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Aktenzeichen / Case Number / N<sup>o</sup> du recours : T 132/83

Anmeldenummer / Filing No / N<sup>o</sup> de la demande : 79 300 770.9

Veröffentlichungs-Nr. / Publication No / N<sup>o</sup> de la publication : 5 370

Bezeichnung der Erfindung: Electrical connector  
Title of invention:  
Titre de l'invention :

Klassifikation / Classification / Classement : H 01 R 13/20

**ENTSCHEIDUNG / DECISION**

vom / of / du 1 October 1987

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /  
Titulaire du brevet : BICC plc;  
Burndy Corp.

Einsprechender / Opponent / Opposant : AMP Inc.

Stichwort / Headword / Référence :

EPO / EPC / CBE Articles 52(1), 54, 56, 102(3); Rule 58(4)

Kenwort / Keyword / Mot clé : "Novelty (yes)"; "Inventive step (yes)";  
"Information and invitation pursuant to  
Rule 58(4) EPC (no)"

**Leitsatz / Headnote / Sommaire**

Europäisches  
Patentamt

Beschwerdekammern

European Patent  
Office

Boards of Appeal

Office européen  
des brevets

Chambres de recours



Case Number : T 132/83

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.1  
of 1 October 1987

**Appellants :**  
(Proprietor of the patent) BICC Public Limited Company  
21, Bloomsbury Street  
London, WC1B 3QN  
GB

Burndy Corporation  
Richards Avenue  
Norwalk Connecticut 06856  
US

**Representative :**  
Poole, Michael John  
BICC plc Patents Department  
38 Ariel Way  
Wood Lane  
London W12 7DX  
GB

**Respondent :**  
(Opponent) AMP Incorporated  
Harrisburg, Pennsylvania  
US

**Representative :**  
Gray, Robin Oliver  
BARON & WARREN  
18 South End  
Kensington  
London W8 5BU  
GB

**Decision under appeal :** Decision of Opposition Division of the European  
Patent Office dated 16 June 1983 revoking  
European patent No. 005 370 pursuant to  
Article 102(1) EPC.

**Composition of the Board :**

**Chairman :** P.K.J. Van den Berg  
**Members :** W.B. Oettinger  
F. Benussi

## Summary of Facts and Submissions

- I. European patent No. 5 370 was granted on patent application No. 79 300 770.9 received on 4 May 1979 claiming a priority of 8 May 1978. The mention of the grant was published on 9 September 1981.

Following an admissible opposition, which was filed on 24 May 1982, the Opposition Division of the European Patent Office revoked the patent by a decision, dispatched on 16 June 1983, pursuant to Article 102(1) EPC.

- II. The reasons given for the revocation were that:

1. the subject-matter of Claim 1 as granted was not novel against US-A-3 796 987;
2. no auxiliary request, in particular an amended version of Claim 1, has been submitted.

No fully considered view was taken regarding the opponent's submission that Claims 2 and 3 as patented lacked an inventive step having regard to the following additional citations:

GB-A-1 463 751

US-A-2 794 963

US-A-1 531 816.

Prima facie, however, such arguments submitted by the opponent appeared, to the Opposition Division, adequately countered by those of the proprietors of the patent.

- III. The patentees filed an appeal against that decision, requesting its cancellation, on 18 July 1983 and paid the appeal fee on 25 July 1983.

A Statement of Grounds of Appeal was filed on 1 October 1983 accompanied by an amended set of claims and an auxiliary request comprising another set of claims.

- IV. In response to the Respondent's observations filed on 2 February 1984, 15 June 1985, 14 March 1986 and 10 January 1987, and to communications issued, for the Board, by the Rapporteur on 5 August 1985, 15 January 1986, 8 July 1986 and 9 March 1987, the Appellants repeatedly amended their claims and auxiliary requests and restricted their requests eventually, during oral proceedings held on 5 May 1987, to the maintenance of the patent on the basis of Claims 1 and 2 filed on 27 October 1986 and of a corresponding amendment of the description as filed on 13 April 1987.

