with that of A1, since the known range is restricted merely moderately and the lower example is very close to the lower limit of range F.

2.4 According to the decision T 89/87, merely restricting the range of physical property - in the case of said decision the thickness of a film layer - to a sub-range within the range disclosed in the prior art does not by

itself impart novelty. The claimed sub-range should have a new effect or property which occurs only within it. In other words: the sub-range must not be an arbitrary selection from the known range, i.e. it must be purposive.

However, there is no explanation in the description of the attacked patent of such an effect or property.

As regards the experiments carried out by the appellant, the number and distribution of experimental points provided by "Exhibit IR 1" and plotted in its Figure 1 are not sufficient to establish unambiguously the course of the curve, above all in the range below 2.1 mm. Moreover, e.g. conditions of the experiments and the production of the heating unit and details of the materials and dimensions of the heating unit (and their variations to show that the alleged effect does not depend on them) are missing. Therefore, the experiments do not provide evidence that there is a particular effect in range F irrespective of the conditions of the printing process (printing equipment, mesh size, emulsion, ink rheology,...) and of the material and dimensions of the tracks and the other parts of the heating unit (substrate, overglaze, thickness of and distance between the tracks,...). Consequently, the results of the experiments of the appellant are not appropriate to show that the choice of the range is not arbitrary.

2.5 Therefore, the subject-matter of claim 1 is not novel within the meaning of Article 54 EPC.

3. Since claim 1 is not maintainable, it is not necessary to examine the dependent claims.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

P. Martorana E. Turrini