Claim 1 reads as follows:

"A two part electrical coupling comprising an electrical connector (2) and terminal (7), the connector comprising an electric contact (3) including a base and two arms (6), the tops of which are folded over to form a channel with the base, the contact (3) being engageable with the terminal (7) by moving the connector in a forward direction, such that the terminal (7) is received in the channel and confined between the base and the folded over portions of the arms (6), and a resilient cantilever finger (8) integral with and permanently attached to the electric contact (3) and having a rear facing shoulder (14) for latching engagement with an oppositely facing preformed rigid shoulder (15) on the terminal (7), the free end of the finger having an extension (12) for

engagement for unlatching the connector from the terminal by flexing the finger to release the latching engagement, and a housing (16) having a formation (17) so shaped that when the housing moves in the rearward direction with respect to the contact the formation will engage the extension of the finger to release the latching engagement, allowing the connector to be removed from the terminal, characterised in that the cantilever finger (8) projects forwardly between the folded over portions of the arms (6) such that they contact the terminal (7) when it is received in the channel, and the cantilever finger (8) and the folded over portions of the arms (6) both urge the terminal (7) towards the base of the contact (3)."

Claim 2 is dependent upon Claim 1 and further specifies the shaping of the cantilever finger.

V. The respondent upheld in his submissions the view that the subject-matter of even this claim was obvious to a person skilled in the art, and requests the rejection of the appeal.

VI. In support of Claim 1, the Appellants essentially argued in their written submissions, during the oral proceedings, and in their final comments filed on 3 September 1987 in response to the Board's invitation in the oral proceedings, that it takes a number of steps from the prior art before arriving at the claimed invention and that even if none of these steps taken alone is by itself complicated to achieve, at least their combination is unobvious and leads to a coupling of optimum construction.

VII. The respondent argued, with regard to Claim 1, in his written submissions, during the oral proceedings, and in his final comments filed on 5 July 1987 in response to the Board's invitation, essentially as follows:

It has been established during the appeal procedure, and apparently accepted by the Appellants, that a coupling according to preceding claims lacked an inventive step.

The additional features of Claim 1 now on file are matters self-evident to a person skilled in the art.

VIII. In support of their submissions, the Appellants referred to affidavits filed by a co-inventor, Mr N. Warburton, and by a further employee of a subsidiary of the Appellants and former employee of the respondent, Mr J.C. Collier, who also attended, and was heard at, the oral proceedings before the Board of Appeal.

In his turn, the respondent relied on affidavits filed by a professor at the Massachusetts Institute of Technology, Mr E.E. Blanco, in the matter of an Italian patent corresponding to the cited GB document before the Court of Turin, Italy, and by an employee of the respondent and inventor in said GB citation, Mr. R.J. Simmons.

Reference was further made, by the Appellant, to developments of the art documented by GB-A-1 531 033 published only after the priority date of the present patent, and by EP-A-68 698 and 127 195, also not prior art.

In support of their case, the Appellants additionally referred to several decisions of Boards of Appeal, in particular T 24/81 (OJ 4/1983, 133), T 113/82 (OJ 1/1984, 10), T 161/82 (OJ 11/1984, 551), T 2/83 (OJ 6/1984, 265), and T 169/83 (OJ 7/1985, 193).

#### Reasons for the Decision

1. The appeal complies with Articles 106-108 and Rule 64 EPC and is, therefore, admissible.
2. No formal objection arises against the documents on file.
  - 2.1 The subject-matter of Claim 1 is clearly disclosed in the original application documents and this claim therefore meets the requirement of Article 123(2) EPC.

This applies even to the feature that the contact cantilever finger (8) projects "between" the folded over arm portions (6), i.e. that it is smaller than the gap between them. This feature is disclosed in Figure 2 showing, according to the description, a cross-sectional view of a coupling in accordance with the invention.

For disclosure it is not necessary that this feature is explicitly described in the original specification as having a particular significance. It suffices that it can be clearly and unambiguously derived, albeit only from the drawing, as being a feature of an embodiment of the invention.

- 2.2 Claim 1 clearly restricts the subject-matter of Claim 1 as patented by additional features and does not, therefore, extend the protection conferred. Consequently, it complies also with Article 123(3) EPC.

3. The novelty of the subject-matter of Claim 1 in the sense of Article 54 EPC is not disputed by the respondent. It is clearly given, and this statement requires no further reasoning.
4. Given that in this situation the reason for the decision under appeal has been removed, the Board has, of course, considered remitting the case, within its discretion under Article 111(1), second sentence, EPC, to the first instance for further prosecution, in particular examination as to inventive step, without giving its own opinion on that issue.

It has, however, decided not to execute this discretion in view of the fact that the Opposition Division made it clear in its decision that it considered an even less restricted Claim 1 as hardly objectionable under Article 56 EPC, whence it can be derived that it would consider the subject-matter of present, even more restricted, Claim 1 as patentable.

5. In respect of inventive step, the Board has, after careful consideration of all relevant facts and submissions, come to the conclusion that the subject-matter of Claim 1 is unobvious.
- 5.1 Although it is considered obvious to combine the teachings of some of the prior art documents in the sense that the skilled person would consider applying features known from one or more documents in a coupling known from another one and also applying in this transfer of features his general knowledge, this would not seem to result in a coupling as now claimed.



5.2 More particularly, in the opinion of the Board, it would well be obvious to the skilled person seeking to improve the coupling of US-A-2 794 963 in respect of its latching/unlatching properties, to apply the teaching of GB-A-1 463 751 in this respect by shaping the detent catch (39 in US) correspondingly (6 in GB) and construct a housing for the US connector (13) with a sloping surface (principally similar to 24 in GB, but inverted) allowing the lifting of the end of the tongue (115 in US). The engagement (at 121) of the tongue with the folded over legs (119) would not be a principle obstacle for such an application of features, but only a relative one which might be overcome by mere adjustment of the connector parts.

5.3 It would not, however, follow from any one of these two documents, or from any of the others cited in this procedure, as obvious that the skilled person could, and should, dimension the cantilever finger principally smaller than the gap between the folded over arms portions so that it can freely be pushed upwards between these arms portions, without being pressed against them, by the inserted terminal. The skilled person certainly would not do so in view of the cited prior art.

5.4 Although the possibly different kind of application of contact force in the claimed coupling might be of relevance for its performance when compared with the prior art couplings, this is not really a deciding factor in the reasoning given in paragraph 5.3 above.

It suffices to state that the claimed coupling allows to apply independent contact forces by the folded over arms portions and by the cantilever finger. This is not so in US-A-2 794 963 and it would not be so if, as pointed out above, the teaching of GB-A-1 463 751, as far as the

latching/unlatching features are concerned, is applied to the US coupling.

- 5.5 It is not so clear that it would be equally obvious to apply, in reversal of the argumentation at paragraph 5.2 above, the teaching of US-A-2 794 963, with its forwardly projecting finger, to the coupling of GB-A-1 463 751.

Such application would appear somewhat unmotivated and this would seem to be confirmed by the submission that even the later GB-A-1 531 033 adhered to a rearwardly projecting finger.

- 5.6 However this may be, the most natural result of a skilled person's attempt to apply a forwardly projecting finger (as in US-A-2 794 963) in the coupling of GB-A-1 463 751, would not seem to be the coupling as claimed.

It would appear to consist in a coupling of generally the construction of Figure 3 of the GB citation only modified in that the finger is linked on the right hand side and its free end extends to the left hand side, with a sloping surface (similar to 24) of the housing (17) being formed in the region of the (left hand sided) end of the finger. The terminal (11) would still have to be inserted above, and not, as in the claimed coupling, below the finger, and the latter would not project between the folded over arms portions.

It would be correct to state that the connector of the claimed coupling is insofar equivalent to this allegedly obvious connector as contact force is independently applied by the folded over arms portions and by the cantilever finger. However, it appears directly from the GB citation that the arms portion (3) would apply contact

force from above, and the cantilever finger (4) from below, and that this results in a subtraction of forces on the flange edges (10) of the base (1) and not, as in the claimed invention, in their addition.

5.7 The Board has reviewed the arguments submitted in support of the respondent's allegation of lack of inventive step and which would be apt of refuting the above developed view of the Board. Such counter-arguments have not, however, been found, as will be shown as follows:

5.7.1 Most of the respondent's earlier submissions, including those contained in Professor Blanco's affidavit, were not directed against a claim restricted, as the present Claim 1, by the feature of the cantilever finger projecting between the folded over arms portions. Insofar as these submissions do not contain an argument related to this feature, they need not be dealt with in detail.

5.7.2 It is observed that where Professor Blanco gives his opinion that a "Burndy" coupling is easily obtained when combining different prior art, he does not specifically deal with the aforementioned feature of the cantilever finger projecting between the folded over arms portions. On page 23, first paragraph, he cites several features of the "Burndy" product but not the one mentioned above.

By referring to "the separate and independent electrical and mechanical functions of '727" he did refer to couplings of the kind as in GB-A-1 463 751 (and in later GB-A-1 531 033) where the cantilever finger applies its contact force, if any, independently of the folded over arms portion. However, from this alone it cannot be concluded that the skilled person, when combining this (GB) prior art with the (US) prior art using a forwardly projecting cantilever finger in either of the allegedly

obvious ways set forth at paragraphs 5.2 and 5.5 above, would additionally modify the cantilever finger in the claimed way, so as to achieve the new result that the contact forces independently applied by the folded over arms portions and by the cantilever finger are added and not subtracted (cf. paragraph 5.6).

- 5.7.3 In respect of this latter feature of the claimed coupling it appears that no other argument against the above view than the contention that it is self-evident has been brought in by the respondent.

This contention of self-evidence cannot, however, be accepted for the reason that neither the obvious combination dealt with at paragraph 5.2 above would lead to this feature nor the allegedly obvious combination dealt with at paragraph 5.5 above (cf. paragraphs 5.3 and 5.6).

- 5.7.4 The fact that this feature was not explicitly described in the original specification may be regarded as an indication of the Appellants' original personal view on the possible importance, or non-importance, of this feature in later procedures, but not as an objective proof for obviousness based on the prior art.

- 5.7.5 No such proof can, further, be seen in any reservations the Board expressed in respect of claims which have been abandoned, or in any temporary lack of appreciation of the degree of significance of the cantilever finger for contact force.

- 5.7.6 In view of the above, the opinion which Mr Simmons expressed in his affidavit appears to be an unsupported assertion. His submission that the only difference of the present claim from an earlier one (C, last filed on

10 March 1986) was commonly known and self-evident to him, was not accompanied by any documentation in respect of this difference. It is noted that this difference relates to the specific feature that the cantilever finger projects between the folded over arms portions. The fact that he might have rejected possibilities which he alleges corresponded to the claimed invention and which he found obvious, does not therefore constitute proof of obviousness of the application of this feature in a coupling having all the other features of Claim 1.

- 5.8 For these reasons the Board concludes that Claim 1 meets the requirement that its subject-matter involves an inventive step in the sense of Article 56 EPC and is, therefore, patentable within the terms of Article 52(1) EPC.

Maintenance of the patent on the basis of such an independent claim is, therefore, required.

6. No objection arises, in this circumstance, against any of the patent documents on file except for clerical errors in Claim 2 and the description.
7. It has been decided by other Boards of Appeal that after oral proceedings in connection with an opposition the parties must be informed and invited to state their observations concerning the maintenance of the European patent in the amended form within a period of one month in accordance with Rule 58(4) EPC only if they cannot reasonably be expected to do so definitely during the oral proceedings (T 219/83, OJ 7/86, 211; T 185/84, OJ 11/86, 373). The Board agrees with this legal opinion.

In the present case, the Board informed, after an intermediate deliberation during the oral proceedings, the parties of its provisional view that the patent might be maintainable on the basis of the present claims, and invited the parties to state their relevant observations, which they did. Moreover, the parties were given the opportunity to file final observations in this respect within a period of two months (for the respondent) or four months (for the Appellant in reply to the respondent's observations). In this circumstance, the condition under which a further, formal, information and invitation pursuant to Rule 58(4) EPC is dispensable, is clearly fulfilled.

Apart from the requirement under its item b), all the other requirements of Article 102(3) EPC being fulfilled, a decision in conjunction with Rule 66(1) EPC can now be taken.

#### Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Opposition Division with the order to maintain the European patent in suit as amended in the following form:

Description pages 1, 2 and 2a filed on 13 April 1987  
(version corresponding to the claim set E3 filed on  
27 October 1986) under correction of the clerical errors  
in lines 18 and 21 of page 2a;  
Description column 2, line 14 to column 3, line 11 as  
published under correction of a clerical error in line 34

of column 2, and of the reference numeral 20 into 10 at line 39 of the same column;

Claims 1 and 2 filed on 27 October 1986 under correction of the reference numeral 1 into 10 in the fourth line of Claim 2;

Drawings, 1 sheet, as published;  
with the proviso that the communication under Rule 58(4) EPC is to be omitted but only after the requirement of Article 102(3)(b) has been fulfilled.

The Registrar

The Chairman

F. Klein

P.K.J. Van den Berg